

The Roles of Personal Relevance, Anxiety, and Source Medium in Understanding

Belief and Transmission of Rumors in the News

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## Dedication

To the memory of my grandfathers, Samuel Weeks and Duane Herren, and to my grandmothers, Pearl Weeks and Doris Herren. Their lives of hard work and personal sacrifices allowed me to follow my interests and pursue my dreams.

## Abstract

This thesis extends social-psychological theories of rumor belief and transmission to the study of mass communication. In particular, this study uses a mixed-design experiment with a sample of 90 college students to 1) compare the effects of television and newspaper coverage on believability and intended transmission of two prominent rumors; and 2) assess the role of personal relevance (high vs. low) in determining rumor effects. In addition, four OLS regression models explored the impact of anxiety, personal relevance, and uncertainty on rumor belief and transmission. Results provide some support for the hypothesis that rumors reported on television are more believable and are more likely to be transmitted than rumors reported in newspapers. Evidence also points to personal relevance as an important factor as the highly relevant rumor created more anxiety and intention to transmit than did the low-relevance rumor. Additionally, personal relevance was found to be the only significant predictor of intended rumor transmission. Perhaps most importantly, findings here indicate that people are willing to transmit rumors that they do not believe. Results and implications are discussed in the context of rumors reported in the news.

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## Chapter 1: Introduction and Literature Review

Rumors have long been a problem for organized communication campaign efforts (Southwell & Yzer, 2007). Public relations, political, and health campaigns have all been impacted by the spread of rumors. For example, during World War II rumors regarding the status of the war were abundant in the media, forcing the United States government to implement “rumor clinics” to counter the misinformation (Faye, 2007). During the 2008 presidential campaign, Barack Obama was forced to combat the rumor that he was Muslim (Garrett, 2010; Weeks & Southwell, in press). Rumors regarding severe acute respiratory syndrome (SARS) in China spread quickly, devastating health campaign efforts to provide accurate information about the virus (Ma, 2008; Richardson, 2005).

Rumors can affect these communication campaigns by hindering the flow of accurate information and allowing misinformation to disseminate (Southwell & Yzer, 2007). Especially in times of uncertainty, rumors are likely to arise and potentially disrupt campaign efforts (Fine, 2005). While many rumors are spread through interpersonal channels such as face-to-face conversations, the mass media have become another important source of rumors. The mass media have the ability to reach incredibly large audiences, which can aid in rumor dissemination. Additionally, with the introduction of the Internet, rumors can now be diffused more quickly to a wider audience (Bordia & Difonzo, 2004).

Despite the significant impact rumors can have in our society, we know surprisingly little about the role the media play in producing rumor belief and facilitating rumor transmission. In light of the paucity of research, this thesis

seeks to accomplish three goals. First, it moves to extend the study of rumors beyond its traditional home in social psychology and examine this phenomenon in a mass communication context. Second, this work intends to help better understand the processes that lead to rumor belief and transmission, looking specifically at the role of personal relevance. Finally, this thesis investigates whether the medium matters in rumor belief and transmission. Using an experimental design, this study compares the effects of different media channels on believability and intended transmission of two prominent rumors. Specifically, I explore differences in how people process rumor information, their level of belief, and their intention to share the rumor depending on whether it was received from television news or newspapers.

#### *Rumor Definition, Contexts, and Functions*

Before examining the effects of rumor, we must first have an understanding of what exactly constitutes a rumor. The literature in social psychology offers multiple definitions of rumor. Allport and Postman (1947) provide one of the early definitions when they stated that a rumor is “a specific (or topical) proposition for belief, passed along from person to person, usually by word-of-mouth, without secure standards of evidence being present” (p. ix). Rosnow and Kimmel (2000) described a rumor as an “unverified proposition for beliefs that bears topical relevance for persons actively involved in its dissemination” (p. 122). More recently, DiFonzo and Bordia (2007) defined rumors as “unverified and instrumentally relevant information statements in circulation that arise in contexts of ambiguity, danger, or potential threat and that

function to help people make sense and manage risk” (p. 13). While these and other definitions of rumor vary in their precise wording, there are certain characteristics that are consistent throughout each of the definitions: a rumor is a personally relevant story or statement that is circulated without confirmation of facts. Rumors are public, carry a degree of uncertainty regarding their truthfulness, and reflect people’s beliefs about how society works (Kimmel, 2004).

A key element to rumors is the role of ambiguity or uncertainty. As DiFonzo and Bordia (2007) note, ambiguous situations occur when people are unsure about the meaning or significance of events or when the outcome of events is not certain. When faced with uncertain situations, people are motivated to gain some sense of understanding (Fiske, 2004). One way people make sense of their surroundings is to participate in rumor discussion (DiFonzo & Bordia, 2007). Rumors provide members of a group an explanation for confusing events, thus reducing levels of uncertainty and ambiguity (DiFonzo & Bordia, 1998).

Not only do rumors help reduce group and individual uncertainty; they also help people manage threats to their life, health, welfare, or self-image (DiFonzo & Bordia, 2007). For example, rumors have flourished in threatening situations such as natural disasters (Prasad, 1935), nuclear accidents (Peters, Albrecht, Hennen, & Stegelmann, 1990) viral pandemics (Ma, 2008; Richardson, 2005), and product contaminations (Kimmel, 2004). In situations marked by threat, rumors again help people gain a sense of control and prepare them to face the situation (DiFonzo & Bordia, 2007).

Rumors must also be distinguished from news. Rumors are unverified statements that are personally relevant to individuals. While some rumors are in fact true, they remain rumors because there is a lack of evidence confirming their veracity. News, on the other hand, is based in fact and the details are always confirmed (Shibutani, 1966). As Kimmel (2004) points out, the line between news and rumors has become increasingly blurred. The 24-hour news cycle has led to stories being reported more quickly, without proper fact checking. As a result, there are more unconfirmed stories being reported as fact, or news, when they are really rumors (Kimmel, 2004).

Rumors are also distinct from gossip. Gossip is informal small talk, is speculative, and is always about people. Gossip also may or may not be verified, which differentiates it from rumor (Kimmel, 2004). Whereas rumor is intended to reduce uncertainty or help people maintain threats, gossip's primary functions are to entertain, establish group norms, and maintain group cohesiveness (DiFonzo & Bordia, 2007).

#### *Why Rumors are Important*

It is necessary to understand the dynamics of rumor belief and transmission as rumors have been shown to produce dramatic effects on people's attitudes and behaviors. The impact of rumors has been documented in several different contexts. In times of crisis, rumors have been shown to cripple formal communication efforts, thus preventing the public's receipt of accurate information. For example, rumors following a major earthquake in India led to widespread panic among the public (Prasad, 1935). Rumors during wartime have

impacted both the public's view of the war and soldiers' morale (Allport & Postman, 1947; Kelley, 2004). Rumors have also been shown to exacerbate racial oppression and conflict (Allport & Postman, 1947; Fine & Turner, 2001; Turner, 1993). In the political realm, rumors have influenced the public's view of candidates, thus potentially affecting democratic outcomes (Garrett, 2010; Weeks & Southwell, in press; West, 2003). Contamination rumors, in which a certain product is rumored to be tainted, have been shown to impact businesses profits. In a well-reported example from the 1970s and 80s, McDonald's hamburgers were rumored to have been made from worm meat, which led to major drops in sales for the company (Koenig, 1985). Kapferer (1989) documented a mass poisoning rumor in Europe that was persistent for ten years and claimed that certain consumer products caused cancer. Finally, public health officials have faced rumors surrounding pandemics (Ma, 2008; Richardson, 2005), HIV and AIDS (Kimmel & Keefer, 1991) and ineffective medicines (DeClerque, Tsui, Abul-Ata, & Barcelona, 1986). All of these examples suggest that rumors can influence attitudes, opinions, and behaviors and are thus an important area of study.

#### *Psychological Factors in Rumor Belief and Transmission*

Work in social psychology suggests that human behavior is driven by three motivational goals. Specifically, people's actions are motivated by their desire to 1) develop accurate perceptions of reality; 2) create and maintain meaningful social relationships; and 3) maintain a positive self-concept (Cialdini & Trost, 1998; Cialdini & Goldstein, 2004; Wood, 1999). From these basic motivational goals, Bordia and DiFonzo (2005) identify three specific

psychological factors that drive rumor belief and transmission: fact-finding, relationship building, and self-enhancement.

Fact-finding is driven by our motivational goal to develop and maintain accurate perceptions of reality. Humans have a need for control and understanding (Bandura, 2001; Fiske, 2003). When we are uncertain about a situation or feel as though we have lost control, we will seek out accurate information that helps us effectively respond to the situation. Participating in rumor propagation is one way in which we attempt to regain control and find accurate information (DiFonzo & Bordia, 2007).

Our motivation to build relationships influences our interpersonal relationships and aids in the spread of rumors. People want others to hold favorable impressions of them and will work to maintain those impressions. One way to accomplish this is to only transmit information that reflects positively on the self and negatively on others. Rumors are one way to accomplish this. Evidence suggests that people are much more likely to spread positive rumors about one's self or in-group, as well as negative rumors about an out-group (Kamins, Folkes, & Perner, 1997; Rosnow, 2001).

Finally, self-enhancement motivations contribute to rumor belief and transmission by leading people to accept information that is favorable to the self. People want to feel good about themselves and will behave in ways that boost self-esteem (Kunda, 1999). People will accept rumors that help them maintain a positive self-image while rejecting those that threaten the self (Bordia & DiFonzo, 2005). This can lead to the acceptance of rumors that are favorable to one's in-

group and degrade the out-group (Allport & Postman, 1947). While all three of these motivations can play a vital role in rumor acceptance and transmission, the fact-finding motivation is of particular importance to the present study and warrants further discussion.

*Fact-finding motivations and rumor belief and spread.* Much of humans' social behavior is motivated by their need to understand their surroundings (Cialdini & Goldstein, 2004). This desire for accurate information has important implications for rumor belief and transmission. Prior work on rumors suggests that rumors are strongly associated with personal relevance and uncertainty (Fine, 2005; Rosnow & Fine, 1976; Rosnow, 1980), lack of control (DiFonzo & Bordia, 2007), and anxiety (Prasad, 1935; Rosnow, 1991). Each of these variables enhances people's motivations to seek accurate information and regain control in their environment.

Before a rumor can be believed or spread, it must first bear some personal importance for an individual. For example, a rumor about a contagious disease in a small Chinese village would be of little interest to someone living in the rural Midwestern United States. Without some degree of personal relevance, the rumor is unlikely to be believed or talked about. Empirical evidence supports this claim. Numerous studies have demonstrated that the more personally relevant or important a rumor is, the more likely it is believed (DiFonzo & Bordia, 2000; Kimmel & Keefer, 1991; Rosnow, Esposito, & Gibney, 1988).

Once relevance has been established, the role of uncertainty must also be examined. According to Hogg and Abrams (1993), uncertainty is a negative

affective state that signifies a loss of control over one's life. Feelings of uncertainty motivate human behavior to reduce that uncertainty (Fiske & Taylor, 1991; Hogg & Abrams, 1993). Rumors can be both the cause and result of uncertainty. For example, as Bordia et al. (2006) note, rumors of potential layoffs in the workplace can lead to stress, feelings of a lack of control, and anxiety among employees. On the other hand, rumors are likely to flourish when the facts surrounding a situation are uncertain (Fine, 2005; Rosnow & Fine, 1976; Rosnow, 1980). If people are uncertain about a situation but do not receive enough information from trusted sources such as the news media, they will look to more informal sources to try and reduce their uncertainty. This turn to informal sources breeds rumor belief and transmission because people are willing to accept plausible alternative explanations that help reduce their uncertainty, even if the veracity of those explanations has not been confirmed (DiFonzo & Bordia, 2007).

The final fact finding motivational variable is anxiety. Anxiety surrounding rumors is defined as “an affective state-acute or chronic-that is produced by, or associated with, apprehension about an impending, potentially disappointing outcome” (Rosnow, 1991, p. 487). When faced with uncertain situations people are motivated to reduce their anxiety and regain control of their surroundings. Rumors can help accomplish this by providing people coping mechanisms such as lowered expectations or alternative explanations of events (DiFinzo & Bordia, 2007; Kimmel, 2004; Shibutani, 1966).

Early rumor research highlighted that emotionally disturbing or fear-arousing events created anxiety that subsequently contributed to rumor



transmission (Prasad, 1935). More recent research has supported this early notion (Naughton, 1996; Turner, 1992). Rumors that increase anxiety and fear are especially difficult to combat. For example, Pezzo and Beckstead (2006) found that high anxiety rumors are the most likely to be believed. In a meta-analysis, Rosnow (1991) found that of all rumor-related variables, anxiety was the strongest predictor of rumor transmission. Anxiety has also been shown to moderate the effect of belief on transmission. That is, extremely high anxiety will likely result in rumor transmission, regardless of the level of belief. When anxiety is low, even strong belief may not spur transmission (Rosnow, Esposito, & Gibney, 1988).

Belief plays an interesting role in the rumor equation as both a response and, at times, predictor variable. As a dependent variable, belief in rumors is influenced by several factors. First, rumors are more likely to be believed if they are consistent with the recipient's currently held attitudes (DiFonzo & Bordia, 2007). Scholars have suggested this occurs because people are biased processors of information. That is, people are more willing to accept attitude congruent information than attitude incongruent information (Lord, Ross, & Lepper, 1979; Taber & Lodge, 2006). According to Chaiken, Giner-Sorolla, & Chen (1996), this biased processing is a result of people's defensive motivations; people want to have attitudes and beliefs that are consistent with their prior world view. When those attitudes and beliefs are threatened, one's defensive motivation will kick in and process new information in a way that keeps the self-identity intact. Empirical evidence supports this idea. For example, Southwell (2001) reported that

increased personal relevance (i.e. prior drug use) predicted a decrease in adolescents' ratings of antidrug public service announcements. Similarly, Fishchle (2000) found that people's prior attitudes about President Bill Clinton strongly influenced whether or not they believed allegations about his affair with Monica Lewinsky.

The second factor that affects rumor belief is source credibility. Early research investigating the relationship between source credibility and the persuasiveness of a message found that highly credible sources were more persuasive (Hovland & Weiss, 1951). These findings have been extended to rumor research; rumors that come from sources that the receiver deem as credible and authoritative are more likely to be believed (Fragale & Health, 2004; Kapferer, 1989; Koenig, 1985).

Rumor belief can also be impacted by repetition; the more a rumor is repeated the more likely it is to be believed (Hasher, Goldstein, & Toppino, 1977; Hawkins, Hoch, & Myers (2001). Finally, rumor refutations can impact belief. Work by DiFonzo, Bordia and colleagues (1998, 2005) found that appropriate and high credibility rebuttals decrease the chances that the rumor will be believed. Similarly, Einwiller and Kamins (2008) found that strong refutations were more effective than weak ones for people who initially had a neutral attitude toward the rumor.

The effects of belief on transmission are mixed, however. Rosnow, Yost, and Esposito (1986) found that people are more likely to transmit a rumor they believe to be true than a rumor they believe is false. Rosnow's (1991) meta-

analysis found that rumor belief maintained a moderate relationship with transmission. In their experimental work, Jaeger, Anthony, & Rosnow (1980) manipulated believability and found that increased belief resulted in more transmission. Similarly, Pezzo and Beckstead (2006) found a main effect of belief on transmission. However, other scholars' work suggests belief is not an important component of transmission. For example, Esposito (1987) found that rumor belief did not predict transmission. The effects of belief have also been shown to be moderated by anxiety (Rosnow, Esposito, & Gibney, 1988) and uncertainty (Kimmel & Keefer, 1991). Thus, there is mixed evidence regarding the role of belief on transmission

The preceding discussion has summarized the factors contributing to the fact-finding motivations of rumor belief and transmission. In summary, prior rumor literature indicates that there are four key variables that can impact the transmission of rumors: personal relevance, uncertainty, anxiety, and belief. Additionally, this work suggests that rumor belief may also be a function of personal relevance, uncertainty, and anxiety. Based on this prior work, I propose the following hypotheses and research question.

H1: Personal relevance of a rumor will be positively related to belief of that rumor, independent of medium.

H2: Personal relevance of a rumor will be positively related to intended transmission of that rumor, independent of medium.

H3: Uncertainty surrounding a rumor will be positively related to belief of that rumor, independent of medium.

H4: Uncertainty surrounding a rumor will be positively related to intended transmission of that rumor, independent of medium.

H5: Anxiety about a rumor topic will be positively related to belief of that rumor, independent of medium.

H6: Anxiety about a rumor topic will be positively related to intended transmission of that rumor, independent of medium.

RQ1: Is belief in a rumor positively related to intended transmission of the rumor, independent of medium?

The literature also suggests that a rumor must be personally relevant before it can be believed or transmitted (DiFonzo & Bordia, 2000; Kimmel & Keefer, 1991; Rosnow, Esposito, & Gibney, 1988). It stands to reason that a relevant rumor would therefore produce more anxiety, rumor belief, and intended transmission than an irrelevant rumor. Based on this prior work, I propose the following hypotheses.

H7: A personally relevant rumor will create more anxiety than a non-relevant rumor, independent of medium.

H8: A personally relevant rumor will be more believable than a non-relevant rumor, independent of medium.

H9: A personally relevant rumor will produce greater transmission intention than a non-relevant rumor, independent of medium.

Having explored the social-psychological processes and effects of rumors, I now turn to the role of mass communication in rumor spread.

*Rumors and Mass Communication*

Rumors were traditionally spread through interpersonal channels such as face-to-face conversations (Fine, 2005). However, mass communication has now changed the way rumors are disseminated. The mass media have become a critical component in the belief and transmission of rumors. As Kimmel (2004) notes, rumors are now often portrayed as front-page “news.” That is, news outlets frequently cite anonymous sources who provide the public “facts” about newsworthy events. This information is often not factual but rather unverified hearsay. The public, however, perceives much of this information to be true because the media is generally seen as reliable and credible (Kimmel, 2004). Therefore, it becomes increasingly difficult for people to distinguish between what is true and what is rumor.

According to Kimmel (2004), there are four ways in which the media can play a role in rumor dissemination. The media can be rumor conduits, rumor instigators, rumor catalysts, and rumor combaters. Each of these roles has a unique impact on the belief and transmission of rumors. When the media act as rumor conduits, they provide a channel for rumor spread. For example, when a rumor arises and the media provide coverage of the events, they are providing a platform for rumor dissemination. As a rumor instigator, the media can be the source or the creator of a rumor. For example, the pervasive rumor during the 2008 presidential campaign that Barack Obama was secretly Muslim first appeared on an Internet columnist’s website (Rutenberg, 2008). When acting as a rumor catalyst, the media can fan the flames of a rumor and intensify its spread. By discussing a rumor, the media can give it legitimacy, make it more personally

important to the audience, and cloud the details surrounding the rumor. These news stories can create a feedback loop for rumor spread; that is, rumors contribute to a situation and the situation then contributes to more rumors. As Kimmel (2004) notes, television is especially likely to create this feedback loop as small aspects of events can become overblown and more believable for viewers who lack the intellectual capabilities to fight rumors.

Finally, the media can act as rumor combaters. The media can disprove rumors and help explain the facts about situations. For example, much of the media coverage of the Obama/Muslim rumor involved attempts to dispel the rumor, especially in newspapers (Weeks & Southwell, in press). However, even when the media are combating a rumor, it is possible that they are actually acting as a conduit or catalyst. By discussing the rumor, even if they are attempting to fight it, the media might be providing the rumor legitimacy and credulity.

The media are also important to rumor transmission because they can spread a rumor very quickly to millions of people at a time. In particular, national television news broadcasts are able to reach large audiences at one time, thus having potential to increase rumor dissemination. Additionally, the Internet has a unique ability to spread rumors at an unprecedented pace (Bordia & DiFonzo, 2004; Ma, 2008). People can now access any information from virtually anywhere in the world, potentially increasing their exposure to rumors. Additionally, the public can now quickly search on-line for more information about a rumor (Garrett, 2010; Weeks & Southwell, in press).

Despite the potential for mass media to be a major factor in rumor belief and transmission, very little research has explored the processes or effects of rumors in the news. Much of the work that has been done has focused less on rumors and more on the larger concept of misinformation (Ayres, 1999; Katz, 1998). Misinformation in the media is defined as content that is incorrect, inaccurate, or misleading, either intentionally or unintentionally (Sullivan & Weeks, 2009). Research in this area has explored how misinformation in the news has impacted public opinion, collective preferences, and democratic outcomes (e.g. Hofstetter et al., 1999; Kuklinski et al., 2000). For example, there have been several recent articles documenting the role the mainstream media played in the public's belief that there were weapons of mass destruction in Iraq (Arsenault & Castells, 2006; Kull, Ramsey & Lewis, 2003; Lewandowsky et al., 2005). Other studies in this line of research have explored media effects on knowledge about important issues. Jerit and Barabas (2006), for example, were able to demonstrate that misleading information in the news resulted in much of the public getting important facts about social security wrong.

While much research has focused on the umbrella topic of misinformation in the news, less work has been done looking specifically at the impact of rumors in the media. Some of the rumor work that has been done has focused strictly on the content of news, rather than its effects. For example, Lasorsa's (2003) content analysis found that the mainstream media propagated few rumors following the 9/11 terrorist attacks. Content analysis of news coverage of the rumor that Hillary Clinton was a lesbian indicated that the media was similarly responsible in that

they offered rebuttals to the rumor (West, 2003). While the generalizability of these two case studies is limited, they do suggest that the mainstream media has shown restraint when covering rumors. However, even if the media are responsible in their coverage of rumors, how does this coverage impact the public?

Remarkably little research has addressed the influence of media coverage of a rumor. In fact, only three studies exploring the effects of rumors in the news were located. In a recent study, Weeks and Southwell (in press) found that mainstream media coverage of the rumor that Barack Obama was Muslim predicted increased online searches for information about the rumor. While this study is important in that it demonstrates that rumors in the news can have a behavioral effect, it does not provide insights into the believability of the rumor. Garrett (2010) sought answers to the belief question in his survey about online rumors in the 2008 presidential election. His results suggest that cumulative exposure to rumors online did not have an effect on the number of rumors believed. However, Garrett also reported that receiving political emails from one's social network increased belief in rumors about an opposing candidate, which then led to an increase in rumor transmission. This finding suggested that motivated reasoning was contributing to rumor belief. That is, people with prior biases were more likely to believe and transmit rumor that conformed to their prior attitudes. Finally, Stempel, Hargrove, and Stempel (2007) explored the relationship between media use and belief in conspiracy theories about the 9/11



terrorist attacks. They found that use of non-mainstream media was associated with greater belief in the conspiracy theories.

With the mass media potentially being the largest and fastest outlet for rumor transmission, it is necessary that we better understand how people process and think about rumors they encounter in the news. For example, are rumors in the news believable? Are they transmitted to others? Do different media channels impact rumor belief and transmission? The remainder of this study explores the likelihood for media effects of rumors in the news.

#### *A Mix of Attributes Approach to Media Channel Effect Differences*

As Eveland (2003) argues, mass communication scholars who compare differences in effects between two media channels, such as television and newspapers, must take a “mix of attributes” approach to their research. In using this approach, Eveland calls for researchers to move beyond studies that look only at content distinctions and instead examine differences stemming from all of the unique attributes of each medium. These attributes include a medium’s interactivity, organization (or structure), user control, channel, textuality, and content. According to this approach, any comparison of two media should first highlight the attributes on which they differ, and then determine which factors should theoretically produce different effects. Relevant to the present study, Eveland outlines each attribute of newspapers and television news. He notes that stories from these media are similar in that both are low in interactivity, are organized linearly, and produce similar content (news information). However, newspapers and television differ in user control, channel, and textuality.

Newspapers stories provide high user control by allowing the reader to determine the pace of consumption. In terms of channel, newspapers are highly visual, but lack an audio component. Finally, newspapers contain many words, making them highly textual. Television news on the other hand is low in user control as it determines the pace of consumption for the viewer. In regard to channel, television is very high in both audio and visual elements. Finally, television lacks textuality as there are few printed words with the medium (Eveland, 2003). These differences in attributes of newspapers and television have been the basis for much media effects research. The results of this previous work provide insight and the theoretical foundation for expected differences in rumor effects between television and newspapers.

#### *Affective Responses to Television and Newspapers*

Rumor literature suggests that anxiety is a major component to rumor belief and transmission (DiFonzo & Bordia, 2002; Pezzo and Beckstead, 2006; Rosnow, 1991). That is, the more anxiety surrounding a rumor, the more likely it is to be believed and transmitted. Work by mass communication scholars suggests that media may be able to elicit an emotional response, such as anxiety, from the audience (Bryant, Carveth, & Brown, 1981). If certain media are better able to produce emotional responses from the audience, it stands to reason that different media channels may also produce different rumor-related effects.

Much of the prior research exploring differences in affective responses of media has compared television and newspapers. The results of this work suggest that television news is more emotionally arousing than newspapers (Cho et al.,

2003; Hibbing & Theiss-Morse, 1998). As Graber (1984) notes, "among various types of media, television is the most unique. It appears to be a more potent stimulus than print sources for stirring emotions and creating vivid mental pictures" (p. 137).

Certain attributes of television have been found to make it emotionally evocative. For example, Lang and colleagues (1995; 1999) have reported that structural features of television messages can elicit emotional responses. In particular, the pacing of a televised message, i.e. the number of cuts from one scene to the next can arouse viewers (Lang et al., 1999). The combination of the audio and visual elements of television, including the graphic images, sound, and motion has also been found to produce emotional responses in viewers (Newhagen, 1998). Television appears to be especially effective at producing anxiety in viewers, which is a theoretically crucial component in rumor belief (Bryant, Carveth, & Brown, 1981).

These features of television have been shown to make the medium more emotionally arousing than print. For example, Hibbing and Theiss-Morse (1998) found that people exposed to television news had much stronger negative emotional responses to members of Congress than did people who read newspapers. Similarly, Cho et al. (2003) found that television coverage of the September 11<sup>th</sup> terrorist attacks contained more emotional content, which ultimately led to television viewers having more substantial emotional reactions to the attacks than newspaper readers. As Hibbing and Theiss-Morse (1998) note, these findings make intuitive sense--the moving images, cuts, and sounds of a

news clip about the violence in Iraq should produce a stronger emotional response than reading about it in a newspaper. Other research has highlighted that television is better able to tell emotionally evocative stories by creating drama, which attracts and holds viewers' attention (Bar-Illan, 1986; Graber, 1996; Heuer & Reisberg, 1990; O'Neill, 1986; Owen, 1991; Roeh, 1989; Scheufele, Nisbet, & Ostman, 2005). In contrast, newspapers are only able to use still images and cannot use sound, making them less arousing. Newspapers also provide more in-depth coverage and are more analytic, which reduces the emotionality of the content (Barnhurst & Mutz, 1997; Scheufele et al., 2005). Based on this previous research, we should expect television to produce a stronger emotional response to rumor stories. Thus, I pose the following hypothesis:

H10: Television news coverage of rumors will evoke more anxiety than will newspaper coverage.

Another important component to rumor belief is personal relevance. Rumor scholars suggest that the more personally relevant the rumor, the more likely it is to be believed (Fine, 2005). Additionally, rumor studies have found that personal issue importance is strongly correlated with anxiety (Kimmel & Keefer, 1991). Given this relationship, we should expect that rumors that cause anxiety would also be personally relevant. Because we expect television to produce more anxiety, the rumor should also be more personally relevant if received from television.

Work investigating the impact of message source on personal importance also hints at television's superiority in producing relevance. Taylor and

Thompson (1982) highlight evidence that suggests that personal relevance to a topic increases when information about that topic is received from a vivid message. According to this hypothesis, compared to non-vivid messages, vivid messages are better able to capture and hold attention, making the subject more personally relevant. Other work suggests that the audiovisual elements of television produce vivid messages that attract attention (Eveland, Seo, & Marton, 2002; Neuman, Just, & Crigler, 1992). Print, on the other hand, is considered a non-vivid medium and should not produce as much personal relevance. Based on these findings I offer the following hypothesis:

H11: Television news coverage will make the rumor more personally relevant than will newspaper coverage.

Evidence also suggests that exposure to either television or newspapers might lead to different levels of uncertainty about the rumor. For example, Iyengar's (1991) work suggests that television news coverage tends to be episodic, or event-oriented in nature. Complicated issues, such as those related to health and science, do not receive the type of coverage necessary to fully inform the public (Nisbet et al., 2002). On the other hand, newspapers present information more thematically and are better able to provide context and background information (Iyengar, 1991). As a result, newspaper readers should have less uncertainty about complicated issues than television viewers.

This idea is supported by recent work comparing learning across different media. This research has found that different media channels can shape individuals' knowledge about science and politics in different ways. For

example, Shanahan, Morgan, and Stenbjerre (1997) found that increased television viewing led to less science-related knowledge. More importantly to the present study, Nisbet et al. (2002) report that television viewing led to increased reservations and more misconceptions about science. Newspapers, however, decreased reservations about scientific advances and increased knowledge about science (Nisbet et al., 2002). This work is consistent with similar research on political learning. In these studies, newspapers have been shown to create more political learning than television (Eveland & Scheufele, 2000; McLeod, Scheufele, & Moy, 1999). Based on these findings, it is plausible to suggest that television coverage of a rumor would produce less knowledge and more uncertainty than newspaper coverage.

Additionally, the level of user control of television might also create differences in people's uncertainty about a topic. As Eveland (2003) notes, television is marked by low user control as the viewer is unable to determine the pace of consumption (without record and rewind capabilities). Newspapers on the other hand provide readers the ability to control the speed at which they consume news. Thus, newspapers are high in user control. By allowing people to go back and reread any item in the story that is confusing, newspapers might also lead to less uncertainty.

Taken together, the differences in style of news presentation and the level of user control should lead to different levels of uncertainty for those who receive their news from either television or newspaper. As a result, I propose the following hypothesis:

H12: Television news coverage will produce more rumor uncertainty than will newspaper coverage.

I have now addressed the three major criteria for rumor belief: anxiety, personal relevance, and uncertainty. I expect television to evoke more anxiety, to make the rumor more personally relevant, and leave news consumers with more uncertainty. As a result, I expect rumors seen on television to be more believable than those read in newspapers. Similarly, because these four variables often bear a positive relationship to rumor transmission, I expect television to also increase the likelihood that the rumor will be spread. Thus, I propose the following two hypotheses:

H13: Rumor coverage on television will result in greater rumor belief than will newspaper coverage.

H14: Rumor coverage on television will result in greater intent to transmit the rumor than will newspaper coverage.

#### *Summary of Introduction and Hypotheses*

This introduction and literature review described the following main objectives for this study: 1) to test social-psychological theories of rumor belief and transmission in a mass communication context; 2) to explore whether media stories with different levels of personal relevance have different effects on rumor belief and intended transmission; and 3) to determine if different media channels have different effects on rumor belief and intended transmission. In light of this study's goals and objectives, 14 hypotheses and 1 research question have been

proposed. An experiment was designed to test these hypotheses and research questions. The following chapter describes the experiment in detail.



## Chapter 2: Method

### *Experimental Design*

This experimental study employed a 3 (media channel) x 2 (story order) x 2 (story relevance) mixed design. Media channel was a between subjects factor, while story relevance was a within-subjects factor. Participants were randomly assigned to receive two rumor-related news stories either by watching television news broadcasts, reading on-line news stories from a major national newspaper, or reading printed transcripts of those same television news broadcast. The order of the two stories was also manipulated to prevent any order effect. Within each condition, participants watched or read both a high relevance rumor story and a low relevance rumor story.

By using this design, the present study avoids some of the pitfalls that have plagued experimental comparisons of effects of different media channels. In particular, this experimental paradigm is marked by the possibility of confounding medium with content (Clark, 1983, 1985; Eveland & Dunwoody, 2001). That is, any effect found between media channels may actually be a result of differences in content. As Eveland and Dunwoody (2001) note, scholars have addressed this potential confound by attempting to hold content constant and manipulate only the medium of presentation. To do this, researchers have either transcribed a television story and offered it as text, or they have videotaped someone reading a newspaper story out loud. Eveland and Dunwoody (2001) further note that while these designs are internally valid, they lack external validity because the presentation of the news stories is not authentic. The present study is designed to

address these concerns by allowing for comparisons of media channels in a way that maintains external validity while simultaneously eliminating content as a potential confounding variable. Specifically, by comparing the effects of real television and newspaper stories, I am able to obtain results that are of practical interest. Additionally, the introduction of the television transcript condition allows for direct comparisons of content, which increases the study's internal validity. That is, if television and newspaper coverage of rumors produce different effects I can then compare the television transcripts to the newspaper stories to determine if it is content differences that are driving effects. My general hypothesis that the media channel matters in producing rumor effects would gain further support were I to fail to find differences between newspaper coverage and the television transcripts. While this experimental design is by no means perfect, its strength lies in its attempt to both eliminate problems that have affected previous studies comparing media channel effects, while also reducing concerns about possible confounding variables.

### *Participants*

Participants were 90 undergraduate students at the University of Minnesota-Twin Cities. Participants were recruited through both the School of Journalism and Mass Communication's (SJMC) research subject pool and through in-class recruitment. Subjects received 2 points of extra credit in a Journalism class in exchange for their participation. Demographics of the sample were consistent with enrollment in SJMC classes. 68.9% of participants were female, and the average age was 20.3 years ( $SD = 3.04$ ). 80% were Caucasian,

12.2% were Asian, 2.2% were African-American, and 2.2% were Hispanic. 1.1% were Native American and 2.2% identified themselves as *other*.

### *Procedure*

At the beginning of each semester, instructors in the SJMC can opt to include their class in the department's research subject pool, with students receiving extra credit for their participation. If an instructor chooses to enroll their class, students in that class will receive email alerts about potential research participation opportunities. A description of the present study was added to the subject pool website and students were notified that time slots were available. The description indicated that the study involved watching or reading two health-related stories and answering questions about those stories. Students signed up for an open session and came to the laboratory at their designated time.

Upon arriving at the SJMC's in-house research facility, participants were given a consent form that described the details of the study. After providing written consent for participation, subjects were randomly assigned to one of the three aforementioned conditions. Participants were then seated at a computer and began the study. The questionnaire first asked participants some questions about their media use and their perceptions of the media in general. They were then asked several demographic and worldview questions (such as political leanings). Next, participants watched or read the first of two rumor-related stories and answered several questions (see exact questionnaire in Appendix A). After finishing the questions for the first story, participants then watched or read a second story and answered similar questions. After completing the questionnaire,

participants were asked to report to the proctor where they were thanked and debriefed.

### *Stimuli*

For the high relevance story, this study used rumor-related news stories about the vaccine for the H1N1 flu virus, also known as swine flu. The low relevance story focused on the false rumor that the national healthcare reform bill proposed in 2009 contained provisions that allowed medical providers to create 'death panels' that would decide which patients would receive end-of-life care. Each of these rumors and the stories are described in detail below.

*H1N1 vaccine rumor.* In 2009, a pervasive rumor circulated through the public claiming that the H1N1 vaccine would not be effective in staving off the flu. Many people believed the vaccine would make them sicker and more susceptible to diseases such as Guillain-Barré syndrome (McNeil, 2009a ; Steinhauer, 2009). Despite assurance from the Center for Disease Control and Prevention (CDC) that the vaccine was safe and effective, 35 percent of those who said they would not get the vaccine cited that the vaccine was too risky or had not been tested enough (Pew, 2009). News coverage addressed several aspects of the rumor as stories often focused on people's concerns about the vaccine and whether they were justified in having those concerns (McNeil, 2009b).

The television clip for the H1N1 rumor came from an October 29, 2009 segment from *Anderson Cooper: 360°* on *CNN*. The clip, which was 4 minutes and 44 seconds long, featured *CNN* host John King filling in for Mr. Cooper.

During the segment, Mr. King provides new statistics on the H1N1 flu and uses graphics to show the spread of the flu over the summer and autumn months. Mr. King then introduces his guest, *CNN* correspondent Randi Kaye, and asks her about recent rumors surrounding the H1N1 flu and its vaccine. Ms. Kaye describes how rumors that question the vaccine's effectiveness have been circulating online and how celebrities such as Bill Maher propagate them. Ms. Kaye also explains how the CDC attempted to combat the rumors and the effects the confusion is having on the public. She then compares the current scare to a similar situation in 1976. Mr. King and Ms. Kaye conclude their discussion by noting that these rumors are being talked about off-line as well. They also note that the rumors are likely false.

The newspaper story was taken from the Health section of the online version of the September 27, 2009 *New York Times*. The article is titled "Don't Blame Flu Shots for All Ills, Officials Say". The article, which was screen-captured from the paper's website, appears exactly as it does on-line. However, participants were not able to click on links or leave the site during their exposure. The story focuses on how public health officials are trying to fight rumors that the H1N1 vaccine will lead to more harm than the benefits. Similar to the television story, this article makes parallels between the current situation and the 1976 scare. The article also notes the role of antivaccine activists, much like the *CNN* television story does. The article concludes by quoting a CDC scientist who states that they are trying to be as transparent as possible about the vaccine.

*'Death panel' rumor.* During the summer and fall of 2009, President Barack Obama and Congressional Democrats made healthcare reform one of their top legislative priorities. In an attempt to hear how their constituents felt about the reform, members of Congress held several town-hall style meetings to discuss its details. Many of these meetings were civil and reasonable civic discussions about the plans for reform. However, a few meetings became heated as audience members shouted at and taunted elected officials (Urbina, 2009). Much of the anger at these forums centered on the false “death panel” rumor. The rumor, which advanced quickly after former vice-presidential nominee Sarah Palin discussed it in multiple appearances, purported that the healthcare reform bill would create “death panels” in which a group of medical professionals would decide which patients’ lives were worth saving. According to the rumor, if healthcare for a critically-ill patient became too costly, that patient’s care would be cut (Rutenberg & Calmes, 2009).

The death panel television story came from an August 12, 2009 segment of *Anderson Cooper: 360°* on CNN. The segment is 6 minutes and 20 seconds long and includes both reporting and commentary. In the early part of story, CNN correspondent Candy Crowley reports on the origins of the death panel rumor and how it is being spread. She pays particular attention to how Senator Charles Grassley (R-Iowa) brought attention to the rumor by repeatedly mentioning it at his town hall meetings. Ms. Crowley also reports on how the public is responding to the rumor, including numerous refutations. The segment then cuts to another CNN correspondent, Dr. Sanjay Gupta, who provides commentary on the veracity

of the rumor. He repeatedly notes that the term ‘death panel’ is hyperbolic and that the rumored provisions were not included in the proposed government plan.

The death panel newspaper story was taken from the Money & Policy section of the online version of the August 13, 2009 *New York Times*. The article is titled “False ‘Death Panel’ Rumor Has Some Familiar Roots”. The article, which was screen-captured from the website, appears exactly as it does on-line. Again, participants were not able to click on links or leave the site during their exposure. Similar to the television clip, the article begins by noting the origins of the rumor and discusses at length how politicians like Senator Grassley have perpetuated it. The article then describes the details of the rumor and notes that it is not true. The story also includes quotes from proponents of health care reform who are trying to combat the rumors. Finally, the story makes the connection between the current rumor and similar misinformation that plagued the Clinton administration’s attempt to pass health care reform.

#### *Stimuli Selection*

The most important criterion for stimuli selection in the present study was that the stories were actual, real news stories. In order to have external validity, it was necessary that the stories accurately portray the type of rumor-related news coverage that is present in the media. Next, it was important to select stories that were as qualitatively similar as possible. That is, the stories on television and in the newspapers needed to be about the same length, offer approximately the same kind of information, and offer similar stances regarding the truth of each rumor. It was also important that both the high and low relevance rumor stories come

from the same source. To accomplish this task, I first looked at the population of rumor-related stories for both the H1N1 rumor and the ‘death panel’ rumor in two major national newspapers, *The New York Times* and *The Washington Post*. Of those two papers, the coverage in the *Times* was more extensive and was thus selected as the newspaper of interest. The selection of the *New York Times* is further justified by much evidence suggesting that the paper sets the agenda for other media outlets (Gilberg et al., 1980; Golan, 2006; Reese & Danielian, 1989). In other words, if the *Times* covers it, other media outlets will cover it.

On-line versions of *The New York Times* were used in the experiment because more Americans are accessing their news from on-line versions of newspapers than ever before. In fact, on-line news has surpassed print newspapers in terms of readership of national and international news, especially among those with some college education (Project for Excellence in Journalism (PEJ), 2009). The decision to use on-line versions of newspapers is further supported by research showing that on-line and print newspapers do not differ in content at the individual-story level (Boczkowski, 2002; Hoffman, 2006; Singer, 2001).

After selecting the *Times* as the source of the newspaper stories, I next looked at the rumor-related coverage on television using the Vanderbilt Television News Archive. I again searched for the population of rumor coverage on television. While the major national broadcast networks covered each of the rumor stories, *CNN* provided the most coverage and commentary on the rumors and was selected as the television network of interest. Further evidence suggests



that *CNN* was an appropriate choice to represent television coverage. Compared to its competitors *Fox News* and *MSNBC*, *CNN* is viewed as more fair and balanced (Pew, 2009). Additionally, *CNN's* prime-time on-air personalities, such as Cooper, are viewed as more neutral than are *MSNBC's* and *Fox News's* (PEJ, 2009).

Once the newspaper and television network sources were established, the individual stories needed to be selected. To do so, I read or watched all rumor related stories from each source and attempted to select the stories that were most similar in length, information offered, and rumor stance. While this method of story selection has its limitations, the stories selected do offer an accurate look at the type of rumor related coverage available in the public sphere.

Using the H1N1 vaccine rumor story as the high relevance story is justified for several reasons. Most importantly, the story provides an opportunity to test many of the criteria necessary for rumor belief and spread. The story is personally relevant to the study's sample as college students are very susceptible to contracting the virus (CDC, 2009). Also, there is confusion with some of the public as to whether the vaccine will work, indicating great uncertainty surrounding the situation. Additionally, the rumor carries with it heightened levels of anxiety as some people are afraid they will get very sick if they receive the vaccination. Finally, the rumor received a great deal of mainstream media coverage and was of great concern to health organizations such as the CDC.

Given the demographics of the study's subjects, the 'death panel' rumor story was appropriate for the low-relevance story. While the story did receive a

lot of attention from the media, it is unlikely that college students were carefully following its details. The story centered on end of life concerns, which are likely of little interest to 18-23 year olds. The story probably did not directly impact most participants, certainly not in the way the H1N1 story might. Even if subjects had heard about the story, it is unlikely that they paid a great deal of attention to it.

### *Measures*

All scale measures and item wording were created in accordance with the recommendations made by Krosnick and Fabrigar (1997). A full version of the questionnaire can be found in Appendix A.

*Affective responses.* To assess affective responses to the news stories, participants were asked to indicate on a 5-point scale the extent to which each story made them feel a given affect. These scales ranged from (1) *not at all* to (5) *very much*. These items were selected based on confirmatory factor analyses conducted by Dillard et al. (1996). These affective scales included the following items: *anxiety* (anxious, concerned, worried; Flu:  $M = 2.63$ ,  $SD = 1.05$ , Cronbach's  $\alpha = .86$ ; Death panel:  $M = 2.44$ ,  $SD = .89$ , Cronbach's  $\alpha = .77$ ), *fear* (fearful, afraid, scared; Flu:  $M = 2.26$ ,  $SD = 1.09$ , Cronbach's  $\alpha = .94$ ; Death panel:  $M = 2.01$ ,  $SD = .84$ , Cronbach's  $\alpha = .90$ ), *anger* (irritated, angry, annoyed; Flu:  $M = 2.45$ ,  $SD = 1.02$ , Cronbach's  $\alpha = .83$ ; Death panel:  $M = 2.78$ ,  $SD = 1.01$ , Cronbach's  $\alpha = .80$ ), *surprise* (surprised, astonished, amazed; Flu:  $M = 2.36$ ,  $SD = .88$ , Cronbach's  $\alpha = .70$ ; Death panel:  $M = 2.41$ ,  $SD = .91$ , Cronbach's  $\alpha = .84$ ),

and *happiness* (happy, cheerful; Flu:  $M = 1.41$ ,  $SD = .56$ ,  $r = .75$ ; Death panel:  $M = 1.60$ ,  $SD = .67$ ,  $r = .73$ ).

*Rumor importance and relevance.* Personal importance and relevance was measured by asking participants a series of questions on a 5-point scale. First, they were asked how important information about both the H1N1 vaccine and death panels is to them. Participants were next asked how relevant information regarding the H1N1 vaccine and death panels is for them. Finally, they were asked to indicate the extent to which information about these stories was intended for them. These scales ranged from (1) *not at all* to (5) *very much*. These three items were then combined to create a single relevance scale for both the H1N1 and death panel stories (Flu:  $M = 3.53$ ,  $SD = .81$ , Cronbach's  $\alpha = .74$ ; Death panel:  $M = 2.92$ ,  $SD = 1.00$ , Cronbach's  $\alpha = .87$ ),

*Uncertainty.* Uncertainty was assessed using a three-item measure taken from Dillard et al (1996). These items asked participants the extent to which each story made them feel puzzled, confused, and bewildered. Scales ranged from (1) *not at all* to (5) *very much*. Responses were combined to form a single uncertainty item for each story (Flu:  $M = 2.20$ ,  $SD = .89$ , Cronbach's  $\alpha = .78$ ; Death panel:  $M = 2.76$ ,  $SD = .91$ , Cronbach's  $\alpha = .82$ ).

*Rumor belief.* Belief in the H1N1 rumor was assessed using multiple 5-point scaled items. Specifically, participants were asked to indicate the extent to which they believed the vaccine to be effective (1) *extremely ineffective* to (5) *extremely effective*, safe (1) *extremely safe* to (5) *extremely unsafe*, properly tested compared to the regular flu vaccine (1) *much less testing* to (5) *much more*

testing, and helpful (1) *extremely harmful* to (5) *extremely helpful*. Subjects were also asked if they would advise a friend to get the vaccine (1) *definitely get the vaccine* to (5) *definitely do not get the vaccine*. The effectiveness, tested, and helpful items were recoded so that the negative response (i.e. more belief in the rumor) was at the high end of the scale. A reliability analysis revealed that the 'properly tested' item was not related to the other four items and was thus dropped. The other four items were then scaled to create a single vaccine belief item that had an acceptable reliability ( $M = 2.20$ ,  $SD = .83$ , Cronbach's  $\alpha = .81$ )

After watching or reading the death panel story, participants were asked on 5-point scales whether the government will create death panels to decide which patients would receive end of life care, and whether the government will control doctors' treatment of patients with incurable diseases. The scales for these items ranged from (1) *strongly do not believe* to (5) *strongly believe*. These two items were combined to create a single death panel rumor belief item ( $M = 2.49$ ,  $SD = 1.01$ ,  $r = .62$ ).

*Intention to transmit rumor:* Following both stories, participants were asked to indicate on two 5-point scales the likelihood that they would send the video or article to a friend or family member, and the likelihood that they would talk about the story with a friend or family member. Responses for these two items ranged from (1) *very unlikely* to (5) *very likely*. These two items were combined to create a single intended transmission variable for both stories (Flu:  $M = 2.97$ ,  $SD = 1.17$ ,  $r = .78$ ; Death panel:  $M = 2.64$ ,  $SD = 1.06$ ,  $r = .77$ ).

*Prior experience with the H1N1 vaccine.* Participants were asked if they had already received the vaccine, whether they intended to receive it, and why they had or had not received it. 69 respondents (76.7 %) reported that they had not received the vaccine, while 21 (23.3 %) reported they had already received it. Of those 69 who had not received the vaccine 58 (84.1%) said they did not intend to in the future.

*Prior exposure to vaccine or death panel information.* Prior exposure to H1N1 or death panel information was assessed by asking participants on 5-point scales how much news coverage they had seen regarding the rumor, and the extent to which they had previously discussed the rumor with friends and family in the past 3 months. Scales for these items ranged from (1) *none at all* to (5) *a lot*. The two items were merged into a single prior exposure variable for both stories (Flu:  $M = 3.28$ ,  $SD = .89$ ,  $r = .64$ ; Death panel:  $M = 1.40$ ,  $SD = .63$ ,  $r = .72$ ). Results indicate that participants had much greater prior exposure to information about the H1N1 vaccine than about death panels.

*Trust in government.* Trust in government was assessed by asking participants on two 5-point scales the extent to which they believed the government does the right thing and tells the public the truth (1) *strongly agree* to (5) *strongly disagree*. These items were combined to form a single assessment of trust in government ( $M = 3.17$ ,  $SD = .74$ ,  $r = .71$ ).

*Credibility of source.* Participants were asked a series of questions to assess their views on the credibility of the news source from which they received their story. Four items, each measured on a 7-point scale, asked “To what extent

do you find *The New York Times* (or *CNN*) to be believable (1) *extremely unbelievable* to (7) *extremely believable*, fair (1) *extremely unfair* to (7) *extremely fair*, credible(1) *extremely uncredible* to (7) *extremely credible*, and in-depth (1) *extremely not in-depth* to (7) *extremely in-depth*?" These four items were combined to make a credibility scale for both *The New York Times* ( $M = 5.53$ ,  $SD = .73$ , Cronbach's  $\alpha = .78$ ) and *CNN* ( $M = 5.28$ ,  $SD = .77$ , Cronbach's  $\alpha = .77$ ). The results here indicate that both the *New York Times* and *CNN* were deemed to be highly credible. This is important because rumors must come from a credible source in order to be believed (Fragale & Health, 2004; Kapferer, 1989; Koenig, 1985).

*Media use.* Participants were asked several questions about their media use. Specifically, they were asked to indicate their main source of news as well as the number of days they watch cable or network broadcast television or read a newspaper (ranging from (1) 0 days to (8) 7 days). The cable and network television news items were collapsed to make a single television use variable ( $r = .73$ ). The means for television use ( $M = 2.97$ ,  $SD = 1.50$ ) and newspaper use ( $M = 4.20$ ,  $SD = 2.03$ ) indicate that subjects watched television news about 2 days a week and read newspapers between 3 and 4 days a week. The breakdown of primary news source is as follows: 32.2 % newspapers, including on-line; 32.2% on-line sources other than newspapers; 16.7% cable television; 15.6% broadcast network television; 2.2% radio; and 1.1% other.

*Cognition.* Participants were asked a battery of questions to assess the extent to which they elaborate on what they see or read in the news, as well as

how much attention they pay to the news. These items were derived from past work on elaboration and attention to the news (Eveland, Shah, & Kwak, 2003). 4 elaboration items were measured on a 5-point scale ranging from (1) *strongly disagree* to (5) *strongly agree*. These items asked participants whether they “try to relate what I see on television (and in newspapers) to my own personal experience” and whether they “think about how what I see on television (and in newspapers) relates to other things I know”. These items were combined into a single elaboration item ( $M = 3.72$ ,  $SD = .63$ , Cronbach’s  $\alpha = .80$ ). Attention items were measured on a 5-point scale and asked participants how much attention they paid to stories about health or science on television and in newspapers. This scale ranged from (1) *very little attention* to (5) *very close attention*. The two attention items were merged to create a single item ( $M = 3.21$ ,  $SD = .92$ ,  $r = .86$ ).

*Sensation seeking.* Using the four item short form scale validated by Stephenson et al. (2003), participants’ sensation seeking tendencies were assessed. These items asked participants on 5-point scales ranging from (1) *strongly disagree* to (5) *strongly agree* how much they ‘liked to explore strange places’, ‘do frightening things’, ‘liked new and exciting experiences, even if I have to break the rules’, and ‘prefer friends who are exciting and unpredictable’. These items were combined to form a single sensation-seeking variable ( $M = 3.58$ ,  $SD = .73$ , Cronbach’s  $\alpha = .73$ ).

*Nature of media coverage.* To assess participants’ feelings about the nature of the media coverage, they were asked to indicate on 5-point scales whether they found each story to be accurate (1) *very inaccurate* to (5) *very*

*accurate*, complete (1) *very incomplete* to (5) *very complete*, biased (1) *very biased* to (5) *very unbiased*, and sensationalized (1) *very sensationalized* to (5) *very much not sensationalized*. These items were combined to create a single variable for both the H1N1 flu story ( $M = 3.06$ ,  $SD = .73$ , Cronbach's  $\alpha = .71$ ) and the death panel story ( $M = 2.73$ ,  $SD = .68$ , Cronbach's  $\alpha = .67$ ). Overall, participants found the vaccine stories to be more sensational than the death panel stories.

*Demographics.* Participants were asked several demographic questions about their age, gender, race, and political affiliation.

#### *Analysis*

A variety of analyses were conducted to test the proposed hypotheses and research question. To test H1-H6, bivariate correlations were first assessed to test the relationships between key outcome variables (See Table 1 and Table 2). Next, to further test H1, H3, and H5, an OLS regression equation was proposed for each story with rumor belief as the dependent variable. In accordance with previous literature, rumor-related anxiety, personal relevance, and uncertainty were included as predictors. To test H2, H4, H6, and RQ1, similar OLS regression equations were tested (one for each story), with intended rumor transmission used as the dependent variable. For these tests, rumor belief became a predictor variable. Next, to assess within-subject differences, paired sample t-tests were used to test H7, H8, and H9. Turning to the between-subjects tests, my hypotheses predict differences in effects of television and newspapers on anxiety (H10), personal relevance (H11), uncertainty (H12), rumor belief (H13), and



intended rumor transmission (H14). To test these hypotheses, *a priori* planned contrasts were conducted for both the relevant and non-relevant stories. Finally, supplemental analyses using Scheffe post-hoc tests were conducted using television transcripts to further eliminate content as a potential confound and support the proposed differences in effects between television and newspapers.

#### *Post-Hoc Analysis of Statistical Power*

A post-hoc analysis of statistical power for both the between and within-subject mean comparisons was conducted using the GPower 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2007). According to Cohen (1988; 1992),  $d$  (between-subjects) and  $d_z$  (within-subjects) values of .20, .50, and .80 represent small, medium, and large effect sizes for t-tests, respectively. The alpha level for the present study was set at .05 and each condition had 30 participants. The present study obtained the following power results for the between-subjects planned comparisons:  $d = .20$ , power = .19;  $d = .50$ , power = .61; and  $d = .80$ , power = .92. The results of this analysis indicate that this study does not have enough power to find small effects, and the power level to properly detect moderate effects is below the desired level of .80. However, this study does have enough power to detect large effects. For the within-subjects t-tests, the study resulted in the following power levels:  $d_z = .20$ , power = .59;  $d_z = .50$ , power = .99; and  $d_z = .80$ ; power = 1.00. These levels indicated that the study had enough power to detect moderate and large within-subject effects, but not small effects.

## Chapter 3: Results

As noted in the Method chapter, this study's hypotheses and research question were tested through various statistical procedures. The independent variables for the study were media channel (television, newspapers, and television transcript), order of story presentation (H1N1 rumor first, death panel story second, and vice-versa), and personal relevance of story (high vs. low). The key dependent variables included intended rumor transmission (H2, H4, H6, RQ1, H9, and H14), rumor belief (H1, H3, H5, H8, and H13), rumor-related anxiety (H7 and H10), rumor-related uncertainty (H11), and the personal relevance of rumor (H12). All p-values reported are one-tailed. Cohen's  $d$  indicates the effect size for the mean comparisons between-subjects and  $d_z$  represents the effect size for the within-subjects tests. These effect sizes were calculated using G\*Power (Faul et al., 2007).

### *Predictors of Rumor Belief and Intended Transmission*

Hypotheses 1-6 and RQ1 examined the predictors of rumor belief and intended transmission. These hypotheses were tested using four separate OLS regression models. Models with either rumor belief or transmission serving as the dependent variable were tested for both the H1N1 and death panel rumor stories. For the belief models, anxiety, uncertainty, and personal relevance were entered as predictors. For the transmission models, anxiety, uncertainty, personal relevance, and belief were included as predictors. These results are presented in table format in Tables 3-6.

H1 predicted that personal relevance would be positively related to rumor belief, independent of medium. The results do not support this hypothesis. In fact, for the H1N1 story, personal relevance was a strong negative predictor of rumor belief ( $\beta = -.56, p < .001$ ). In other words, the more personally relevant the H1N1 rumor, the *less* likely were subjects to believe it. This pattern did not exist in the death panel story as relevance was not a significant predictor of belief. Combined, these results suggest that a rumor can be believed even if it is not personally relevant.

H2 predicted that increased personal relevance would result in greater intention to transmit the rumor. Results strongly support this hypothesis. For both the H1N1 ( $\beta = .35, p < .01$ ) and the death panel story ( $\beta = .37, p < .001$ ), personal relevance was a significant predictor of intention to transmit the rumor. That is, the more personally relevant the rumor, the more likely it is to be transmitted.

In H3, it was predicted that uncertainty would be positively related to rumor belief. Results suggest that uncertainty did not predict belief of the H1N1 rumor but was a marginally significant predictor for the death panel story ( $\beta = .21, p < .10$ ). Thus, H3 was generally not supported.

H4 predicted that uncertainty would be a positive predictor of intended rumor transmission. Evidence did not support this hypothesis; that is, increased uncertainty did not result in greater intention to share the rumor.

It was next predicted in H5 that as anxiety increased, so too would belief in the rumor. Evidence from this hypothesis test was mixed; increased anxiety

regarding the H1N1 story was strongly associated with greater belief in the rumor ( $\beta = .42, p < .001$ ). However, this relationship was not found in the death panel story. As a result, H5 was partially supported.

In H6 it was hypothesized that increased anxiety would result in greater intention to transmit the rumor. This hypothesis was not supported; anxiety was not a significant predictor of rumor transmission for either the H1N1 or the death panel story.

Based on mixed findings from previous research, RQ1 was proposed to explore the relationship between rumor belief and transmission. The results from both stories suggest that rumor belief does not significantly impact transmission. Put simply, belief in a rumor is not a prerequisite to transmitting that rumor; that is, people are willing to share rumors they may not necessarily believe.

To summarize the results of the regression models examining predictors of rumor belief, the mixed evidence here suggests that the role of anxiety, personal relevance, and uncertainty is rumor dependent. That is, different factors affect belief for different rumors. More specifically, results indicate that increased anxiety resulted in greater belief in the H1N1 rumor, while more personal relevance led to less belief. Uncertainty did not play a factor in belief of the H1N1 rumor. For the death panel rumor, only uncertainty appeared to moderately impact rumor belief. Anxiety and personal relevance did not affect belief. As discussed later, this could be a result of low levels of anxiety and personal relevance created by the death panel story.

In recapping the predictors of rumor transmission, results indicate that personal relevance is a very strong predictor of intended transmission. That is, for both stories, increased personal relevance was associated with greater intention to transmit the rumor. In fact, personal relevance appears to be the sole predictor of rumor transmission as anxiety, uncertainty, and belief all failed to demonstrate any significant relationship with transmission.

#### *Personal Relevance of Story-Within Subject Tests*

Paired sample t-tests were conducted to compare within-subject differences in anxiety, rumor belief, and intended rumor transmission for a high-relevance rumor story (H1N1 vaccine) and a low-relevance rumor story (death panels) (See Table 7). A manipulation check was first conducted to ensure that the high-relevance story was indeed rated as more personally relevant. Results indicate the manipulation worked,  $t(89) = 5.00$ ,  $p < .001$ ,  $d_z = .47$ , as the H1N1 story ( $M = 3.53$ ,  $SD = .81$ ) was more relevant to the college-aged sample than the death panel story ( $M = 2.92$ ,  $SD = 1.00$ ).

Turning now to the effects of relevance, results suggest that the H1N1 rumor story ( $M = 2.63$ ,  $SD = 1.05$ ) produced significantly more anxiety than the death panel rumor story ( $M = 2.44$ ,  $SD = .89$ ),  $t(89) = 1.84$ ,  $p < .05$ ,  $d_z = .21$ . This finding supports H7.

There was also a significant difference in rumor belief, though not in the predicted direction,  $t(89) = -2.36$ ,  $p < .01$ ,  $d_z = -.24$ . Here, participants were more likely to believe the death panel rumor ( $M = 2.49$ ,  $SD = 1.01$ ) than the H1N1 rumor ( $M = 2.20$ ,  $SD = .83$ ). In other words, the rumor story that was less

personally relevant produced greater rumor belief than did the relevant story. Thus, H8 was not supported. Retrospectively, this result makes sense given that increased personal relevance of the vaccine may also increase knowledge about and experience with the vaccine. For example, participants who received the vaccine prior to the study would likely report that it is highly relevant. However, they did not get sick or experience any side effects and are thus skeptical of any vaccine-related rumors.

Finally, H9 predicted that the relevant story would create greater intention to transmit the rumor. This hypothesis was firmly supported,  $t(89) = 2.52$ ,  $p < .01$ ,  $d_z = .27$ , as participants were more likely to intend to transmit the H1N1 rumor ( $M = 2.97$ ,  $SD = 1.17$ ) than the death panel rumor ( $M = 2.64$ ,  $SD = 1.06$ ).

To summarize the results of the within-subjects hypotheses tests, I found that the H1N1 rumor story was more relevant to the college-aged sample than was the death panel story. Further, evidence suggests that the personally relevant H1N1 story produced more anxiety and increased intention to transmit the rumor relative to the death panel story. However, the less relevant rumor story was believed more than the relevant rumor story.

#### *Differences in Rumor Effects Between Television and Newspapers*

*Anxiety.* *A priori* planned contrasts were employed to test the hypothesized differences in effects of rumors on television and in newspapers for both stories. It was first predicted that television coverage of a rumor would evoke more anxiety than would newspaper coverage. Results from the H1N1 story suggest that television ( $M = 2.84$ ,  $SD = 1.01$ ) was able to produce greater anxiety than

newspapers ( $M = 2.36$ ,  $SD = .97$ ),  $t(87) = 1.82$ ,  $p < .05$ ,  $d = .48$ . For the death panel story, anxiety was also higher for those who learned about the rumor on television ( $M = 2.56$ ,  $SD = .91$ ) rather than newspapers ( $M = 2.29$ ,  $SD = .84$ ), though this difference did not reach significance at the  $p < .05$  level,  $t(87) = 1.15$ ,  $p > .10$ . Thus, H10 is partially supported.

*Personal relevance.* I next tested the proposition that television coverage will make a rumor more personally relevant. While reports of personal relevance were higher for television (Flu:  $M = 3.69$ ,  $SD = .86$ ; Death panel  $M = 3.02$ ,  $SD = .97$ ) than newspapers (Flu:  $M = 3.51$ ,  $SD = .72$ ; Death panel  $M = 2.89$ ,  $SD = 1.01$ ) these differences were not significant in neither the H1N1 condition,  $t(87) = .85$ ,  $p > .15$ , nor the death panel condition  $t(87) = .51$ ,  $p > .30$ . As a result, H11 was not supported.

*Uncertainty.* H12 predicted that television coverage of rumor stories will produce more rumor-related uncertainty than will newspaper coverage. For the H1N1 story, television coverage ( $M = 2.41$ ,  $SD = 1.07$ ) produced more rumor uncertainty than did newspaper coverage ( $M = 2.04$ ,  $SD = .71$ ), though this difference failed to reach significance at the  $p < .05$  level,  $t(87) = 1.61$ ,  $p < .10$ . A similar pattern emerged for the death panel story with television ( $M = 2.73$ ,  $SD = .95$ ) generating a higher mean level of uncertainty than newspapers ( $M = 2.49$ ,  $SD = .79$ ), though again this differences was not significant,  $t(87) = 1.07$ ,  $p > .10$ . Based on these results, H12 was not supported.

*Rumor belief.* I predicted that television coverage of the rumor stories would produce greater belief in each rumor than would newspaper stories. For

the H1N1 story, participants in the television condition ( $M = 2.32, SD = .94$ ) reported a higher belief in the rumor than did those in the newspaper condition ( $M = 2.04, SD = .75$ ) but this did not reach the  $p < .05$  cutoff for significance,  $t(87) = 1.29, p > .10$ . However, results from the death panel story provide support for my prediction as participants who learned about the rumor on television ( $M = 2.85, SD = 1.05$ ) were significantly more likely to believe the rumor than were those who read it in the newspaper ( $M = 2.28, SD = .91$ )  $t(87) = 2.22, p < .05, d = .58$ . The mixed results from the two stories provide partial support for H13.

*Rumor transmission.* The final hypothesis predicted that subjects exposed to television coverage of the stories would be more likely to intend to transmit the rumors than would subjects who read about them in newspapers. Evidence in from the H1N1 story supported this prediction as television ( $M = 3.33, SD = 1.06$ ) produced significantly greater intention to transmit the rumor than did newspapers ( $M = 2.72, SD = 1.22$ ),  $t(87) = 2.07, p < .05, d = .53$ . I did not find evidence of this effect for the death panel story, though. In fact, the television and newspaper stories produced the same mean intention to transmit the rumor ( $M = 2.72$ ). As a result, H14 was partially supported.

*Summary of between subject tests.* The results of the between-subject tests of the effect of medium on the key rumor variables were mixed (See Table 8 and Table 9). Specifically, evidence suggests that for the H1N1 story, television was able to evoke more anxiety and create a greater intention to transmit the rumor than did newspapers. Results further suggest that television produced more belief in the death panel rumor than did newspapers. It is also important to note that the



mean belief of the H1N1 rumor was higher for the television viewers and this difference was very close to being significant. Finally, results indicate that there were no significant differences between television and newspapers in terms of personal relevance and uncertainty for either story.

*Supplemental Analysis.* The results reported above provide some evidence to suggest that television and newspaper coverage of rumors produce different effects on anxiety, belief, and transmission. While the differences between television and newspapers are interesting and may have possible attitudinal and behavioral implications, the initial analysis does not explain why these effects occur. As discussed at length in the review of the literature, prior media effects studies suggest that the audiovisual components of television are the primary cause of the effects. However, some readers may argue that any differences found here are a result of different content rather than the attributes of the medium. For example, perhaps television news coverage of rumors presents fewer facts or offers fewer rebuttals than newspapers. Or maybe television employs a more melodramatic approach to the news, presenting information without proper context. This additional analysis is meant to assuage such concerns. If content differences are the driving force behind these effects, we should also expect differences when the audiovisual elements of television are removed from the equation. Simply stated, if content is the culprit then reading a transcript of a television news broadcast should also produce differences when compared to newspapers.

Using omnibus ANOVAs with Scheffe post-hoc tests, I compared the effects of newspapers versus the television broadcast transcripts on rumor transmission, rumor belief, anxiety, uncertainty, and personal relevance for both stories. Results indicated that there were no significant differences between the two channels on any of the variables of interest for either H1N1 or the death panel story (Scheffe post-hoc p-values ranging from .11 to .44). In other words, television content alone was not creating the observed differences in the television broadcast versus newspaper comparisons. This supplemental analysis helps reduce concerns that content is a confounding factor, and provides further support to the idea that attributional differences, such as audiovisuals, are leading to different rumor effects of television and newspapers.

## Chapter 4: Discussion

This thesis represents one of the first attempts to understand the psychology of rumors in the news. The results here offer numerous insights into how rumors reported in the media operate. Among the most important results are the following: First, some evidence supports the idea that rumors reported on television are more believable and are more likely to be transmitted than rumors reported in newspapers. Second, findings also point to the importance of personal relevance, as the highly relevant rumor created more anxiety and intention to transmit than did the low-relevance rumor. Third, personal relevance was found to be the only significant predictor of intended rumor transmission. Finally, results indicate that people are willing to transmit rumors that they do not believe and believe rumors they do not plan to transmit. The following discussion addresses these and other findings, provides a context for the results presented here, and discusses this study's shortcomings, as well as directions for future research.

### *Importance of Rumor Research*

With the growth of the Internet and the abundance of new information sources available, rumors appear to have an increasingly important role in our society. It is therefore imperative that we better understand how rumors formulate, how they are portrayed in the media, and, most importantly, the contexts in which they are believed and transmitted. While prior research has demonstrated the effects of rumors in interpersonal situations, there has been remarkably little work done to explore how rumors in the news impact the

public's knowledge, attitudes, opinions, and behavior. In response to this relative dearth of research, this thesis was guided by one main goal: to extend the rumor literature beyond its well-established roots in social psychology and explore this phenomenon in a mass communication context. In an effort to accomplish its primary goal, this thesis built off of a long history of research examining the psychology of rumor to assess the impact of rumors in the news. Specifically, my work here sought to answer three main questions related to news and rumors. First, do the variables that have been shown to predict rumor belief and transmission in interpersonal situations remain such in the mass communication environment? Second, do certain rumors in the news, perhaps those of great personal relevance, have more of an impact on people than other less relevant rumors? And finally, does the medium from which an individual learns about a rumor affect their belief in and intention to transmit that rumor? The answers to these questions help accomplish this thesis' main goal and also serve to build a solid foundation for future research of rumors and mass communication.

#### *Extending Rumor Theory to Mass Communication Research*

Dating back to before (and especially during) World War II, social psychologists have been interested in the effects of rumors (Allport & Postman, 1947; Prasad, 1935). More contemporary work on rumors has examined the predictors of rumor belief and transmission in interpersonal contexts (see Bordia & DiFonzo, 2007; Kimmel, 2004 for reviews). This work has been influential in our understanding of the processes and effects of rumors. But given our current media environment where any rumor can be disseminated to millions of people

with a click of a button, it has become necessary that we extend the study of rumors beyond interpersonal interactions. In particular, it is important that we understand how mass communicated rumors affect society.

The first step in extending rumor research to a mass communication environment is to test established social psychological theories of how rumors operate and see if they hold in this new context. A long line of research suggests that belief and transmission of rumors are influenced by three key variables: anxiety, uncertainty, and personal relevance (Rosnow, 1980). In addition, belief has been shown to influence rumor transmission in some situations. This thesis first tested whether these variables affected belief and transmission of rumors in the news. The results of these initial analyses provide the foundation of a theoretical framework for the study of rumors in the news. The evidence here highlights which factors impact rumor belief and transmission, as well as offer insight into why they are believed and transmitted.

The results of this thesis indicate that personal relevance is an extremely important factor for belief and transmission of rumors in the news. While it was hypothesized that personal relevance would be a positive predictor of rumor belief, the evidence from the H1N1 story displayed the opposite effect: the more personally relevant participants found the H1N1 story to be, the *less* likely they were to believe it. This finding is interesting and warrants further discussion. It appears that in the vaccine rumor case, personal relevance may have provided people enough information to combat the rumor. It is likely that people who had already received the H1N1 vaccine would report that information about the

vaccine is highly relevant to them. However, because they already received the vaccine and did not get sick or experience any negative side effects, they would probably be less likely to believe the rumor. Their experience tells them that reports of dangerous side effects are simply not true. On the other hand, people who have not received the vaccine and do not intend to, may report that this type of information is not relevant to them. But they do not have the personal experience to rebut the rumor. They learned about the rumor from the news and thought that it *could* be true. As a result, they were more likely to believe it. As I will elaborate on later, this finding is important in that it suggests that rumors can be believed even if they are not personally relevant to someone.

Personal relevance was also the most important factor in rumor transmission. Regression analyses for both the H1N1 and death panel stories indicate that the more personally relevant the rumor, the more likely one is to transmit it. This finding makes intuitive sense; if rumors about the H1N1 vaccine or death panels are not personally relevant to one's life, it is unlikely that they will share that information with others. People will simply find something else to talk about. But if that rumor strikes a personal chord within someone, they are more likely to find an outlet to share it. Rumors are transmitted in part because people are in search of the facts about a given situation. If a rumor is personally relevant, it will be more important for someone to seek correct information and thus they will be more likely to share that rumor.

While much evidence indicates that personal relevance is an important factor here, the impact of anxiety and uncertainty on belief and transmission is

more ambiguous. For example, when anxiety about the H1N1 rumor increased, so too did belief in the rumor. This relationship was not apparent with the death panel rumor. Given our sample, this mixed finding makes sense. College-aged students found the vaccine rumor to be important and relevant to them, which also resulted in increased anxiety. And with more anxiety came more belief.

However, because the death panel story did not relate to them, it is unlikely that they would experience much anxiety, let alone have that anxiety impact their level of belief.

While anxiety influenced belief for the H1N1 vaccine rumor, the results of this study reveal that anxiety did not affect rumor transmission. Much of the prior literature argues that rumors are transmitted in an effort to reduce anxiety (Rosnow, 1991). That is, when people are faced with uncertain situations, they are motivated to reduce their anxiety and regain control of their surroundings. Rumors can help accomplish this by providing people coping mechanisms such as lowered expectations or alternative explanations of events. The stories in the present study did not evoke much anxiety, as indicated by the fact that mean levels of anxiety were below the mid-point of the scale for both the flu vaccine and death panel rumor stories. It is possible that people were simply not anxious enough to need to share the rumor. If the stories did not create anxiety, subjects would not have been motivated to reduce that anxiety through rumor transmission. In sum, the effects of anxiety are mixed. Low levels of anxiety might be enough to increase belief for personally relevant rumors, but are not enough to lead to transmission.

Though uncertainty had a small impact on belief of the death panel rumor, it did not affect belief of the vaccine rumor. Uncertainty also failed to impact transmission of either rumor. Taken together, these findings indicate that uncertainty was not important to rumor belief or transmission. Much like anxiety, mean levels of uncertainty for both stories failed to reach the mid-point on the 5-point scale, indicating that the stories did not cause great confusion. Without high levels of uncertainty there did not appear to be a need to reduce it through transmission. This likely explains why uncertainty failed to predict rumor belief or transmission.

This study also sought to explore the role of belief in rumor transmission. Prior research on rumor effects has found mixed results for the effects of belief on transmission. The results of this study would indicate that belief plays no role in one's decision to transmit a rumor. That is, people do not appear to consider whether they believe a rumor before they transmit it. As will be discussed below, results from other analyses in this study confirm this finding.

To summarize, the results of the initial tests extending social-psychological theories of rumor belief and transmission to a mass communication context reveal several interesting findings. First, the single most important factor in rumor transmission is personal relevance. More than anxiety, uncertainty, or belief, if a rumor is personally relevant, it is more likely to be transmitted. Second, rumors do not necessarily need to be personally relevant to be believed. This study found evidence to suggest that even rumors marked by low personal relevance can be believed. Third, anxiety and uncertainty did not affect rumor



transmission. That is, one's intention to transmit a rumor was not determined by their level of anxiety or uncertainty. Anxiety did however impact belief of the vaccine rumor, as increased anxiety resulted in greater belief. Finally, rumor transmission is not dependent on rumor belief. That is, there was no relationship between belief and transmission.

Taken together, the results here suggest that rumors operate somewhat differently in a mass communication environment than they do in an interpersonal context. Uncertainty and anxiety play less of a role in belief and transmission, while personal relevance continues to be a critical factor.

#### *Personal Relevance and Rumors*

In the second set of analyses, this thesis sought to explore the role of personal relevance on anxiety, rumor belief, and rumor transmission. These analyses were intended to help better understand which types of rumors are believed or transmitted. Through a within-subjects comparison of the effects of the two rumor stories on these key variables, this thesis reveals significant and important differences stemming from the personal importance of a story.

A manipulation check first confirmed that the H1N1 story was more personally relevant than the death panel story. Next, results indicated that the more personally relevant vaccine rumor evoked more anxiety than did the death panel rumor. This is not surprising given the role of personal relevance. The flu vaccine rumor is important to these college students' lives. Since the outbreak of the H1N1 flu, this age group has been the target of numerous campaigns to get vaccinated. Many have either had the H1N1 flu or know someone who has. This

story signifies a potential threat to their lives and is thus more likely to produce anxiety than the innocuous death panel story (Lang, Chung, Lee, & Zhao, 2005).

In addition to higher levels of anxiety, subjects also reported greater intention to transmit the flu vaccine rumor than the death panel rumor. This finding supports the regression analyses indicating that personal relevance was the strongest predictor of transmission. It appears that people are simply not willing to share or transmit rumors that are not important to them. If thought about in an interpersonal context, this makes sense. The majority of interactions that college students have are with other college students. Their conversations likely center on topics that affect their day-to-day lives. The H1N1 vaccine story is relevant to them and is therefore a legitimate topic of conversation. Death panels, on the other hand, are of little importance, which makes it less likely that they will be talked about.

The final and perhaps most interesting result from the within-subjects tests is that participants reported greater belief in the less relevant death panel rumor than in the vaccine rumor. That is, subjects reported the vaccine rumor to be much more relevant but less believable than the death panel rumor. This finding indicates that rumors do not have to be personally relevant to be believed. Once again, the evidence here supports the results from the regression analyses predicting rumor belief and transmission. There, findings reveal that personal relevance of the H1N1 vaccine rumor was negatively related to belief. In other words, those who found the rumor to be personally relevant were less likely to believe it. And as I noted earlier, this result is likely a function of personal

experience with the H1N1 vaccine. People who already received or intend to receive the vaccine are likely to report that this information is highly relevant to them. However, they did not get sick from the vaccine and thus are less likely to believe the rumors regarding the vaccine's safety. Those who did not receive the vaccine, though, probably haven't thought about it much and therefore do not find it important. With their relative lack of knowledge about and experience with the vaccine, they are more likely to fall victim to false rumors.

It is also important to consider here another possible explanation for this effect. We know from prior research that people are defensive processors of information (Chaiken, Giner-Sorolla, & Chen, 1996). That is, when faced with threatening information people process that new information in a way that keeps their self-identity intact. A rumor about the vaccine's harmful side effects is threatening, especially for those who have already received the vaccine. They are therefore motivated not to believe the rumor because it poses a threat to their self. By not believing the rumor, they maintain their positive self-identity.

To recap the results of the within-subjects tests, the evidence supports the notion that relevance matters when looking at anxiety and rumor transmission. That is, the personally relevant rumor evoked more anxiety and created a greater intention to transmit the rumor than did the irrelevant rumor. However, increased relevance resulted in decreased belief. Taken together, these results indicate that someone might believe an irrelevant rumor but will not share it unless it is personally important.

*The Importance of Media Channel in Rumor Psychology*

The final broad question this thesis sought to address was whether the medium from which an individual received a rumor-related story impacted their belief and intended transmission of the rumor. Prior studies have shown that different media channels can affect the public's knowledge, attitude, and behaviors in different ways (Cho et al., 2003; Eveland, Seo, & Marton, 2002). This study tested whether these effects occur in the context of rumors in the news.

This thesis used Eveland's (2003) mix of attributes approach to highlight differences between media channel effects. Of particular interest to the present work are differences in rumor effects of television and newspapers. Perhaps the most important attributional difference between television and newspapers are the audiovisual elements of tv. Television is filled with motion, sound, and action that may lead to different rumor effects. It was hypothesized that these structural elements of television would increase anxiety, uncertainty, and personal relevance of rumor stories, over and above newspapers. It was further hypothesized that increases in these variables would lead to greater belief in and intention to transmit rumors.

The results here provide some support for the idea that the media channel matters. It is important to note, however, that differences in key rumor variables between television and newspapers appear to be conditional. That is, more differences between channels were found for the H1N1 vaccine rumor story than for the death panel story. These mixed results are likely a result of the increased relevance of the flu vaccine rumor.

Anxiety was the first variable on which the effects of media channel were compared. Results showed that television produced significantly more anxiety about the H1N1 vaccine rumor than did newspapers. We know from prior media effects research that television coverage is good at evoking an emotional response (Cho et al., 2003). Video of citizens getting the H1N1 vaccine or protesting against it may have increased anxiety by leading television viewers to ‘feel’ the news. It is important to note that participants in the television condition for the death panel story also reported a higher mean anxiety level, though the difference did not reach significance. The failure to reach significance is likely the result of a combination of two causes. First, the less relevant death panel story did not create as much anxiety as the vaccine story, which made it harder to detect differences between the two groups. Second, the relatively small sample size failed to provide enough power to detect those smaller differences in the death panel story. Despite the lack of significance for the death panel story, the results here do support the idea that television is better at evoking anxiety than are newspapers.

It was next predicted that television would make information about the rumors more personally relevant than newspapers. While those who watched the stories on television did report more personal relevance for both stories, these again failed to reach significance. In the present study, any effect of channel on relevance was likely too small to be fully detected given the power of the study. A similar pattern emerges for uncertainty. It was hypothesized that the speed of television news and the lack of control it provides users would lead to greater

uncertainty about the rumor. Television once again led to more mean uncertainty than newspapers, but this difference was not significant at the  $p < .05$  level. This result is perhaps once more a function of the small sample size.

Perhaps most important to mass communication theory are the reported differences between television and newspapers on rumor belief and intended transmission. Some evidence reported here supports the idea that rumors reported on television are more likely to be believed than when reported in the newspaper. The death panel story showed a significant difference of channel, as those in the television condition reported greater belief in the rumor. Television coverage of the vaccine rumor also resulted in a higher mean belief, though the difference failed to reach significance. As noted throughout this thesis, belief has produced numerous results of interest. In particular, it was reported earlier that belief was low for those who responded that H1N1 rumor information was highly relevant. It was also reported that the death panel rumor was more likely to be believed than the vaccine rumor. The lack of a significant difference in belief between channels for the vaccine rumor may be explained by the fact that people just didn't believe the rumor in the first place. The mean belief level for the vaccine story was low and there was not much variance as indicated by the small standard deviation (especially in newspapers). Thus, most people were clustered around the low end of the belief scale, making it difficult to detect any significant differences between channels.

Rumors will not survive if they are not transmitted. Therefore it is extremely important to better understand situations in which people will share

them. The final main analysis in this study examined whether rumors are more likely to be transmitted if they are received from television rather than the newspaper. This thesis found some support for this idea; results indicated that the H1N1 vaccine rumor was significantly more likely to be transmitted when people learned about it from television. This result may be explained by a closer examination of the roles of relevance and anxiety. The H1N1 story was highly relevant for participants, making that story ripe for transmission. Also, it was reported earlier that television coverage of the vaccine rumor evoked significantly more anxiety than newspapers. This increased anxiety, coupled with the personal relevance of the story may have been enough to cause people to want to share the rumor.

Remarkably, the mean level of intended transmission of the vaccine rumor for those in the television condition was over the mid-point (3.33) on the 5-point scale. This would suggest that participants who received the rumor from television were quite likely to share the rumor with their friends or family. This is a startling finding, especially given that belief in the H1N1 vaccine rumor was very low. Thus, it appears television coverage of the vaccine rumor created a situation in which people were willing to transmit a rumor they did not believe. This result is of practical interest as it hints at a dangerous cycle in which rumors that are not believed are passed around. This cycle raises concern because research has shown that rumors undergo leveling and sharpening as they are transmitted (Allport & Postman, 1947). As people share rumors they leave out certain important details while playing up other aspects. For example, consider a

hypothetical rumor in which it was reported that an elderly woman died of complications from the H1N1 vaccine. Through leveling and sharpening, this rumor might be embellished as it is passed. After several transmissions, the elderly woman becomes a healthy young man, the single case of side effects becomes hundreds of cases. The point is that the twisting and turning of information surrounding rumors may increase belief of an otherwise unbelievable rumor.

The effects of channel on transmission for the death panel rumor also are of note. Despite television creating a greater level of belief in the rumor, there was no mean difference in intention to transmit the rumor between the television and newspaper conditions. Similar to the results from the within-subjects tests, this would suggest that people are able to believe a rumor that they do not intend to share. This unwillingness to transmit believable rumors is likely because the rumor is of little personal importance to them. They may hear a rumor, believe it to be true, but not pass it along because it does not affect their lives. This is plausible with the death panel rumor given that the college-aged sample did not find that story personally relevant. Taken together, the results from the comparisons of the effects of channel on rumor transmission can be summarized in one sentence: people are willing to transmit a rumor they do not believe and believe a rumor they do not plan to transmit.

Overall the evidence presented here suggests that for personally relevant rumors, television evokes more anxiety and leads to greater intention to transmit the rumor. But what is it about television that produces these results? Some



might argue that the content of television news is different than what is presented in newspapers and any differences between the two media are a result of content. The results here would indicate otherwise; written transcripts of the television rumor stories failed to produce a single significant difference relative to the newspaper stories. This helps eliminate content as a confound. Simply put, there is something about television, other than content, that caused it produce strong effects than newspapers.

Two attributes of television might be driving these effects. First, as prior research suggests, television is very good at creating emotional responses in its viewers (Cho et al., 2003). The images, sound, and motion all serve to arouse the audience (Lang et al. 1995, 1999). This heightened arousal can produce greater anxiety, which is a theoretically important component to rumor belief. When faced with a rumor-related story that is of personal importance, it appears television images increase the level of viewer anxiety, which ultimately makes them more likely to pass the rumor.

Though it was not accounted for in this study's design, user control may be another important element that produced differences in effects of television and newspapers. As Eveland (2003) notes, television is marked by low user control as the audience is not able to determine the pace of consumption. Newspapers on the other hand provide users great control. Readers are able to decide how quickly they want to consume the material and may reread things they found interesting or confusing. This increased user control of newspapers may have resulted in greater certainty about a rumor story. Newspaper readers were

able to examine all of the information available (including both the rumors and rebuttals) and make better sense of it. They were able to return to any areas of the story that were unclear. Television viewers did not have such luxury. They were presented the information quickly and could not rewind to clarify any points. In being simultaneously presented the rumors and rebuttals, television viewers may have had a more difficult time determining what is true and what is not. This confusion may have led to more uncertainty and thus greater intention to transmit the rumors (television did produce higher levels of uncertainty, though the differences were not significant).

#### *Summary of Results*

Considering all of the results reported here, it appears that personal relevance is the key to the demonstrated effects. First, personal relevance was the only significant predictor of rumor transmission for both the H1N1 and death panel rumor stories. Second, personal relevance likely gave people enough information to combat the H1N1 rumor. That is, those who reported that flu vaccine information was highly relevant were less likely to believe the rumor. This is most likely a result of their personal experience with the vaccine. Third, the personally relevant vaccine rumor story produced more anxiety and greater intention to transmit than did the less relevant death panel story. Finally, television produced more anxiety and greater intention to share the rumor than did newspapers for the relevant vaccine rumor. These effects were not apparent for the death panel story, however. In many ways, the lack of effects between television and newspapers for the death panel story supports my general

hypotheses about rumor belief and transmission. That is, in order to detect effects between the channels, people must first have some stake in the rumor presented. There must be some level of personal involvement in order for people to be influenced by the media. The H1N1 rumor certainly met this criterion. Because the subject of the rumor could impact their health and well-being, they likely cared more about the outcome. The death panel rumor was mostly irrelevant and participants were therefore not very concerned about its veracity. As a result, the rumor did not evoke much anxiety or create much uncertainty, and was therefore less likely to be shared.

By extending the study of rumors beyond social psychology and into mass communication, this thesis has built a framework for future research examining rumors in the news. This work has become increasingly important, as rumors have become a significant part of our political and social discourse. Take for example the US presidential election in 2008. All of the candidates were shrouded in rumors; some believed Barack Obama was Muslim, John McCain was rumored to have had an affair with a lobbyist, and some claimed Sarah Palin's newborn baby was actually her granddaughter. It is not unreasonable to suggest that rumors can now have a dramatic impact on our democracy. Further, it appears rumors can also impact our health. Advocates of the H1N1 vaccine were faced with a large anti-vaccination campaign that was born out of rumors that the vaccine was unsafe. While some of these rumors gained more traction than others, the point is that rumors now play a significant role in our society. The Internet allows rumors to be disseminated with a click of a button, which has

contributed to their growing influence. A rumor that may have been contained to a local community 15 years ago can now be shared with the entire world. Given the changing role of rumors in our lives, it is important that we better understand how they operate. This thesis takes the first step toward understanding the role of mass communication in rumor psychology, but much more work needs to be done. I will discuss some of these future areas of research after an acknowledgement of this study's limitations.

### *Limitations*

*Sample size.* This study's greatest limitation is its relatively small sample size. 90 participants were evenly distributed across three conditions. While 30 participants in each condition were enough to detect large effects, they did not provide enough statistical power to detect small or medium effects. In several of the analyses above, there were mean differences in the predicted direction, but the differences did not achieve statistical significance. Of course, this could indicate that no effect is present but without a large enough sample size and power I cannot eliminate the possibility of Type II errors. Future studies must recruit more participants in order to have enough power to find at least medium size effects.

*Measures.* This study was also limited by some of the measures used. For example, a 3-item scale was used for the variable 'uncertainty.' This scale consisted of items asking the extent to which participants found the stories to be puzzling, bewildering, and confusing. These items surely tap into some sense of uncertainty, but better measures could be developed. Another measurement

limitation surrounds the rumor belief items. These items were created to determine the level to which participants believed certain aspects of each rumor. For example, one vaccine rumor belief item asked participants how effective they thought the vaccine was in preventing the H1N1 flu. An example death panel belief item asked participants the extent to which they believed the government will create death panels to decide which patients should receive end of life care. As it turned out, there were simply more areas of false information for the H1N1 rumor than for the death panel rumor. As a result, the vaccine rumor belief scale consisted of four items, while the death panel belief scale had only two items. While I feel these items still effectively tapped belief levels for each rumor, future studies must strive for more consistency in this measure.

The final measurement limitation concerns the transmission items. This study only assessed participants' intention to transmit the rumors, not their actual behavior. While behavioral theories suggest that intention is a strong predictor of behavior, these results must be interpreted with caution (Ajzen & Fishbein, 1980). It is possible that many of those who reported that they intended to transmit the rumor will not, and some who claimed they did not plan to share it will. To better measure transmission, future research would ideally follow up with participants weeks after the study to see if they actually did pass the rumor.

*Design.* The design of this study was advantageous in many ways. In particular it allowed me to test both within and between subject effects. But the design also presented limitations. For example, my hypotheses predicted several effects of channel on key rumor variables. My analyses and discussion above

suggests that these effects may be conditional, in that a rumor must first be relevant to the audience in order for channel to have an impact. In a sense, by including the irrelevant death panel rumor I might have set myself up to fail in fully rejecting some of my hypotheses. It may simply be that these predicted effects do not hold for rumors of low personal relevance. While the sample size is too small to rule out a lack of power as the cause, future research would be wise to explore this further.

Another design limitation involves the selection of stimuli. Though every effort was taken to ensure that the television news stories and the newspaper stories were as qualitatively similar as possible, one cannot eliminate the possibility that differences exist. Moving forward, studies should pretest these stories to help rule out content differences. Additionally, this study used stories from *CNN* and the *New York Times* as stimuli. While I believe *CNN* is the most appropriate channel for this study, it could be argued that the *New York Times* can present problems. Though the paper is often considered the national newspaper of record, it is perceived in some corners to have a 'liberal bias.' Rumor studies utilizing newspaper stories should pretest several papers to ensure that the source is not a confounding variable.

The final design limitation involved the rumors used. Given the student sample, it was important to find a rumor that was highly relevant to them. The H1N1 story fit this criterion. Unfortunately, the study took place five months after the rumor was first reported. Similarly, the death panel story was in the

news seven months before the study began. An interesting future study would attempt to follow rumors as they first break.

*Sample.* A student sample was justified for this study given that this population is at great risk for getting the H1N1 flu. This information is highly relevant to them and their responses provide important insight into how rumors in the news operate. However, most of the students used in this study are journalism and mass communication majors. They know a lot about the media and how news organizations function. In many respects they are more critical of the media than the average college student, which could impact the results. I would argue, however, that these rumors would produce even larger effects with students who are not journalism majors as those students are less aware of how the mass media operate. Nonetheless, recruiting from outside the SJMC would provide a more appropriate student sample.

#### *Future Research*

This thesis is one of the first attempts to study rumors in a mass communication context. The results here offer a foundation for future work in this arena. For example, this thesis examined the effects of only two rumors. Do the results found here carry over into other rumors? Of particular interest are rumors in an election setting. What impact do these rumors have on the electorate? Do people vote for or against a candidate based in part on rumors? Further, do rumors have a polarizing effect for partisans?

As I noted above, an interesting project would examine a rumor that is currently in the news. The present study had several months of lag time between

when the news broke and when the experiment was conducted. Being prepared to go into the field to gather rumor data as it happens would offer a strong test of many of this study's hypotheses.

It will also be important to move beyond a student sample in testing rumors. For example, using an elderly sample to test effects of the death panel rumor would likely produce drastically different results than those reported here. Similarly, parents of young children might respond differently to the vaccine rumor than did the students.

Another possible direction for future work involves the manipulation of rumor stories. This study compared the effects of a highly relevant rumor and a less relevant rumor. What if the less relevant rumor was actually not relevant at all? Perhaps using a rumor from a different country would produce different effects. Also, blogs and more partisan websites are filled with rumors that could possibly impact society. A study looking at the effects of rumors from less credible on-line sources would make an excellent contribution to this discussion.

It is also important to examine potential mediators and moderators of rumor effects. For example, does trust in government or source credibility moderate rumor effects? Along this line, some studies in social psychology and political science have explored the impact of rebuttals (Eiwiller & Kamins, 2008). What about rebuttals in the news? Do they help prevent people from believing or transmitting rumors?

The role of belief must be the subject of more research. In this study, I found that a personally relevant rumor was less likely to be believed than an



irrelevant rumor. Was this finding a result of the particular rumor used, or was some other factor at play? Was the rumor rejected because defensive processing was activated? Were people motivated to not believe the rumor in order to maintain their self-image? Was the rumor simply too threatening for people to believe? Research testing the relationship between belief and defensive processing would therefore be quite useful.

In sum, the study of rumors is an important endeavor in the current media environment. While this thesis begins to answer some critical questions, much more work remains. Only by pursuing more research in this area will we better understand the impact rumors have on our society.

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Table 1

*Correlations, Means, and Standard Deviations for Rumor Variables, H1N1 Story, All Conditions*

<b>Variable</b>	1	2	3	4	5
1. Intended transmission	—				
2. Anxiety	.26**	—			
3. Personal relevance	.36***	.34***	—		
4. Uncertainty	.19*	.42***	.19*	—	
5. Rumor belief	.00	.21*	-.42***	.03	—
Mean	2.97	2.63	3.53	2.20	2.20
Standard Deviation	1.17	1.05	.81	.89	.83

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 2

*Correlations, Means, and Standard Deviations for Rumor Variables, Death Panel*

*Story, All Conditions*

<b>Variable</b>	1	2	3	4	5
1. Intended transmission	—				
2. Anxiety	.24*	—			
3. Personal relevance	.39***	.39***	—		
4. Uncertainty	.09	.55***	.12	—	
5. Rumor belief	-.03	.20*	.21*	.13	—
Mean	2.64	2.44	2.92	2.76	2.49
Standard Deviation	1.06	.89	1.00	.91	1.01

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 3

*Predicting Belief in H1N1 Vaccine Rumor, All Conditions*

	All Conditions	
	B (SE)	$\beta$
Anxiety	.33 (.08)***	.42
Relevance	-.57 (.10)***	-.56
Uncertainty	-.04 (.09)	-.04
N	90	
Adjusted R <sup>2</sup>	.30	

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 4

*Predicting Transmission of H1N1 Vaccine Rumor, All Conditions*

	All Conditions	
	B (SE)	$\beta$
Anxiety	.08 (.14)	.07
Relevance	.51 (.18)**	.35
Uncertainty	.12 (.15)	.09
Belief	.19 (.17)	.13
N	90	
Adjusted R <sup>2</sup>	.11	

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 5

*Predicting Belief in Death Panel Rumor, All Conditions*

	All Conditions	
	B (SE)	$\beta$
Anxiety	.05 (.14)	.05
Relevance	.15 (.11)	.15
Uncertainty	.24 (.13)#	.21
N		90
Adjusted R <sup>2</sup>		.06

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$ , #  $p \leq .10$ .

Table 6

*Predicting Transmission of Death Panel Rumor, All Conditions*

	All Conditions	
	B (SE)	$\beta$
Anxiety	.12 (.14)	.10
Relevance	.39 (.11)***	.37
Uncertainty	.06 (.13)	.05
Belief	-.15 (.11)	-.14
N	90	
Adjusted R <sup>2</sup>	.14	

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 7

*Paired sample t-tests for Rumor Anxiety, Belief, and Transmission*

	H1N1 Story Mean (SD)	Death Panel Story Mean (SD)	Test Statistic
H7: Anxiety	2.63 (1.05)	2.44 (.89)	$t(89) = 1.84^*$ , $d_z = .21$
H8: Rumor Belief	2.20 (.83)	2.49 (1.01)	$t(89) = -2.36^{**}$ , $d_z = -.24$
H9: Rumor Transmission	2.97 (1.17)	2.64 (1.06)	$t(89) = 2.52^{**}$ , $d_z = .27$

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$

Table 8

*Planned Comparisons Between Television and Newspapers on Rumor Anxiety, Uncertainty, Relevance, Belief, and Transmission. H1N1 Rumor Story.*

	Television Mean (SD)	Newspapers Mean (SD)	Test Statistic
H10: Anxiety	2.84 (1.01)	2.36 (.97)	$t(87) = 1.82^*$ , $d = .48$
H11: Relevance	3.69 (.86)	3.51 (.72)	$t(87) = .85$ , <i>ns</i>
H12: Uncertainty	2.41 (1.07)	2.04 (.71)	$t(87) = 1.61\#$
H13: Rumor Belief	2.32 (.94)	2.04 (.75)	$t(87) = 1.29$ , <i>ns</i>
H14: Rumor Transmission	3.33 (1.06)	2.72( 1.22)	$t(87) = 2.07^*$ , $d = .53$

*Note.* \*\*\*  $p \leq .001$ ; \*\* $p < .01$  \* $p < .05$ , #  $p \leq .10$ .



Table 9

*Planned Comparisons Between Television and Newspapers on Rumor Anxiety, Uncertainty, Relevance, Belief, and Transmission. Death Panel Rumor Story.*

	Television Mean (SD)	Newspapers Mean (SD)	Test Statistic
H10: Anxiety	2.56 (.91)	2.29 (.84)	$t(87) = 1.15, ns$
H11: Relevance	3.02 (.97)	2.89 (1.01)	$t(87) = .51, ns$
H12: Uncertainty	2.73 (.95)	2.49 (.79)	$t(87) = 1.07, ns$
H13: Rumor Belief	2.85 (1.05)	2.28 (.91)	$t(87) = 2.22^*, d = .58$
H14: Rumor Transmission	2.72 (1.00)	2.72 (1.10)	$t(87) = 0.00$

*Note.* \*\*\*  $p \leq .001$ ; \*\*  $p < .01$  \*  $p < .05$ , #  $p \leq .10$ .

## Appendix A

### QUESTIONNAIRE

Q: From which medium do you receive most of your news about what's going on in the world today?

1. Cable Television (Fox News, MSNBC, CNN)
2. Network Television (ABC, NBC, CBS)
3. Newspapers
4. Radio
5. The Internet
6. Other

Q: On average, how many days a week do you read a newspaper, either in print or online?

\_\_\_\_\_

Q: On average, how many days a week do you watch cable news?

\_\_\_\_\_

Q: On average, how many days a week do you watch network news (ABC, CBS, NBC)?

\_\_\_\_\_

Q: Please indicate the level to which you agree or disagree with the following statements:

Scale:

(1) *strongly disagree* (2) *disagree* (3) *neither agree nor disagree* (4) *agree* (5) *strongly agree*

I use the news to give me more facts to back up my opinions.

I use the news to stay informed about my surroundings.

I use the news because it helps me understand the main events of the day.

I use the news because it helps me make up my mind about things.

I often try to relate what I see on TV news to my own personal experiences.

I often think about how what I see on TV news relates to other things I know.

I often try to relate what I read in the newspaper to my own personal experiences.

I often think about how what I read in the newspaper relates to other things I know.

Q: When you come across the following kinds of coverage in the news, how much *attention* do you pay to them? Here, 1 means very little attention, and 10 means very close attention. How much attention do you pay to . . . ?”

Scale:

(1) *Very little attention* to (5) *Very close attention*

stories about health or science on television?

articles about health or science in newspapers?

Q: To what degree to you find The New York Times /CNN to be fair?

(1) *extremely unfair* (2) *quite unfair* (3) *slightly unfair* (4) *neither* (5) *slightly fair*  
(6) *quite fair* (7) *extremely fair*

Q: To what degree to you find The New York Times/ CNN to be credible?

(1) *extremely uncredible* (2) *quite uncredible* (3) *slightly uncredible* (4) *neither*  
(5) *slightly credible* (6) *quite credible* (7) *extremely credible*

Q: To what degree to you find The New York Times/CNN coverage to be in-depth?

(1) *extremely not in-depth* (2) *quite not in-depth* (3) *slightly not in-depth* (4) *neither*  
(5) *slightly in-depth* (6) *quite in-depth* (7) *extremely in-depth*

Q: To what degree to you find The New York Times/CNN to be believable?

(1) *extremely unbelievable* (2) *quite unbelievable* (3) *slightly unbelievable* (4) *neither* (5) *slightly believable* (6) *quite believable* (7) *extremely believable*

**Next, we have some basic questions about you, your worldview, and your environment.**

Scale:

(1) *strongly disagree* (2) *disagree* (3) *neither agree nor disagree* (4) *agree* (5) *strongly agree*

Q: In general, one can rely on the federal government to do the right thing?

Q: In general, the government tells the people the truth?

Q: I like to explore strange places:

Q: I like to do frightening things:

Q: I like new and exciting experiences, even if I have to break the rules:

Q: I prefer friends who are exciting and unpredictable:

Q: What is your age?

Q: What is your gender?

M      F

Q: Are you Hispanic/Latino (such as Mexican, Puerto Rican, or another Spanish background)?

Y                  N

Q: Which of these groups best describes your racial or ethnic background?

1. American Indian/Alaskan native
2. White/Caucasian
3. Black/African American
4. Native Hawaiian or other Pacific Islander
5. Asian/Asian American
6. Other

Q: When it comes to politics, do you usually think of yourself as:

1. Extremely Liberal
2. Liberal
3. Slightly Liberal
4. Moderate: Middle of the Road
5. Slightly Conservative
6. Conservative
7. Extremely Conservative

### **EXPOSURE TO H1N1 STORY**

Q: Please indicate how much this article/news clip made you feel:

Scale:

(1) *Not at all* to (5) *Very much*

Anxious  
Afraid  
Surprised  
Irritated  
Puzzled  
Worried  
Astonished  
Happy  
Angry  
Confused  
Concerned  
Scared  
Amazed  
Annoyed  
Cheerful  
Bewildered  
Fearful

Q: How important do you think it is for you to get an h1n1 flu vaccine?

(1) *not important at all* (2) *hardly important* (3) *somewhat important* (4) *important* (5) *very important*

Q: How important do you think it is for College students in general to get an h1n1 flu vaccine?

(1) *not important at all* (2) *hardly important* (3) *somewhat important* (4) *important* (5) *very important*

Q: How relevant do you think information about the h1n1 virus is for you?

(1) *not relevant at all* (2) *hardly relevant* (3) *somewhat relevant* (4) *relevant* (5) *very relevant*

Q: Information regarding the h1n1 virus is:

(1) *not at all for someone like me* (2) *hardly for someone like me* (3) *neither* (4) *somewhat for someone like me* (5) *very much for someone like me*

Q: How likely are you to seek out more information on the h1n1 vaccine?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: Consider the following scenario: Your best friend is thinking about getting the H1N1 vaccine this winter and asks for your advice. Based on what you know about the vaccine, to what would you recommend to your friend?

(1) *Definitely get the vaccine* (2) *Maybe get the vaccine* (3) *neither* (4) *maybe do not get the vaccine* (5) *Definitely do not get the vaccine*

Q: How effective do you think the h1n1 vaccine will be in keeping people from getting the flu?

(1) *extremely ineffective* (2) *slightly ineffective* (3) *neither* (4) *slightly effective* (5) *extremely effective*

Q: How likely do you think it is that people will get sick from the h1n1 vaccine?

(1) *extremely unlikely* (2) *slightly unlikely* (3) *neither* (4) *slightly likely* (5) *extremely likely*

Q: Compared to the regular flu vaccine, how much safety testing do you think the H1N1 vaccine has undergone?

(1) *much less* (2) *somewhat less* (3) *neither* (4) *somewhat more* (5) *much more*

Q: Do you think the h1n1 vaccine has undergone enough testing by the federal government?

Yes

No

Q: To what extent do you think the h1n1 vaccine will harm or help people?

(1) *extremely harmful* (2) *slightly harmful* (3) *neither* (4) *slightly helpful* (5) *extremely helpful*

Q: To what extent do you think the h1n1 vaccine is safe for the general public?

(1) *extremely safe* (2) *slightly safe* (3) *neither* (4) *slightly unsafe* (5) *extremely unsafe*

Q: How likely is it that you would send this video/article to a friend or family member?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: How likely is it that you would talk about this story with a friend or family member?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: To what extent did you consider this story to be accurate?

(1) *very inaccurate* (2) *somewhat inaccurate* (3) *neither inaccurate nor accurate* (4) *somewhat accurate* (5) *very accurate*

Q: To what extent did you consider this story to be complete (that is, were you told all you needed to know)?

(1) *very incomplete* (2) *somewhat incomplete* (3) *neither incomplete nor complete* (4) *somewhat complete* (5) *very complete*

Q: To what extent did you consider this story to be biased?

(1) *very biased*(2) *somewhat biased* (3) *neither biased nor unbiased* (4) *somewhat unbiased* (5) *very unbiased*

Q: To what extent do you think this story was sensationalized?

(1) *very sensationalized* (2) *somewhat sensationalized* (3) *neither sensationalized nor not sensationalized* (4) *somewhat not sensationalized* (5) *very much not sensationalized*

Q: Have you received the h1n1 vaccine?

Yes

No

Q: If you have not received the h1n1 vaccine, do you intend to?

Yes

No

Q: If you have not received the h1n1 vaccine and do not intend to get it this year, what are the reasons for that decision?

Q: Have you had the h1n1 flu?

Yes

No

Q: How much news coverage regarding the h1n1 flu vaccine would you estimate you have seen or read in the past 3 months?

(1) *none at all* to (5) *a lot*

Q: If you have seen news coverage about h1n1 flu vaccine, what was the source of that coverage?

1. Cable Television (Fox News, MSNBC, CNN)
2. Network Television (ABC, NBC, CBS)
3. Newspapers, including on-line



4. Radio
5. on-line sources other than newspapers

Q: How much have you talked about the h1n1 flu with your friends or family in the past 3 months?

(1) *none at all* to (5) *a lot*

### **DEATH PANEL STORY**

Q: Please indicate how much this article/news clip made you feel:

Scale:

(1) *Not at all* to (5) *Very much*

Anxious  
Afraid  
Surprised  
Irritated  
Puzzled  
Worried  
Astonished  
Happy  
Angry  
Confused  
Concerned  
Scared  
Amazed  
Annoyed  
Cheerful  
Bewildered  
Fearful

Q: How important do you think it is for you to know about death panels?

(1) *not important at all* (2) *hardly important* (3) *somewhat important* (4) *important* (5) *very important*

Q: How important do you think it is for College students in general to know about death panels?

(1) *not important at all* (2) *hardly important* (3) *somewhat important* (4) *important* (5) *very important*

Q: How relevant do you think information about death panels?

(1) *not relevant at all* (2) *hardly relevant* (3) *somewhat relevant* (4) *relevant* (5) *very relevant*

Q: Information regarding death panels is:

(1) *not at all for someone like me* (2) *hardly for someone like me* (3) *neither* (4) *somewhat for someone like me* (5) *very much for someone like me*

Q: How likely are you to seek out more information about death panels?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: To what extent do you agree with the following statement: The debate on death panels is a legitimate topic of discussion.

(1) *strongly disagree* (2) *disagree* (3) *neither agree nor disagree* (4) *agree* (5) *strongly agree*

Q: Do you think the death panel rumor is true?

Yes

No

Q: To what extent do you believe or not believe that the death panel rumor was created by opponents of health care reform?

(1) *strongly believe* (2) *somewhat believe* (3) *neither* (4) *somewhat do not believe* (5) *strongly do not believe*

Q: To what extent do you believe or not believe that the government will create death panels to decide which patients should receive end of life care?

(1) *strongly believe* (2) *somewhat believe* (3) *neither* (4) *somewhat do not believe* (5) *strongly do not believe*

Q: To what extent do you believe or not believe that the government will control doctors' treatment of patients with incurable diseases?

(1) *strongly believe* (2) *somewhat believe* (3) *neither* (4) *somewhat do not believe*  
(5) *strongly do not believe*

Q: How likely is it that you would send this video/article to a friend or family member?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: How likely is it that you would talk about this story with a friend or family member?

(1) *very unlikely* (2) *unlikely* (3) *neither likely nor unlikely* (4) *likely* (5) *very likely*

Q: To what extent did you consider this story to be accurate?

(1) *very inaccurate* (2) *somewhat inaccurate* (3) *neither inaccurate nor accurate*  
(4) *somewhat accurate* (5) *very accurate*

Q: To what extent did you consider this story to be complete (that is, were you told all you needed to know)?

(1) *very incomplete* (2) *somewhat incomplete* (3) *neither incomplete nor complete*  
(4) *somewhat complete* (5) *very complete*

Q: To what extent did you consider this story to be biased?

(1) *very biased* (2) *somewhat biased* (3) *neither biased nor unbiased* (4)  
*somewhat unbiased* (5) *very unbiased*

Q: To what extent do you think this story was sensationalized?

(1) *very sensationalized* (2) *somewhat sensationalized* (3) *neither sensationalized  
nor not sensationalized* (4) *somewhat not sensationalized* (5) *very much not  
sensationalized*

Q: How much news coverage regarding death panels would you estimate you have seen or read in the past 3 months?

(1) *none at all* to (5) *a lot*

Q: If you have seen news coverage about death panels, what was the source of that coverage?

1. Cable Television (Fox News, MSNBC, CNN)
2. Network Television (ABC, NBC, CBS)
3. Newspapers, including on-line
4. Radio
5. on-line sources other than newspapers

Q: How much have you talked about death panels with your friends or family in the past 3 months?

(1) *none at all* to (5) *a lot*