

Effects of Media Channel, Crisis Type and Demographics on Audience Intent to Follow Instructing Information During Crisis

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Media channel use during crisis is an underdeveloped area of crisis communication research. A thorough understanding of how and where people seek information during a crisis is central to effective crisis message strategy, and understanding how the media source of crisis information affects motivation to comply with crisis directives to audiences can further inform crisis management. A survey (N = 454) examines how audiences use media during crisis communication and reveals that (1) people use different media for information seeking during different types of crisis, (2) among demographics, age predicts preferences in information channels during crisis and (3) crisis type and age shape the relationship between media choice and intent to follow recommended behaviours. Theoretical and practical implications of the findings are discussed.

1. Introduction

Crisis communication research is vibrant in scholarly literature (Kim, Avery, & Lariscy, 2011) and steady examples of organizations' poor crisis management [e.g., Malaysia Airlines' crisis communication after MH370's disappearance; see Howell (2015) for details] underscore the importance of this pressing line of inquiry. Further establishing the need for an opportunity in this line of research, social media have increased the visibility of organizational crises and public dialogue surrounding negative events and have established their place in crisis management plans at all crisis stages. Social media have increased public expectations that crisis responses are quicker, more accurate and even more transparent, as publics are

engaged in crisis management via social media in a way they never have been before. Yet, Liu, Fraustino, and Jin (2015) explore public response to crisis information and 'caution emergency managers against jumping on the social media bandwagon to the exclusion of other venues' (Liu et al., 2015, p. 60).

As crisis managers are being issued with this warning, perhaps crisis communication scholars should step back and consider the same. Certainly, active, strategic engagement of social media is expected of organizations in good times and bad; however, the role of traditional media in this rapidly evolving communication landscape cannot be neglected even as social media draw their understandably vast attention in crisis research (Liu & Fraustino, 2014). With a few notable exceptions (Liu, Austin, & Jin, 2011; Liu et al., 2015), recommendations

for engagement of traditional media tools in crisis response plans and how social media are affecting that mix are lacking, especially those from the perspective of the audience and how it seeks and uses information.

In the same way that Coombs' (1995) situational theory of crisis communication (SCCT) and the vast body of work it has generated have established that different crisis types necessitate different message strategies, different crisis types may likewise call for differently tailored channels to maximize their reach and effectiveness. More strategically targeted messaging is especially important when publics are being issued directives to follow in response to crises that threaten their safety; unveiling the most effective combinations of messages and media may boost motivation to perform recommended behaviours. This research focuses on the role of the audience's channel selection in crisis communication to better inform media strategy during crises. Social media have dramatically changed how people use media, but the exact nature of that change needs more explication in crisis research. As Liu et al. (2011) note, matching form and source, among other media use variables, are not currently considered in the SCCT framework that is often employed to make research-based recommendation. Especially during crises such as natural disasters and weather emergencies, reaching audiences with the most effective message through the most appropriate channel is of vital importance in minimizing threats to public safety and bolstering adherence to crisis directives.

Decades of research have demonstrated the importance of tailoring message strategy to crisis type, and it follows that different types of crises necessitate different message and different media use strategies. Avery (2010) documents the patterns of media use among audiences based on demographics and involvement as well as differences in preferred channels for receiving health information between routine and crisis contexts. Benoit (2015) and Liu et al. (2011) document the importance of strategically matching crisis information form and source when organizations respond to crisis. To extend that research and other studies (e.g., Liu et al., 2015) that have explored engagement of media channels during crisis, we analyse information-seeking preferences and intentions to follow recommended behaviours during different types of crises. This analysis utilizes Herzog's (1941) media uses and gratifications theory to examine how crisis type affects and how audiences use media to extend channel use recommendations based on a user, not organizationally centred, approach.

2. Literature review

More than 70 years ago, Herzog (1941) pioneered the earliest work on media uses and gratifications theory

and shifted the question from what media do to people to what people are doing with media. Since then, uses and gratifications theory research has actively parcelled out how and why people use media for different needs. The basic premise of uses and gratifications theory (Herzog, 1941) is that audiences seek out and use media channels and programming to fulfil certain needs; they actively and attentively engage in this process because they believe the content is valuable and serving some function. Early studies identified three primary gratifications: emotional release, wishful thinking and salient behavioural guidance (DeSanto, 2005). Audiences assess the amount of gratification they will receive in comparison to the extent attained by other media channels and programmes to decide where to seek information. Thus, in a crisis context when media are used for behavioural guidance, people will compare the utility of channels based on the perceived extent of gratification they will avail to determine where they will seek information.

Coombs' (1995) situational crisis communication theory is considered a dominant theoretical tradition in crisis communication research (Kim et al., 2011). For decades, scholars have vigorously explored crisis response strategies to test their effectiveness in various situations (see, e.g., Arpan & Pompper, 2003; Olsson, 2014; Seeger & Ulmer, 2002) and have developed extensive recommendations and best practices for crisis response message strategy. Of course, Coombs' (1995) rubric and its extension categorizing crises reflect the organization's responsibility for an intentionality in the crisis situation. To complement this work by focusing on how audiences seek information during a crisis, this study adopts Herzog's (1941) uses and gratifications theory to extend the understanding of audience's information seeking during a wide range of crises (e.g., public health, natural disaster, terrorism, political, act of violence and transportation).

Also, this approach may enhance scholars' understanding of the behavioural response of the audience during crisis. Hilgartner and Bosk (1988) consider the 'carrying capacities' for different public arenas (e.g., newspapers, foundations and public foundations) and operatives (e.g., politicians, reporters and public relations firms) as well as members of the public to reveal their resource constraints, given that each unit has limited resources to allocate to a social problem. Although a model of cultural and political competition for space in this capacity, Hilgartner et al.'s (1988) work also invites consideration of the audience's capacity to attend to and follow crisis directives. Couldry, Livingstone, and Markman (2007) note that understanding media use involves much more than loose thinking about the consequences of new media technology as a whole. Though people have different views about media in general, 'their *habits* of media

consumption may be different across particular media, and the particular constellation of media on which one individual draws may be quite different than another's' (Couldry et al., 2007, p. 90).

2.1. Media use by crisis type

Compared to message strategy, little is known about how audiences use different media channels for information seeking across different types of crisis. However, just as media use is, to a degree, socially stratified (Couldry et al., 2007), there is also evidence of stratification by context. Avery (2010) documents differences in channel preference between routine and crisis situations, and other studies (e.g., Austin, Liu, & Jin, 2012; Liu, Jin, & Austin, 2013; Liu et al., 2011, 2015) offer extensive experimental evidence of effects on audiences of crisis information source and form across crisis types. Liu and Kim (2011) note that 'investigating how publics process crisis messages via traditional and social media would be especially valuable given that publics process crisis messages differently on and offline' (Liu et al., 2011, p. 242). During different crises that affect publics in different ways, these information needs and channel preferences may also vary (Avery, 2010; Liu et al., 2015). Learning about an airline crash and of a disease outbreak impose different needs and expectations for what one needs to garner from mediated information sources and thus likely the preferred form of that information. A central assumption of uses and gratifications theory articulated by Katz, Blumler, and Gurevitch (1974) is that media use is both active and goal oriented, and active media use includes developing preferred media to use in given situations. Based on this assumption of Herzog's (1941) uses and gratifications theory and to inform a deeper understanding of how this process works during crisis, we hypothesize:

H1: People use different media for information seeking during different types of crisis.

2.2. Demographic predictors of information seeking

As noted, there is some experimental evidence that source and form of information are important during crisis. In an experiment with 162 college students, Liu and her colleagues have generated compelling findings that 'clearly indicate the importance of strategically matching crisis information form and source when organizations respond to a crisis' (Liu et al., 2011, p. 345). Liu et al. (2013) offer strong evidence of the importance of strategic selection of form and source and that traditional media exert more influence on

how people discuss crisis than other media forms. Participants who receive crisis information via traditional media were more likely to positively communicate about the crisis (Liu et al., 2013). Also from that study in a different article, Liu et al. (2011) reveal that people are more likely to accept defensive, supportive and evasive crisis responses from traditional media than from word-of-mouth or social media. So, audiences in general are more likely to accept organizational responses from traditional media, although this acceptance is moderated by source of the response (individual or third party). From another set of findings from that study, Austin et al. (2012) note that publics use traditional media more for education about the crisis and use social media more for updates from friends and family. The influence of third-party information (in large part due to its enhanced credibility) from traditional media was especially important in crisis communication as well as in using both traditional and social media.

In another experiment with 871 college students, Liu et al. (2015) found that no single information form is sufficient to educate or to elicit optimal response from publics during disasters; they caution crisis communication managers against solely relying on social media to the exclusion of other channels. Disaster type and information source significantly interacted to affect participants' intentions to engage in information-sharing behaviours and disaster type also had a main effect on information seeking. In sum, 'the effects of disaster information type are subtle but complex' (Liu et al., 2015, p. 61).

As Liu and colleagues note, these cases offer robust experimental evidence for why crisis information form and source matter; however, the case they make is built with student samples, which may lack some generalizability to adults who have experienced the impacts of crisis more intensely and directly. In another study investigating media channel use during crisis, Avery (2010) collected data from a random telephone survey and revealed that age significantly predicted channel selection for health crisis information. Use of public health departments, the Internet, radio, and family and friends as sources for crisis information varied among age groups; interestingly, public health departments were the most important source for young adults, while the Internet was most important for those between 18 and 24 years of age, although it was slightly less important for crisis than routine information (Avery, 2010). Yet, since that study, social media rapidly bloomed as an information source, and this investigation adds gender, marital status, education level, income and children in the household into the mix as demographic predictors. We enrich Avery's (2010) survey results as well as extend the strong experimental case made with students by

Liu and colleagues with enhanced external validity by asking the following in a survey:

RQ1: How, if at all, do demographics (age, gender, marital status, education, income and children) predict preferences in information-seeking channels during crisis?

2.3. Media choice, crisis type and demographics as predictors of following directives

In a quantitative review of 18 years of crisis research, Avery, Lariscy, Kim, and Hocke (2010) found that image repair was the crisis response goal of organizations in 86% of published crisis communication studies. Coombs (2009) likewise noted that the majority of crisis communication research has focused on image repair. However, another vital function of crisis response is the provision of instructing information for publics to follow to protect themselves during crises such as health scares, product recalls and weather emergencies (Sellnow, Lane, Littlefield, Sellnow, Wilson, Beauchamp, & Venette, 2015; Vihalemm, Kiisel, & Harro-Loit, 2012). Whereas instructing information tells publics how to respond to mitigate harm, adjusting information facilitates coping with the crisis by being steady and transparent with the flow of information as well as discussing the corrective and preventative action the organization is taking (Coombs, 2009; Vihalemm et al., 2012).

During a crisis, publics must not only believe there is a threat but also have faith that following the directives they are given is a viable protective measure (Kim et al., 2011). Publics may have to be convinced that there is a crisis they need to respond to, or conversely, they may determine when a situation becomes a crisis. If a public identifies a situation as a crisis, the onus is on the organization to respond in some way, whether or not it agrees there even is a crisis. Failure to do so will compromise reputation and, subsequently, adherence to future directives and crisis protocol (Maxwell, 1999). Particularly during crises such as natural disasters, weather events and public health threats, it is critical for publics to follow instructing information. However, predictors of audience motivation to follow those directives are relatively unexplored in crisis communication research (Sellnow et al., 2015). To begin to fill that gap and develop a richer understanding of audiences' intent to follow instructing information by focusing on media choice, crisis type and demographics, we ask:

RQ2: Is there an effect of media channel selection on following recommended behaviours?

RQ2(a): Are there differences based on the crisis type in the effects of media channel selection on following recommended behaviours?

RQ2(b): Are there differences based on demographics in the effects of media channel selection on following recommended behaviours?

3. Method

A survey research centre at a large U.S. university was hired to conduct an IRB-approved online survey. The survey research centre contracted Survey Sampling International (SSI) to host the survey with its online sample and to select a sample that reflects the target population. The crisis types and theoretical development of the study adopt the well-grounded typologies established by Coombs' (1995) and the decades of work SCCT generated, but we assess a broader and, we argue, more valid range by having audiences reflect on their lived experiences with the different crisis types.

3.1. Recruitment

Survey Sampling International does not directly contact participants for a particular survey. Rather, panelists are requested to log into their accounts to access the surveys that are available for their participation at any given time. Panelists often access their accounts on their own volition, and a general invitation is sent out multiple times a week to remind panelists to check their accounts for available surveys. Panelists are also taken to their accounts after previous survey sessions in case they would like to try another survey (with a limit of five survey starts per day). For this study, invitations were not needed, and there were 559 starts, with 50 respondents dropping, two respondents screening out and 507 completing. Given the large sample size, respondents who had multiple missing answers and who finished the survey in a relatively short amount of time (i.e., three SDs below the mean) were deleted from the data set resulting in a final number of 454 respondents.

3.2. Procedure and measures

People who agreed to participate were asked about the first place they would go to find information on each crisis. To test H1, there were six crisis types presented: public health, natural disaster, terrorism, political, act of violence and transportation. For each crisis type, participants' primary source of information during a crisis was measured by asking 'For each type

of crisis, where is the first place you would go to find out information about the crisis?' Individuals selected one medium among seven categories: television, newspaper, magazine, radio, website, social media and friends and family members. Then, for RQ2, participants read a natural disaster crisis scenario and reported their agreement with the situational motivation scale (Guay, Vallerand, & Blanchard, 2000) on a five-point scale (Cronbach's $\alpha = .90$), and the same procedure was followed for a public health crisis scenario (Cronbach's $\alpha = .95$). In each scenario, a standard format warning from an official organization was presented, and suggested behaviours were described. For example, in the natural disaster (tornado) scenario, a tornado notice (e.g., how strong the tornado is) and recommended behaviours (e.g., take cover now and avoid windows) from the U.S. National Weather Service (NWS) were included. The warning followed the standard format used by the NWS. Participants read each scenario. In the public health scenario (whooping cough), information about the rise of whooping cough in the United States was provided, followed by the risks (e.g., contagiousness and fatality of whooping cough) and recommended behaviours from a public health department (i.e., get vaccinated).

Lastly, participants' demographic information was collected. Respondents were asked to indicate their ages (open-ended); gender: male or female; state residency (select the state they live in); ethnicity/race: white, black/African American, American Indian, Asian, native Hawaiian or pacific islander, multiracial, Hispanic or other; marital status: married, domestic partnership, widowed, divorced, separated or other; level of education: some high school, high school diploma, some college, college degree or postgraduate degree; children in the house: yes or no; household income: less than \$15,000, \$15,000 to less than \$30,000, \$30,000 to less than \$50,000, \$50,000 to less than \$75,000, \$75,000 to less than \$100,000, \$100,000 to less than \$150,000, or \$150,000 or more.

4. Results

4.1. Sample profile

Of the total sample ($N = 454$), 224 (49.7%) were males and 230 (50.3%) were females. The majority of respondents were white ($n = 348$, 76.7%), followed by American Indian ($n = 40$, 8.8%), African American ($n = 25$, 5.5%), Asian ($n = 23$, 5.1%) and Hispanic ($n = 9$, 2.0%). There were respondents from 46 states in the sample. Concerning the level of education, college degree ($n = 165$, 36.3%) was most frequent, followed by some college ($n = 135$, 29.7%), high school diploma ($n = 90$, 19.8%), and post-graduate degree

($n = 55$, 12.1%). Ages ranged from 18 to 88, and the mean was 45.

4.2. Hypothesis 1

To test whether people use different media for information seeking during different crisis types, frequency and percentage of media type were examined using a crosstab analysis, as crosstab and chi-square test are designed to examine any differences in two or more categorical variables (Lancaster & Seneta, 2005). As shown in Table 1, for crises such as natural disaster, terror, act of violence and transportation crises, participants heavily relied on television for information (67.8%, 71.1%, 63.4% and 63.2%, respectively). However, reliance on television notably decreased for public health and political crises (45.2% and 41.2%, respectively). For all crisis types, websites were the second most frequently used for crisis information seeking, while magazines were the least popular media channel. Interestingly, about 14% of people sought political crisis information from newspapers, and 17.4% asked their friends and family members for information during public health crises. A chi-square test revealed that overall, people use different media for information seeking during different types of crises, $\chi^2(30) = 325.32$, $p < .001$.

4.3. Research Question 1

Crosstab analyses were performed to examine the effect of demographics on channel selection for information seeking during crisis. First, the open-ended measure of age was recoded into six categories: 18–24, 25–34, 35–44, 45–54, 55–64 and 65+. Age groups were assigned a value of 1–6 in chronological order by group. Crosstab results indicated that information-seeking channels used in crisis were different by age group, $\chi^2(30) = 56.70$, $p < .01$. For age categories 1 and 2 (18- to 34-year-old), online channels such as websites (13.6% and 16.9%, respectively) and social media (15.3% and 9.1%, respectively) were important sources for crisis information, while television was the only dominant information channel for people older than 35. For example, the average percentage of reliance on television among younger groups (i.e., age 18–34) was 57.6%, while the average percentage of reliance on television among older groups (i.e., age 35 and over) was 72.0%. Next, all other demographic information was examined. However, no other demographic variables were significant: [gender: $\chi^2(6) = 4.41$, $p = .622$; marital status: $\chi^2(42) = 55.45$, $p = .080$; education: $\chi^2(30) = 19.06$, $p = .939$; income: $\chi^2(42) = 43.87$, $p = .392$; and children in house: $\chi^2(6) = 2.62$, $p = .855$] (Table 2).

Table 1. Frequency and Percentage of Crisis Type by Media Type

Crisis type	Media type						
	TV <i>n</i> (%)	Newspaper <i>n</i> (%)	Magazine <i>n</i> (%)	Radio <i>n</i> (%)	Website <i>n</i> (%)	Social media <i>n</i> (%)	Friends/family <i>n</i> (%)
Public health	205 (45.2)	16 (3.5)	7 (1.5)	13 (2.9)	110 (24.2)	24 (5.3)	79 (17.4)
Natural disaster	308 (67.8)	9 (2.0)	4 (0.9)	42 (9.3)	51 (11.2)	22 (4.8)	18 (4.0)
Terror	323 (71.1)	16 (3.5)	2 (0.4)	19 (4.2)	57 (12.6)	25 (5.5)	12 (2.6)
Political	187 (41.2)	63 (13.9)	5 (1.1)	10 (2.2)	105 (23.1)	30 (6.6)	54 (11.9)
Act of violence	288 (63.4)	26 (5.7)	6 (1.3)	13 (2.9)	71 (15.6)	30 (6.6)	20 (4.4)
Transportation	287 (63.2)	21 (4.6)	6 (1.3)	20 (4.4)	76 (16.7)	29 (6.4)	15 (3.3)

Table 2. Frequency and Percentage of Source by Age Group

Age group	Media type						
	TV <i>n</i> (%)	Newspaper <i>n</i> (%)	Magazine <i>n</i> (%)	Radio <i>n</i> (%)	Website <i>n</i> (%)	Social media <i>n</i> (%)	Friends/family <i>n</i> (%)
18–24	32 (54.2)	1 (1.7)	3 (5.0)	4 (6.8)	8 (13.6)	9 (15.3)	2 (3.4)
25–34	47 (61.0)	2 (2.6)	0 (0)	5 (6.5)	13 (16.9)	7 (9.1)	3 (3.9)
35–44	50 (65.9)	2 (2.6)	1 (1.3)	9 (11.8)	8 (10.5)	4 (5.3)	2 (2.6)
45–54	48 (65.8)	0 (0)	0 (0)	9 (12.3)	12 (16.4)	0 (0)	4 (5.5)
55–64	63 (75.0)	2 (2.4)	0 (0)	7 (8.3)	7 (8.3)	2 (2.4)	3 (3.6)
65+	60 (81.1)	1 (1.3)	0 (0)	6 (8.1)	3 (4.1)	0 (0)	4 (5.4)

4.4. Research Question 2

For RQ2(a), an ANOVA was conducted for each crisis scenario to explore the relationships among crisis type, media channel selection and willingness to follow crisis directives as ANOVA is powerful for exploring group difference (Shapiro & Wilk, 1965). The results showed that intent to follow recommended behaviours in a natural disaster (tornado) differed by media channel used for information seeking, $F(6, 433) = 3.59$, $p < .01$, $\eta^2 = .05$. Post hoc comparisons using the Bonferroni test indicated that social media users ($M = 3.89$) showed the lowest scores on intent to follow response directives, and the scores were significantly lower than the scores of TV ($M = 4.40$), radio ($M = 4.50$), website ($M = 4.38$) and friends/family ($M = 4.55$) users. Similarly, during a public health crisis (whooping cough), different channels of information yielded differences in people's willingness to follow instructing information, $F(6, 435) = 3.51$, $p < .01$, $\eta^2 = .05$. Bonferroni post hoc comparisons showed that 'friends and family' channel users showed the highest score ($M = 4.42$), and that score was significantly higher than the scores of newspaper ($M = 3.73$), magazine ($M = 3.42$), website ($M = 4.12$) and social media ($M = 4.04$) users. Also, TV users' scores on following recommended behaviours ($M = 4.23$) were significantly higher than the scores of newspaper and magazine users, while the magazine users' scores were significantly lower than the scores of radio ($M = 4.21$), website and social media users (Table 3).

To answer RQ2(b), the combined effect of media choice and age on following the recommended behaviour was tested. Based on the previous analysis (RQ1) that showed two age groups that accounted for most of the major differences in media use and previous research that argues the difference between those age groups (Coleman & McCombs, 2007), the six age categories were divided into two groups [group 1: 18–34; group 2: 35–65+]. For each analysis, cases that represented each group were selected. ANOVA results revealed no effect of media choice on following recommended behaviour for age group 1, $F(6, 127) = 1.28$, $p = .273$, $\eta^2 = .06$. However, for age group 2, media channel affected people's willingness to follow recommended behaviours, $F(6, 290) = 2.74$, $p < .05$, $\eta^2 = .05$. Post hoc comparisons using the Bonferroni test demonstrated that magazine ($M = 3.00$) users had the lowest scores, and the scores were significantly lower than the scores of TV ($M = 4.36$), radio ($M = 4.44$), website ($M = 4.15$), social media ($M = 4.55$) and friend/family users ($M = 4.54$). Also, friend/family users' scores were significantly higher than the scores of website users, reflecting a greater willingness to follow crisis directives (Table 4).

5. Discussion

Considering social and traditional media have different effects on different audiences' motivation to follow recommended behaviours in crisis (Liu et al., 2015), sending the same message via different channels is not

Table 3. ANOVA Results of Intention to Follow Directions in Crisis by Crisis Type

Crisis type	Media type							F
	TV	Newspaper	Magazine	Radio	Website	Social media	Friends/family	
Natural disaster	4.40	4.05	3.90	4.50	4.38	3.89	4.55	3.59**
Public health	4.23	3.73	3.42	4.21	4.12	4.04	4.42	3.51**

** $p < .01$.

Table 4. ANOVA Results of Intention to Follow Directions in Crisis by Age Group

Age group	Media type							F
	TV	Newspaper	Magazine	Radio	Website	Social media	Friends/family	
18–34	3.95	3.34	3.52	4.04	4.06	3.78	4.12	1.28
35+	4.36	4.13	3.00	4.44	4.15	4.55	4.54	2.74*

* $p < .05$.

effective crisis communication. In a similar vein, enhanced research on message receivers' channel preferences is needed to yield more strategic recommendations for crisis managers, as message effects vary by audience and medium (Herzog, 1941). This survey of a sample of the U.S. population yields empirical evidence to that end; analysis of each hypothesis and research question is reviewed in turn, and then theoretical and practical implications of the results are discussed.

5.1. Crisis types and information-seeking channel

How audiences seek and use information channels should be factored into management rubrics to maximize the message reach and effectiveness of crisis information. In addition, the results of the current study suggest that crisis types can be grouped in terms of public's media engagement during crisis and that use of traditional and social media should be differentiated with consideration of those groups.

Hypothesis 1 explored whether people use different media for information seeking during different types of crises. Two groups of crisis types emerged with respect to preferences for channels for information seeking during those types of crises. The first crisis group includes natural disaster, terrorism, act of violence and transportation crises. When human safety is at risk, as it is during these urgent crises with high stakes, traditional-mediated sources such as TV and radio were preferable. During crises such as natural disasters that present immediate danger, people may seek quick, trustworthy information to safeguard themselves; therefore, they want information from traditional media with information direct from verified, mediated expert sources – which may be quicker

than digging through various more unreliable online sources (Oh, Agrawal, & Rao, 2013). Therefore, as Liu et al. (2015) point out, when those crises happen, officials should focus on the delivery of timely information and directives to publics using TV and radio, which also promote more active, positive discussion about the crisis among publics.

On the other hand, for the second crisis group that encompasses public health and political crises, online sources such as websites and social media were important information sources of crisis information. Perhaps during crises such as public health and political, people may desire a variety of expert opinions and viewpoints on the situation and so turn to the Internet for a broad array of sources of information. Health and political issues may be perceived as more subjective in nature than other more straightforward reports of terrorism or natural disaster. Thus, particularly during these types of crises, crisis communication managers should be certain that information is available online in real-time for the effective dissemination of crisis information.

5.2. Demographics and information-seeking channels

Avery (2010) found that among demographics, only age predicted perceived importance of channels of information during crisis situations. Our findings support this argument but add that the younger generation is more actively engaging in crisis information seeking using online channels than the older generation. For example, participants with ages 18–24 and 25–34 reported websites and social media as their primary information sources (29.1% and 26.0%, respectively). On the other hand, only 11% of people over the age of 35 said that online channels are their first

choice for information seeking in crisis. As discussed previously, for people over age 35, the primary source of information during crisis was TV. This result offers further evidence that younger audiences (under age 35) prefer online media to traditional media, which is an argument rigorously supported in other contexts in previous studies (Kapp, 2013). Interestingly, about 10% (on average) of people over the age of 35 sought crisis information from the radio. Considering that radio is often the only communication channel that is available during natural disasters (Spence, McIntyre, Lachlan, Savage, & Seeger, 2011), officials should plan to deliver precise and timely information via the radio to mitigate damages.

5.3. Predictors of following recommended behaviours during crisis

Coombs (2009) notes there is 'very little research exists that explores ways to improve the development and delivery of instructing information' (Coombs, 2009, p. 106). To address this problem, questions about participants' motivation to follow recommended behaviours were included in the survey. Also, the moderating effects of crisis type and demographics on the relationship between media choice and willingness to follow these directions were explored.

First, we found that regardless of crisis type, people who seek information about crisis using traditional media (e.g., TV and radio) reported higher intentions to follow directives than social media and website users did. That is, active dissemination of instructing information using TV and radio can be an effective tool for officials for managing crisis situations to promote adherence to response protocol. Nevertheless, we argue that the effect of crisis type should be an important consideration when delivering instructing information, as this study offers evidence that crisis type significantly influences individuals' media selection for information seeking. Therefore, we suggest that officials should develop different media strategies for different crisis types. For example, during crises such as natural disaster (i.e., crisis group 1), a focus on traditional media may be most effective for crisis managers, as people seek out information using TV and radio and have high intent to follow instructions when the instructions are delivered via traditional media. On the other hand, during public health and political crises, crisis managers should consider both traditional and social media, as younger individuals heavily relied on social media for information seeking although have (relatively) low intention to follow directives disseminated via social media. People may be less willing to follow directions given on social media as they less inclined to trust information on social media (Oh et al., 2013). Crisis managers should strategically

develop communication plans during public health and political crises using a media mix. For instance, they may want to distribute information about public health crisis (e.g., *what* happened and *why* the crisis occurred) using social media, as the information could spread quickly and widely, and focus delivery of instructing information (e.g., *how* to respond to the crisis) using traditional media, as this could bolster people's intentions to follow directives.

Second, the relationships between age, media choice and willingness to follow instructions in crisis were examined. For younger people between the ages of 18 and 34, media choice did not affect their intentions to follow instructions. Their scores on intent to perform recommended behaviours were relatively low ($M = 3.94$) compared to people over age 35 ($M = 4.49$). Therefore, officials should focus on message quality, timing and source to boost this low overall motivation to comply when delivering messages to younger people during crisis.

Unlike younger audiences, for people over age 35, the effect of media channel preference for information seeking on people's intentions to follow instructions was significant. Interestingly, scores on willingness to follow instructions were high for those who preferred as a source both social media ($M = 4.55$) and friends and family members ($M = 4.54$). As Liu et al. (2013) reveal, college students tend to put more trust in traditional media than other channels. Perhaps younger generations, who are more heavily engaged users of social media, have developed higher levels of distrust and scrutiny along with that active use. Further investigation of this difference seems pressing to identify whether it is indeed differences in trust – or something else – between older and younger populations as to why older audiences may be more inclined to comply with the instructing information they receive on social media. Exploring these relationships is important as increased trust in a channel positively influences overall perceived quality of its information and therefore perhaps likelihood of following directives issued thereon.

5.4. Limitations and instructions for future research

This study about strategic engagement of media in crisis is not without its weaknesses. First, some of these findings were based on hypothetical crisis situations. To minimize this threat to external validity, situations were chosen based on the statistical data of crises that participants had likely encountered. The presentation of crisis scenarios also followed standard formats similar to what people had likely encountered during those crisis types. Nevertheless, a survey with real-time measures to launch during crises is desirable in

future research. Second, there could be outside factors that influence participants' answers. For example, individuals' past crisis experiences (frequency and magnitude) could shape their responses. Therefore, it would be important for future research to explore the impact of those factors (e.g., prior crisis experience) on media choice and willingness to follow instructions in crisis. Third, this study has a methodological limitation, as a survey cannot establish causality; therefore, the findings and implications should be interpreted with caution.

Future research with an experimental design with a broad, representative audience needs to be conducted to explore the causal relationship between media choice and people's intentions to follow instructions during crisis. Also, exploring the interaction effects of media type and age will be interesting as those two factors changed the relationship between media choice and intentions in this study. Another limitation of the study is about the rigor of statistical analyses. In the future research, more crisis scenarios should be considered, and using post hoc tests beyond the Bonferroni correction is recommended. Finally, this study used a convenience sample of online survey panel members. Although the demographics of participants were diverse, a survey with a nonpurposive sampling method is desired for increasing the generalizability of the study results.

Despite these limitations, however, this study yields evidence people rely on different media for information seeking during different types of crisis to inform crisis communication planning. Also, among demographics, it identifies how age changes preferences in information-seeking channels during crisis. Lastly, crisis type and age shape the relationship between media choice and intent to follow recommended behaviours during crisis. These results give crisis managers useful tips for targeting publics based on the age and crisis type to motivate performance of behaviours often critical to public safety.

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