Understanding publics' post-crisis social media engagement behaviors: An examination of antecedents and mediators

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ABSTRACT

This study examines the psychological mechanisms underlying the process that enables publics' individual differences (e.g., the levels of uncertainty avoidance and social media usage) to give rise to varying post-crisis social media engagement intentions (e.g., information seeking, support seeking, and negative word-of-mouth). The study confirms that this process is serially mediated by perceived threat severity, perceived susceptibility, and negative emotions. These psychological mediators, however, function differently between uncertainty avoidance and social media usage. For uncertainty avoidance, a high arousal negative emotion (e.g., anger, fear) is a more essential step to influence engagement intentions than a low arousal emotion (e.g., shame, guilt). For social media usage, however, the type of aroused negative emotions does not matter. Rather, the relationship social media usage has with information seeking is different from that with support seeking and negative word-of-mouth intentions. Social media usage induces information seeking intentions only through publics' cognitive appraisals of the situation without the activation of negative emotions, while it induces supporting seeking and negative word-of-mouth intentions through both cognitive appraisals and negative emotion arousals.

1. Introduction

Crises are unexpected and non-routine events that bring threats and uncertainty to organizations and their publics (Seeger et al., 1998). Recently, crisis literature has been exploring the alternative functions of crisis communication such as communication's role in lowering the perceptions of threat and uncertainty experienced by publics, in helping publics cope with crises psychologically, and in restoring public trust (Coombs, 2012; Coombs and Holladay, 2005; Jin et al., 2012).

The need for this research is amplified by the increasingly central role social media plays in the way crises are discussed, framed, perceived, responded to, and recovered from (Jin et al., 2012). Publics rely on and engage in social media communication to seek and provide information and social support as ways of coping (Tandoc and Takahashi, 2016), during and after organizational crises. Such reliance on social media was evident in Chipotle's nation-wide *E. coli* scare at the end of 2015.

However, significant gaps in understanding relationships between these individual processes and publics' social media engagement remain to be addressed (Grappi and Romani, 2015). Specifically, an understanding is still being developed as to how individual differences such as psychological, culturally anchored, and emotional tendencies are related to publics' social media engagement

behaviors (Turner, 2007). While a significant and growing body of research examines the use of social media in crisis communications from a corporate perspective (Freberg, 2012; van Zoonen and van der Meer, 2015), less attention has been given to understanding *why* publics turn to social media in the first place. Effective utilization of social media channels in post crisis phases requires an understanding of the motivations that drive publics towards post-crisis social media engagement. Post-crisis social media engagement behavioral intention is defined here as the public's intentions, after a crisis, to utilize social media to seek information and support, and to engage in negative word-of-mouth.

To address this gap and to identify the antecedents and mediators driving publics' post-crisis social media engagement behaviors, this study draws on previous literature. Individual differences such as uncertainty avoidance (De Meulenaer et al., 2015)and social media usage (Valkenburg and Peter, 2013)were identified and used as antecedents in this study. The Extended Parallel Process Model (EPPM) (So, 2013; Witte, 1992) and the emotion theories (Lazarus, 1991; Nabi, 2002) were applied in identifying the mediators. Perceived threat and perceived susceptibility were drawn from EPPM to serve as cognitive mediators. Both functional and dimensional emotion perspectives were adopted to provide insights into how discrete crisis emotions (i.e., high and low arousal negative emotions) may work in the process (Lazarus, 1991; Nabi, 2002).

Employing an online survey, this paper takes an explanatory approach to examine these psychological and culturally anchored individual factors as well as cognitive and affective mediators in a serial mediation model. As *E. coli* crises generally pose nation-wide public health concerns (Kowitt, 2016), the Chipotle 2015 *E. coli* crisis was used in this study to test the proposed cognitive and affective risk information processing factors.

2. Literature review

2.1. Crisis communication

The landscape of crisis communication has been changed by the rise of social media. For corporations, it has become increasingly important and difficult to manage and resolve crises on social media (Aula, 2010). It is because negative public sentiments may go viral instantly and inflict further reputational damage (Brummette and Sisco, 2015). A traditional crisis communication theory—-Situational Crisis Communication Theory (SCCT; Coombs, 2012)—has presented practitioners with a relatively parsimonious formula; several factors (i.e., locus, controllability, and stability) determine likely responsibility attribution (blame) and subsequent best crisis-response strategies.

By combining these situational factors, SCCT proposes to predict likely stakeholder attributions of organizational responsibility for a crisis, which subsequently dictate an optimal response strategy. This approach to optimal crisis communication, while effective in the traditional media environment, faces several challenges when applied to crisis communication in the social media space. Unlike traditional environments, wherein attitudes or crisis interpretations are roughly bounded by prevailing media narratives, the social media space empowers individual users in unprecedented ways. First, publics who use social media during and after crises have become part of the crisis communication process (Liu et al., 2011; Veil et al., 2011) , actively presenting their own interpretations or assessments of crisis scenarios, rather than waiting for media interpretations to set public opinion. That is, in today's social media era, crises are increasingly framed by affected publics' posts, comments, or reactions via social media, instead of being dictated solely by organizational or mass mediated voices (Aula, 2010; Freberg et al., 2013).

Secondly, people expressing opinions publicly are not held to the same standards to which traditional media is held (Calabrese and Borchert, 1996). Research has demonstrated that public social media engagement incorporates editorial, opinion, or affective components that are seldom considered in traditional media content (Coombs et al., 2015; Kim and Niederdeppe, 2013). Social media engagement and content introduce both editorial and affective slants beyond the cognitive cues of traditional media (Johnson and Kaye, 2004). As social media becomes increasingly integral to crisis communication success, it is critical that research unpacks the underlying psychological processes (both cognitive and affective) that trigger intentions to engage online (Brummette and Sisco, 2015; Coombs and Holladay, 2014). Accordingly, there is a need for researchers to explore such questions as which character traits drive social media engagement and how they may dictate the nature of electronic word-of-mouth in crisis contexts.

2.2. Antecedents to social media engagement behaviors

2.2.1. Uncertainty avoidance
One potential factor affecting message processing and behavioral outcomes is tolerance for uncertainty or uncertainty avoidance (De Meulenaer et al., 2015; Nabi, 2002). Uncertainty avoidance refers to "the extent to which the members of a culture feel threatened by ambiguous or unknown situations" (Hofstede et al., 2010). Although originally proposed as a macro-level theory, variance in uncertainty avoidance has also been observed at individual levels (Hillson and Murry-Webster, 2007). At the individual level, the mechanics of uncertainty avoidance have been examined in terms of relationship with risk aversion (Eckel et al., 2008; Rabin and Thaler, 2001). High uncertainty-avoidance individuals are high in both risk aversion and discomfort with ambiguity, whereas low uncertainty-avoidance individuals are more comfortable with both (Hillson and Murry-Webster, 2007).

Levels of uncertainty avoidance have been linked with publics' information-seeking tendencies and avoidance behaviors in ambiguous and unpredictable situations (Goodall and Reed, 2013). People with high levels of uncertainty avoidance exhibit higher intention to seek information (Goodall and Reed, 2013; Hillson and Murry-Webster, 2007). Previous research in social psychology has also suggested that, uncertainty and ambiguity in crises compel individuals to engage in actions that are meant to help explain the situation (DiFonzo and Bordia, 2007).

Crises are, almost by definition, moments of extreme uncertainty. As a result, individual variances in uncertainty avoidance may drive variance in both psychological and behavioral reactions to crisis scenarios. Therefore, this study argues that, compared to their low uncertainty-avoidance counterparts, high uncertainty-avoidance individuals are more likely to engage in a variety of social media behavioral intentions, including word-of-mouth and support and information seeking.

2.2.2. Social media usage

Social media sites, or online platforms based on social networks and dedicated to the creation, curation, and distribution of user-generated content (Borden, 2016), have emerged in the 21st century as a new manifestation of Habermas's "public sphere" (Gerhards and Schafer, 2010). Websites which host content created by users have become meeting grounds (Lim, 2012), discussion boards (Mazali, 2011), sources of both socialization and information for their users and the broader press (Grzywinska and Borden, 2012), a virtual *kaffeeklatsch*. As social media has gained an increasingly central role in daily life and socialization, it is perhaps natural that communications researchers (and professional communicators) have been paying growing attention to the precise way that online engagement—such as viewing, commenting, and sharing content—affects both cognitive and emotional states and subsequent attitudinal and behavioral intentions (Potter and Riddle, 2007; Slater, 2007; Valkenburg and Peter, 2013).

Media-effects theories recognize that media usage can elicit different cognitive and affective response states (Valkenburg and Peter, 2013). For example, social cognitive theory (Bandura et al., 2009) posits that individuals acquire knowledge through social interaction and media content consumption. Hybridizations of psychological and social cognitive theories such as the extended elaboration likelihood model (Slater and Rouner, 2002) have also identified frequency of usage as integral to the way in which individuals perceive, interpret, and respond to media (and subsequently social media) content. In addition, micro-level media effects research has also identified emotional dimensions such as empathy and sympathy as audience reactions to media content (Valkenburg and Peter, 2013).

General social media usage increases people's engagement and participatory behaviors online and offline (Yamamoto and Kushin, 2014; Zuniga, 2012). In other words, the more people use social media in their daily lives, the more likely they are to engage in social media behaviors to communicate a particular topic. For example, increased social media usage may lead to increased engagement in civic participation, as well as online information seeking and sharing intentions (Zuniga, 2012). Furthermore, as government's central role in crisis communication dwindles, publics on social media are increasingly relying on social relationships maintained through social media for both emotional and instrumental supports (Cho et al., 2013). As the growing use of Internet makes it easier to generate and disseminate negative word-of-mouth (Schlosser, 2005), social media usage may also increase negative word-of-mouth intentions on social media during crisis.

2.3. Publics' Post-Crisis social media engagement

While the social media revolution has affected society in a number of ways (Shirky, 2011), of particular note is how social media is changing the way the public experiences disaster and crisis (Alexander, 2014; Lindsay, 2011; Merchant et al., 2011). Increasingly, social media has, in crisis contexts, become an essential resource and communication channel for governments to disseminate information and for publics to communicate (Cho et al., 2013; Jung et al., 2018; Park, 2018). From a media-uses-and-gratification perspective, people share similar motivations as to why they use different social media platforms (Alhabash and Ma, 2017; Whiting and Williams, 2013) . To share information and to socialize, for example, people use equally a variety of social media platforms such as Facebook, Twitter, Instagram, and Snapchat (Alhabash and Ma, 2017). As we aim to understand general social media engagement behavioral intentions such as seeking information and support and sharing negative word-of-mouth in times of crisis across platforms, we examine social media as a whole in this study rather than as individual platforms.

In both crisis and non-crisis contexts, there has been a shift of locus of communication efforts through social media. Increasingly, people are engaging in peer-to-peer communication and are influenced by peer-generated contents appearing on social media (Cho et al., 2013; Jung et al., 2014; Shapiro and Park, 2018). This is especially salient in crisis communication, where government's traditional role in a crisis in social media is not as pronounced as publics' social media engagement behaviors (Cho et al., 2013; Jung et al., 2018).

Based on previous literature (Brummette and Sisco, 2015), this study defines post-crisis social media engagement behaviors as publics' coping behaviors on social media—behaviors such as information seeking, support seeking, and negative word-of-mouth after crises. Coping is defined as the cognitive and behavioral process in response to and in an attempt to reduce undesirable emotions from the environment (Duhachek, 2005). Coping can be cognitive (i.e., avoidance and denial) or behavioral (i.e., action taking and support seeking; (Duhachek, 2005). Social media has been identified as one of the resources for behavioral coping in times of crises (Brummette and Sisco, 2015). Publics engage with social media communication, for example, to seek information, share information, to seek social support, and to vent (Cho et al., 2013; Park, 2018; Tandoc and Takahashi, 2016).

Research has revealed information seeking on social media as a significant coping behavior for reducing negative emotions and stress in times of crisis (Kim and Niederdeppe, 2013). This study defines information seeking intentions as publics' intentions to seek media or user-generated content during and after a crisis to reduce stress or uncertainty (Kim and Niederdeppe, 2013). Beyond information seeking, instrumental and emotional support seeking are also considered primary coping strategies on social media (Brummette and Sisco, 2015). Publics may seek support from family or friends on social media for either practical problem-solving purposes (i.e., instrumental) or emotional regulation purposes (i.e., emotional) (Duhachek, 2005; Park, 2018). This study uses support seeking to indicate both instrumental and emotional support seeking. Furthermore, publics may engage in word-of-mouth communication to vent on social media (Duhachek, 2005). This study defines negative word-of-mouth intention as publics' intention

to spread negative comments on social media about the crisis and the crisis-affected corporation. Negative word-of-mouth intentions can be exacerbated by a crisis and are detrimental to organizations undergoing a crisis and can fan the flames of public outrage (Coombs and Holladay, 2007; Lim, 2017).

Based on the forgoing discussion regarding the relationships between individual differences (i.e., uncertainty avoidance and social media usage) and post-crisis social media engagement behaviors, the following hypotheses are proposed to address direct relationships among the concerned constructs:

H1: *Uncertainty avoidance* is positively associated with people's intentions on social media to (a) seek information, (b) seek support, and (c) engage in negative word-of-mouth.

H2: *Social media usage* is positively associated with people's intentions on social media to (a) seek information, (b) seek support, and (c) engage in negative word-of-mouth.

2.4. Cognitive and affective mediators

To better understand key drivers of social media engagement among the publics, this study seeks to build on the extant literature by incorporating the Extended Parallel Process Model (EPPM; Witte, 1992) and emotion theories (Berger, 2011; Cavanaugh et al., 2015; Lazarus, 1991; Nabi, 2002).

2.4.1. Perceived threat severity and perceived susceptibility

How individuals may perceive self-threatening information is affected, according to EPPM, by two cognitive factors—perceived threat severity and perceived susceptibility (Witte, 1994). Perceived threat severity (i.e., the perceived magnitude and potential damage represented by a threat) and perceived susceptibility (i.e., the perceived likelihood of being affected by a crisis threat) drive information interpretation and subsequent behavioral outcomes (Maloney et al., 2011; So, 2013; Witte, 1992). EPPM builds on Protection Motivation Theory (PMT), emphasizing the role of negative emotions (i.e., fear) in facilitating cognitive information processing. EPPM recognizes that negative emotions such as fear may lead to message acceptance but, if unmoderated, can also lead to message rejection.

According to EPPM, perceived threat severity and perceived susceptibility conjoin to reflect the degree to which people experience a threat. Varying degrees of threat perception produce varying degrees of negative emotions and, in association with perceived efficacy, predict whether people will take action in response to the threat (Witte et al., 1996). If one holds efficacy constant, the negative emotions (i.e., fear) produced by the perceptions of threat severity and susceptibility drive behavioral intentions to change current behaviors or engage in new behaviors to mitigate the potential threat for the self or for others (Goei et al., 2010; Morrison, 2005).

In the same vein, organizational crises create threats. The degree to which the publics perceive the crisis to be severe and to be threatening them personally affect and predict how they will take subsequent actions such as further communication efforts (Griffin et al., 2008; So, 2013). Therefore, to examine how crisis threats may influence emotions and subsequent engagement behaviors, this study has adopted perceived threat severity and perceived susceptibility as key mediators.

2.4.2. Public crisis emotions

Functional emotions perspective (Lazarus, 1991; Nabi, 2002) posits that people form psychological reactions to external stimuli such as crisis threats. Different categories of discrete emotions (i.e., anger, fear, sympathy, etc.) reflect unique person-environment relationships (Lazarus, 1991)and can activate different motivational and behavioral outcomes (Nabi, 2002, 2010; Turner, 2007). According to dimensional emotions perspective, discrete emotions can also be characterized along dimensions of valence (negative vs. positive) and arousal (activation vs. deactivation; Barrett, 1998; Berger, 2011).

A significant body of literature has addressed the emotions that publics experience during and after organizational crises (Coombs and Holladay, 2007; Jin et al., 2012, 2014; Kim and Niederdeppe, 2013). For example, organizational crises may trigger negative emotions such as anger, fear, anxiety, contempt, sadness, embarrassment, apprehension, guilt, shame and disgust as well as positive emotions such as sympathy, relief and hope (Jin et al., 2012, 2014; Kim and Niederdeppe, 2013) . Some emotions are considered high arousal, such as anger and anxiety, while some are considered low arousal, such as guilt and sadness (Berger, 2011; Cavanaugh et al., 2015).

Based on common discrete crisis emotions (Jin et al., 2014; Kim and Niederdeppe, 2013) and frequently adopted emotion typologies (Barrett, 1998), this study categorizes negative emotions into high and low arousal ones that are more relevant to crisis situations. Emotions are strong predictors of behavioral intentions and coping strategies in organization crises (Coombs and Holladay, 2007; Jin, 2010; Yi and Baumgarter, 2004). As people process information, their discrete emotions take on different roles. Anger has been found to be both a moderator and a mediator between publics' crisis responsibility perception and behavioral intentions such as negative word-of-mouth intentions (Coombs and Holladay, 2007; Grappi and Romani, 2015). It is one of the main reasons people engage in social media communication (Berger and Milkman, 2012; Celli et al., 2016). Publics who are experiencing crisis-induced fear and anxiety may, as they seek further information or social support, turn to social media (Brummette and Sisco, 2015; Kim and Niederdeppe, 2013; So, 2013).

2.5. The proposed conceptual model

In EPPM literature, researchers often conceptualize mediating factors to be perceived threat severity, perceived susceptibility, and
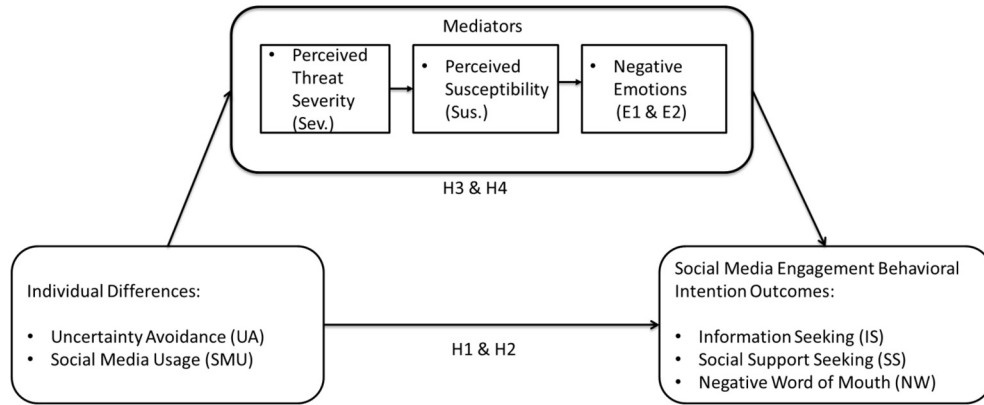
Fig. 1. The Proposed Conceptual Model.

negative emotions (So, 2013; Witte, 1992). Based on this conceptualization, this study argues that these factors may, in a crisis context, be treated as cognitive and affective mediators owing to such individual factors as uncertainty avoidance and social media usage. In addition, the study proposes that these three mediators serially function in the relationships between individual differences and social media engagement behavioral intentions (see the conceptual model in Fig. 1). For example, Lazarus (Lazarus, 1991) postulated that cognitive appraisals (such as perceived threat severity and perceived susceptibility) of the environment (such as a crisis situation) are always followed by affective states (different discrete emotions). The cognitive appraisal of a crisis situation and its subsequent affective state may also vary based on individual factors such as uncertainty avoidance and social media usage.

More specifically, to avoid or to deal with threat, high uncertainty-avoidance individuals may perceive the threat to be more severe and more likely to affect themselves than may low uncertainty-avoidance individuals (De Meulenaer et al., 2015; Sanchez-Francisco et al., 2009). Therefore, this study argues that high uncertainty avoidance may increase perceived threat severity. As high threat-severity perception may trigger a sense of physical or psychological danger (So, 2013), the degree of perceived threat severity of a loss (from crisis threats) may affect the perception of threat to oneself. In other words, threat-severity perception may lead to increased susceptibility perception. As a result, perceived threat severity and perceived susceptibility may act as cognitive factors influencing the appraisal of the environment (i.e., the crisis situation) based on the individual factor of uncertainty avoidance.

EPPM literature has suggested that perceived threat severity and perceived susceptibility can trigger high arousal negative emotions such as fear and anxiety (So, 2013). Crisis literature also recognizes that crisis threats can produce low arousal emotions such as sadness, guilt, and shame (Jin et al., 2014). For high arousal negative emotions, previous literature has demonstrated that emotions such as anger, fear, and anxiety would increase information seeking, support seeking, and negative word-of-mouth in-tentions either to vent such emotions or resolve uncomfortable situations (Berger, 2011; Berger and Milkman, 2012; Coombs and Holladay, 2007; Kim and Niederdeppe, 2013). For low arousal negative emotions, however, the literature has suggested that emotions such as sadness discourage communication behaviors as such emotions are characterized by relaxation (Berger, 2011; Berger and Milkman, 2012). As high-versus-low arousal negative emotions can predict different directions for social media engagement behavioral intentions, this study proposes the following: when the process activates high arousal negative emotions, then positive relationships occur between uncertainty avoidance and social media engagement behavioral intentions, and when the process activates low arousal negative emotions, then negative relationships emerge between uncertainty avoidance and social media engagement behavioral intentions.

H3-1: The relationship between *uncertainty avoidance* and the social media engagement behavioral intention outcomes—(a) information seeking intentions, (b) support seeking intentions, and (c) negative word-of-mouth intentions on social media—will be positively mediated by the serial mediators of perceived threat severity, perceived susceptibility, and ***high arousal negative emotions***.

H3-2: The relationship between *uncertainty avoidance* and the social media engagement behavioral intention outcomes—(a) information seeking intentions, (b) support seeking intentions, and (c) negative word-of-mouth intentions on social media—will be negatively mediated by the serial mediators of perceived threat severity, perceived susceptibility, and *low arousal negative emotions*.

Previous literature has suggested that social media usage may increase threat-severity perceptions of unfortunate events (Hampton et al., 2015). Although social media is a critical component of communicating disaster or crisis information to the public, research suggests that social media usage may also amplify negative affect during dangerous or undesirable situations, potentially increasing levels of stress and anxiety (Hampton et al., 2015; Maxwell, 2016) . When users are exposed to a crisis featured on social media platforms, they tend to formulate a biased statistical sense of crisis negativity (Lim, 2017; Sung and Hwang, 2014). Publics tend to overestimate the adverse impacts of the crisis when they are exposed to crisis-related information through consensus heuristics such as popular hashtags on social media (Kim, 2014). Thus, social media usage may increase threat severity perceptions of unfortunate events (Hampton et al., 2015), which may in turn increase susceptibility perceptions and outrage (Maxwell, 2016). Maxwell (2016) found that social media usage among African American adults correlated with increased perceptions of the pre-valence and severity of racism in society, leading to increases in stress, negative affect, and expressions of anger. Similarly, social media usage among publics may, in the wake of a crisis, increase their perceptions of relative crisis risks and severity, potentially

amplifying stress, negative affect and expressions of anger. Thus, perceived threat severity, which can be triggered and intensified by social media usage, may increase perceptions of susceptibility and eventually negative emotions.

In addition, due to the different roles that high-versus-low arousal negative emotions play in the process, high arousal negative emotion should, as an antecedent, increase behavioral intentions to engage with social media, while low arousal negative emotion should decrease those intentions. Therefore, this study proposes the following hypotheses:

H4-1: The relationship between *social media usage* and the social media engagement behavioral intention outcomes—(a) information seeking intentions, (b) support seeking intentions, and (c) negative word-of-mouth intentions on social media—will be positively mediated by the serial mediators of perceived threat severity, perceived susceptibility, and ***high arousal negative emotions***.

H4-2: The relationship between *social media usage* and the social media engagement behavioral intention outcomes—(a) information seeking intentions, (b) support seeking intentions, and (c) negative word-of-mouth intentions on social media—will be negatively mediated by the serial mediators of perceived threat severity, perceived susceptibility, and ***low arousal negative emotions***.

3. Method

3.1. Procedure and sample

To test the hypotheses, a survey was created using Qualtrics and distributed through Amazon's Mechanical Turk (hereafter MTurk). MTurk is an online consumer panel that provides high-quality representative consumer data for both academic and industrial purposes (Berinsky et al., 2012; Buhrmester et al., 2011; Men and Tsai, 2014). To examine publics' post-crisis social media behaviors, Chipotle's 2015 *E. coli* crisis was selected in this study because the case posed national-level public health concerns. Within a year, Chipotle restaurants across the U.S. were the centers of five outbreaks of *E. coli*, hospitalizing almost 500 people (Strom, 2015). With their widespread influence, *E. coli* crises affect an entire industry and society (Kowitt, 2016). The Chipotle *E. coli* crisis was therefore an appropriate case to examine psychographic and culturally anchored individual factors and to assess information processing of risk perceptions and communication intentions. The survey was conducted in February 2016 following federal officials' declaration that the outbreak was over (Czarnecki, 2017).

As this study aims to understand general publics' post-Chipotle crisis behavioral intentions, it was important that participants answered the questions with the crisis in mind. Past research has suggested that detailed prompts in surveys help with participant recalls (Rooney et al., 2004). Therefore, a news article about the Chipotle *E. coli* crisis were shown to the participants in the survey so that they could recall details of the crisis from the previous year (Strom, 2015). The survey took participants approximately 15 min to complete. Participants were required to be living in the U.S. After data collection, any occurrence of repeated answers (i.e., straight liners) or speeders (i.e., participants who took less than four minutes to complete the survey) were removed. After data cleaning, a total of 605 participants qualified. Of the 605 participants who completed the survey, 53.2% ($n = 322$) were male and 46.8% ($n = 283$) were female. Average age for participants was $M = 38.5$ ($SD = 12.9$). As for ethnicities, 76.4% ($n = 462$) were white or Caucasian, 9.1% ($n = 55$) were black or African American, 7.1% ($n = 43$) were Asian or Asian American, 5.6% ($n = 34$) were Hispanic or Latino, 1.8% ($n = 11$) were Native American or Pacific Islander and other (i.e., mixed ethnicities). Most participants reported that they frequently used social media (i.e., everyday more than one hour 68.1% ($n = 412$) and every week 22.5% ($n = 136$). As this study intends to examine general public reactions toward the crisis, the survey included participants who reported to be customers of Chipotle (57. 8%, $n = 349$) as well as those who reported not being so (42. 2%, $n = 256$).

3.2. Measures

All variables were measured on a seven-point Likert scale (1 = "strongly disagree", 7 = "strongly agree"). For this study, the measurement of uncertainty avoidance was adapted from De Mrulenaer, De Meulenaer et al. (2015) and Wu (2006), while that of social media usage was developed based on social media research (Rosen et al., 2013); see Table 1 for the detailed items). Mediators of this study consisted of perceived threat severity, perceived susceptibility and negative emotions. Perceived threat severity and susceptibility were created based on conceptualizations in previous EPPM studies (De Meulenaer et al., 2015; So, 2013) . The emotions scale was adapted from Jin et al. (2014).

All outcome variables—information seeking intentions, support seeking intentions, and negative word-of-mouth intentions—were measured in the context of social media. For all questions measuring the outcome variables, participants were given the instructions that "Social media in the following statements refer to sites such as Facebook, Twitter, Snapchat, Reddit, etc." and "Given the crisis situation, I would do the following on social media." Information seeking intentions was developed drawing from Kim and Niederdeppe (Kim and Niederdeppe, 2013). Negative word-of-mouth intentions was adapted from Coombs and Holladay (Coombs and Holladay, 2007). Support-seeking intentions was conceptualized as both emotional and instrumental supporting seeking intentions and was adapted from Duhachek (Duhachek, 2005). Measurement items for all variables are presented in Table 1.

4. Results

4.1. Data analysis procedures

An exploratory factor analysis (EFA) with maximum likelihood factor extraction and oblique rotation was conducted to extract emotions (Costello and Osborne, 2005). The two emotions factors extracted from the EFA (see Table 1 were high arousal negative

Table 1
Measurement Items.

Variables (M, SD, α)	Items
Uncertainty Avoidance ($M = 4.89$, $SD = 1.04$, $\alpha = .80$)	I believe that orderliness and consistency should be stressed, even at the expense of experimentation and innovation[*]
	I believe societal requirements and instructions should be spelled out in detail so citizens know what they are exposed to
	Rules and regularities are important because they inform people what the society expects of them
	Standard operating procedures and instructions are important
Social Media Usage ($M = 3.71$, $SD = 1.78$, $\alpha = .92$)	Read news online[*]
	Read blogs online[*]
	Read social media postings[*]
	Search the Internet for information[*]
	Use social media sites (i.e., Facebook, Twitter, etc.) to post updates and comments[*]
	Follow organizations or companies on social media sites
	Like or share social media postings from organizations or companies
	Comment on organization's or companies' posts or pages
Perceived Threat Severity ($M = 5.46$, $SD = 1.21$, $\alpha = .91$)	The crisis situation is very severe
	The crisis situation is very serious
Perceived Susceptibility ($M = 3.10$, $SD = 1.69$, $\alpha = .93$)	The crisis situation is very threatening to me personally
	The crisis situation will affect me personally
Low Arousal Negative Emotion ($M = 2.04$, $SD = 1.29$, $\alpha = .89$)	ashamed
	guilty
	embarrassed
High Arousal Negative Emotion ($M = 3.80$, $SD = 1.47$, $\alpha = .81$)	angry
	disgusted
	contempt
	fearful
Information Seeking Intentions ($M = 3.60$, $SD = 1.59$, $\alpha = .91$)	Given the crisis situation, I would follow the company's social media account for more news on the crisis
	Given the crisis situation, I would follow the company's website for more news on the crisis
	Given the crisis situation, I would follow relevant government agencies such as CDC's or FDA's social media account for more news on the crisis
	I would visit relevant government agencies such as CDC's or FDA's website for more news on the crisis
	I would seek more information about the crisis from my friends on social media
	I would seek more information about the crisis from an expert (public figure) who I already follow
Information Seeking Intentions ($M = 3.60$, $SD = 1.59$, $\alpha = .91$)	Given the crisis situation, I would follow the company's social media account for more news on the crisis
	Given the crisis situation, I would follow the company's website for more news on the crisis
	Given the crisis situation, I would follow relevant government agencies such as CDC's or FDA's social media account for more news on the crisis
	I would visit relevant government agencies such as CDC's or FDA's website for more news on the crisis
	I would seek more information about the crisis from my friends on social media
	I would seek more information about the crisis from an expert (public figure) who I already follow
Support Seeking Intentions ($M = 2.75$, $SD = 1.48$, $\alpha = .94$)	Seek out my friends on social media for comfort
	Post on social media about how I feel[*]
	Rely on others to make me feel better
	Share my feelings with friends on social media whom I trusted and respected
	Ask friends with similar experiences what they did
	Try to get advice from someone about what to do
	Have a friend assist me in fixing the problem
Negative Word-of-mouth Intentions ($M = 2.48$, $SD = 1.45$, $\alpha = .95$)	I would discourage friends or relatives from dining at Chipotle[*]
	I would create negative posts or tweets about the crisis
	I would comment negatively on the news about the crisis
	I would comment negatively on the company's social media site
	I would comment negatively on the company's response about the crisis

Note. Items with [*] were eliminated due to low factor loading ($< .70$) in the CFA and were not included in calculating M (SD) and α score.

emotions (anger, disgusted, fearful, and contempt; Cronbach's $\alpha = .81$) and low arousal negative emotions (guilty, ashamed, and embarrassed, Cronbach's $\alpha = .89$). Then a confirmatory factor analysis (CFA) using AMOS program was conducted to further test overall model fit and the discriminant validity and convergent validity of all constructs. A few items from the constructs were dropped due to low factor loading ($< .70$). The results showed a good fit: $x^2(df = 420) = 1128.16$, $\chi^2/df = 2.69 < 3$, NFI = .93, CFI = .95, RMSEA = .05 and SRMR = .05 (Byrne, 2010). Discriminant and convergent validity was assessed based on criteria suggested by previous literature (Fornell and Larcker, 1981; Hair et al., 2006). All constructs showed satisfactory reliability, convergent and discriminant validities (see Table 2 for validity test criteria and correlations matrix).

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Table 2
Reliabilities, discriminant, convergent validities of all constructs.

	CR	AVE	MSV	UA	SMU	Sev.	Sus.	E1	E2	IS	SS	NW
UA	.82	.60	.04	.77								
SMU	.92	.79	.29	.09	.89							
Sev.	.91	.83	.23	.20	.13	.91						
Sus.	.93	.86	.29	.01	.25	.21	.93					
E1	.81	.59	.23	.08	.17	.48	.33	.77				
E2	.89	.74	.28	-.18	.26	-.05	.53	.34	.86			
IS	.89	.59	.47	.07	.54	.06	.53	.21	.36	.77		
SS	.94	.71	.47	.01	.40	-.04	.44	.27	.68	.59	.84	
NW	.95	.83	.35	-.06	.46	.11	.45	.44	.49	.45	.59	.91

Note. CR = composite reliability, AVE = average variance extracted, MSV = maximum shared variance. UA = uncertainty avoidance, SMU = social media usage, Sev. = perceived threat severity, Sus. = perceived susceptibility, E1 = high arousal negative emotion, E2 = low arousal negative emotion, IS = information seeking intentions, SS = support seeking intentions, NW = negative word-of-mouth intentions.

4.2. Hypothesis testing

To test the hypotheses that proposed both direct and indirect effects of uncertainty avoidance and social media usage, this study used PROCESS (Hayes, 2013). The serial multiple mediation model (Model 6 with three mediators) with 1000 bootstrap samples and 95% confidence interval was adopted. The sample size of this study (a total of 605) exceeded the recommended sample size ($N = 462$) needed for .80 power in running the PROCESS mediation analysis (Fritz and MacKinnon, 2007). Demographic variables (age, gender, and ethnicity) and consumer status (Chipotle customers vs. non-customers) were entered into all models tested as covariates to reduce potential confounding effects.

The serial multiple mediator model was appropriate to use because 1) theory suggests that cognitive (threat severity and susceptibility perceptions) and affective factors (negative emotions) need to be considered collectively (So, 2013; Witte, 1992) and 2) hypotheses in the study predicted mediation effects of all three mediators (i.e., perceived threat severity, perceived susceptibility and negative emotions). The serial multiple mediation model of PROCESS not only can test multiple mediators simultaneously, but also accounts for effects of one mediator on another (Hayes, 2013). Although the use of PROCESS serial mediator model accounting for effects of multiple mediators at the same time may result in low total indirect effect scores, it could detect specific mechanisms among the different mediators leading to the mediation effect and calculate unbiased and valid specific indirect effects (Hayes, 2013; Preacher et al., 2008). For each antecedent's relationship with each of the outcome variables, the serial multiple mediator model was run two times using the two emotion factors (high and low arousal negative emotions) respectively.

H1s predicted the direct positive relationships between uncertainty avoidance and the three outcome variables. Results suggested that there were no significant positive direct relationships between uncertainty avoidance and social media engagement behaviors when considering the serial mediation model with perceived threat severity, perceived susceptibility, and *high* arousal negative emotion. Thus, H1s were not supported for the serial mediation model with *high* arousal negative emotion. However, in the serial mediation model with the *low* arousal negative emotion, uncertainty avoidance had a significant positive direct relationship with (a) information seeking intentions ($b = .12$, $p < .05$) and (b) support-seeking intentions ($b = .12$, $p < .05$), but not with (c) negative word-of-mouth intentions (see Table 3 for detailed direct relationships). Therefore, H1 (a) and H1 (b) were partially supported but H1 (c) was not supported.

H2s proposed that social media usage had significant positive direct relationships with the three engagement behavior variables respectively. Findings revealed that social media usage had significant direct relationships with all social media engagement variables in the serial mediation models with both high and low arousal negative emotions (see Table 4 for detailed direct effects). Thus, H2s were supported.

H3-1 (a)–(c) predicted a positive serial mediation effect between uncertainty avoidance and all three outcome variables with perceived threat severity, perceived susceptibility, and *high* arousal negative emotion as mediators. As predicted, perceived threat severity, perceived susceptibility, and *high* arousal negative emotion serially and positively mediated uncertainty avoidance's effect on the outcome variables. Serial mediation effects were significant on all the outcome variables as confidence intervals (CIs) in none of the models contained zero (see Table 5 for coefficients and CI levels). This indicates that the positive relationships between uncertainty avoidance and the social media engagement behavioral intentions are fully mediated by the three serial mediators (i.e., full serial mediations). This is especially the case given that no significant direct effect of uncertainty avoidance was identified on the social media engagement behavioral intentions (i.e., H1s) in the serial mediation models with the routes of *high* arousal negative emotions (see Table 3 for the direct effects). Thus, the higher the uncertainty avoidance, the higher the perceived threat severity and perceived susceptibility. In turn, such risk perceptions induced more negative *high*-arousal emotions, leading to more active social engagement behaviors. Therefore, H3-1s were supported.

H3-2s concerned a significant serial mediation effect of uncertainty avoidance on the engagement behavior variables through perceived threat severity, perceived susceptibility, and *low* arousal negative emotion. Due to the role of low arousal negative emotion, the originally predicted direction was negative. However, results revealed significantly positive serial mediation effects for all the outcome variables, instead of negative ones (see Table 5 for coefficients and CI levels). Given the direct effects of uncertainty avoidance on (a) information seeking and (b) support seeking were also significant (recall H1 (a) and (b) for *low* arousal negative

Table 3
Effects of Uncertainty Avoidance on Outcome Variables, Mediated by Severity, Susceptibility, and Emotions.

Antecedents	Mediators						Outcome Variables					
	Sev.		Sus.		E1		IS		SS		NW	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
UA	.16	3.52***	−.02	−.38	.03	.77	.10	1.77	.07	1.44	−.04	−.75
Sev.	–	–	.39	7.37***	.44	9.65***	−.06	−1.17	−.19	−3.58***	−.07	−1.37
Sus.	–	–	–	–	.29	8.41***	.33	8.30***	.26	6.88***	.24	6.59***
E1	–	–	–	–	–	–	.09	2.09*	.21	4.82***	.31	7.44***
	$R^2 = .10$, $F(8, 696)$ = 8.33***		$R^2 = .25$, $F(9, 595)$ = 22.47***		$R^2 = .29$, $F(10, 594)$ = 24.66***		$R^2 = .29$, $F(11, 593)$ = 21.52***		$R^2 = .25$, $F(11, 593)$ = 17.50***		$R^2 = .28$, $F(11, 593)$ = 20.80***	
	Sev.		Sus.		E2		IS		SS		NW	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
UA	.16	3.52***	−.02	−.38	−.14	−3.25**	.12	2.22*	.12	2.42*	.03	.55
Sev.	–	–	.39	7.37***	−.09	−2.17*	−.01	−.16	−.07	−1.41	.10	2.19*
Sus.	–	–	–	–	.37	12.02***	.30	7.25***	.21	5.37***	.19	5.05***
E2	–	–	–	–	–	–	.15	2.94**	.30	6.22***	.37	8.06***
	$R^2 = .10$, $F(8, 696)$ = 8.33***		$R^2 = .25$, $F(9, 595)$ = 22.47***		$R^2 = .28$, $F(10, 594)$ = 23.63***		$R^2 = .29$, $F(11, 593)$ = 22.06***		$R^2 = .26$, $F(11, 593)$ = 19.28***		$R^2 = .29$, $F(11, 593)$ = 21.90***	

Note. Covariates included in the analyses are not listed in this table. $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$, UA = uncertainty avoidance, SMU = social media usage, Sev. = perceived threat severity, Sus. = perceived susceptibility, E1 = high arousal negative emotion, E2 = low arousal negative emotion, IS = information seeking intentions, SS = support seeking intentions, NW = negative word-of-mouth intentions.

Table 4
Effects of Social Media Usage on Outcome Variables, Mediated by Severity, Susceptibility, and Emotions.

Antecedents	Mediators						Outcome Variables					
	Sev.		Sus.		E1		IS		SS		NW	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
SMU	.08	2.84**	.12	3.37***	.06	1.95*	.34	11.16***	.28	9.62***	.23	8.13***
Sev.	–	–	.36	6.88***	.44	9.63***	−.09	−1.80	−.21	−4.33***	−.10	−2.09*
Sus.	–	–	–	–	.28	8.07***	.29	7.84***	.23	6.30***	.21	6.07***
E1	–	–	–	–	–	–	.06	1.46	.18	4.44***	.28	7.14***
	$R^2 = .10$, $F(8, 696)$ = 8.48***		$R^2 = .27$, $F(9, 595)$ = 24.14***		$R^2 = .30$, $F(10, 594)$ = 25.12***		$R^2 = .41$, $F(11, 593)$ = 36.88***		$R^2 = .34$, $F(11, 593)$ = 28.35***		$R^2 = .35$, $F(11, 593)$ = 29.04***	
	Sev.		Sus.		E2		IS		SS		NW	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
SMU	.08	2.84**	.12	3.37***	.12	4.47***	.34	10.95***	.67	9.03***	.21	7.31***
Sev.	–	–	.36	6.88***	−.13	−3.13**	−.06	−1.24	−.10	−2.30*	.06	1.45
Sus.	–	–	–	–	.35	11.44***	.29	7.53***	.20	5.40***	.18	4.96***
E2	–	–	–	–	–	–	.04	.89	.21	4.58***	.31	6.95***
	$R^2 = .10$, $F(8, 696)$ = 8.48***		$R^2 = .27$, $F(9, 595)$ = 24.14***		$R^2 = .30$, $F(10, 594)$ = 24.92***		$R^2 = .41$, $F(11, 593)$ = 36.68***		$R^2 = .35$, $F(11, 593)$ = 28.53***		$R^2 = .35$, $F(11, 593)$ = 28.69***	

Note. Covariates included in the analyses are not listed in this table. $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$, UA = uncertainty avoidance, SMU = social media usage, Sev. = perceived threat severity, Sus. = perceived susceptibility, E1 = high arousal negative emotion, E2 = low arousal negative emotion, IS = information seeking intentions, SS = support seeking intentions, NW = negative word-of-mouth intentions.

emotion; see Table 3 for direct effects), the results suggested that the positive relationships between uncertainty avoidance and (a) information seeking and (b) support seeking are partially mediated by the three serial mediators (i.e., partial serial mediations) when *low* arousal negative emotions are considered as part of the serial mediators. This partial serial mediation indicates that the ways uncertainty avoidance affects (a) information seeking and (b) support seeking are significant in a positive direction both through the direct route and indirect routes through the three serial mediators for the *low* arousal negative emotions. However, for (c) negative word-of-mouth intentions, the direct effect of uncertainty avoidance was not significant (meaning full serial mediations). Thus, the way uncertainty avoidance affects (c) negative word-of-mouth intentions are significant in a positive direction only through indirect routes through the three serial mediators for the *low* arousal negative emotions. Due to the different direction found in the serial mediations for *low* arousal negative emotions, H3-2s were not supported.

H4-1s proposed that perceived threat severity, perceived susceptibility, and *high* arousal negative emotion would serially and positively mediate social media usage's influence on the three outcome variables. As can be seen in Table 5, CIs for the serial indirect effects of social media usage on (a) information seeking did include zero, thus not supporting H4-1 (a). However, there were

Table 5
Summary Results of the Tested Serial Mediation Models.

Hypotheses		Model	Effect	LLCI	ULCI	Hypotheses Results
H1	a	Direct: UA → IS	.095	−.0102	.2003	Not supported.
H3-1		Indirect: UA → Sev. → Sus. → E1 → IS	.002***	.0002	.0046	Supported
H1	b	Direct: UA → SS	.074	−.0269	.1749	Not Supported
H3-1		Indirect: UA → Sev. → Sus. → E1 → SS	.004***	.0014	.0082	Supported
H1	c	Direct: UA → NW	−.037	−.1341	.0598	Not Supported
H3-1		Indirect: UA → Sev. → Sus. → E1 → NW	.006***	.0021	.0110	Supported
H1	a	Direct: UA → IS	.120*	.0138	.225	Supported
H3-2		Indirect: UA → Sev. → Sus. → E2 → IS	.003***	.0012	.0094	Not Supported
H1	b	Direct: UA → SS	.124*	.0233	.2243	Supported
H3-2		Indirect: UA → Sev. → Sus. → E2 → SS	.007***	.0027	.0143	Not Supported
H1	c	Direct: UA → NW	.027	−.070	.124	Not Supported
H3-2		Indirect: UA → Sev. → Sus. → E2 → NW	.008***	.0034	.0161	Not Supported
H2	a	Direct: SMU → IS	.336***	.2769	.3952	Supported
H4-1		Indirect: SMU → Sev. → Sus. → E1 → IS	.001	−.0002	.0019	Not Supported
H2	b	Direct: SMU → SS	.284***	.2260	.3419	Supported
H4-1		Indirect: SMU → Sev. → Sus. → E1 → SS	.002***	.0007	.0040	Supported
H2	c	Direct: SMU → NW	.235***	.1779	.2914	Supported
H4-1		Indirect: SMU → Sev. → Sus. → E1 → NW	.003***	.0013	.0058	Supported
H2	a	Direct: SMU → IS	.335***	.2727	.3947	Supported
H4-2		Indirect: SMU → Sev. → Sus. → E2 → IS	.001	−.0005	.0022	Not Supported
H2	b	Direct: SMU → SS	.270***	.2111	.3284	Supported
H4-2		Indirect: SMU → Sev. → Sus. → E2 → SS	.003***	.0009	.0056	Not Supported
H2	c	Direct: SMU → NW	.214***	.1568	.272	Supported
H4-2		Indirect: SMU → Sev. → Sus. → E2 → NW	.004***	.0017	.0078	Not Supported

Note: UA = Uncertainty Avoidance, SMU = Social Media Usage, Sev. = perceived threat severity, Sus. = perceived susceptibility, E1 = high arousal negative emotion, E2 = low arousal negative emotion, IS = information seeking intentions, SS = Support Seeking Intentions, NW = Negative Word-of-mouth Intentions.

significantly positive serial mediation effects for (b) support seeking and (c) negative word-of-mouth behavioral intentions (see Table 5, serial mediation effects and CIs). This indicates that higher social media usage led to higher levels of perceived threat severity and susceptibility, and such perceived susceptibility induced more negative *high* arousal emotions, in turn leading to more active (b) support seeking and (c) negative word-of-mouth communication intentions, but not necessarily leading to more (c) information seeking. Thus, H4-1 (b) and (c) were supported, while H4-1 (a) was not.

In addition, given the fact that direct effects of social media usage on (b) support seeking and (c) negative word-of-mouth intentions were also significantly positive (recall H2s; see Table 4 for direct effects), the ways that social media usage affects (b) support seeking and (c) negative word-of-mouth intentions are significant in a positive direction both through the direct routes and indirect routes through the three serial mediators for the *high* arousal negative emotion. Moreover, for (a) information seeking, the PROCESS results suggested there were significant serial mediations when dropping the *high* arousal negative emotion as a mediator: effect: .01, CIs = [.0043, .0199]. This means the effect of social media usage on (a) information seeking was serially mediated by only perceived threat severity and susceptibility: *high* arousal negative emotion did not function as a mediator for (a) information seeking.

H4-2s predicted that the effect of social media usage on the three outcome variables would be negatively mediated through the serial mediators of perceived threat severity, perceived susceptibility, and *low* arousal negative emotion. Results indicated that positive serial mediation effects were significant for (b) supporting seeking intentions and (c) negative word-of-mouth intentions, but not for (a) information seeking intentions (see Table 5, serial mediation effects and CIs). Although the serial mediations were significant for (b) support seeking intentions and (c) negative word-of-mouth intentions, the direction was inconsistent with the prediction, which stated that the serial mediation would be negatively significant since low arousal negative emotion such as sadness should decrease social media engagement behavioral intentions. In addition, as seen in Table 4, the direct effect of *low* arousal negative emotion on social media engagement behavior intentions was positive, indicating *low* arousal negative emotion also increased engagement behavioral intentions. Since both direct and indirect effects were significant, the way social media usage affects (b) support seeking and (c) negative word-of-mouth intentions are significant in a positive direction both through the direct and indirect routes through the three serial mediators for the *low* arousal negative emotion. Due to the different direction found in the serial mediations for the *low* arousal negative emotion, H4-2s were not supported.

Since no serial mediations were found for (a) information seeking, we also looked at the serial mediation without the *low* arousal negative emotion as a serial mediator. The results indicated that there were significant serial mediations when dropping the *low* arousal negative emotion as a mediator: effect: .01, CIs = [.0044, .02]. This means the effect of social media usage on (a) information seeking was serially mediated only by perceived threat severity and susceptibility: *low* arousal negative emotion does not function as a mediator for (a) information seeking.

5. Discussion

Drawing from emotion theories (Berger, 2011; Cavanaugh et al., 2015; Lazarus, 1991; Nabi, 2002) and EPPM (So, 2013; Witte, 1992), this study examines individual differences as antecedents and perceived threat severity, perceived susceptibility and negative emotions as mediating factors in publics' post-crisis social media engagement behavioral intentions during a corporate crisis. Evidence from the serial mediation model tests supports the idea that individual differences such as uncertainty avoidance and social media usage act as antecedents to post-crisis social media engagement behavioral intentions. However, the patterns by which these two individual factors lead to social media engagement behaviors are different and worth further discussion.

5.1. Uncertainty avoidance

Our results indicate that the way uncertainty avoidance leads to post-crisis social media engagement behaviors differs by the type of aroused emotion (high vs. low arousal). When high- arousal emotions (e.g., anger and fear) were activated, uncertainty avoidance did not directly lead to information seeking, support seeking, or negative word-of-mouth intentions, but it did so only when mediated by cognitive appraisals (i.e., perceived threat severity and perceived susceptibility) and high arousal negative emotions. On the other hand, when low-arousal emotions (e.g., shame and guilt) were activated, uncertainty avoidance led not only directly to information-seeking and support-seeking intentions but also indirectly through cognitive appraisals and affective arousal. Moreover, for negative word-of-mouth intentions, uncertainty avoidance led to such intentions only through cognitive appraisals without the activation of low-arousal emotions. This indicates that the activation of high arousal emotions, while generally consistent with extant literature's posting of their "activating role" in driving behavioral intentions (Jin et al., 2014), plays a more critical role than the activation of the low-arousal emotions in the process of uncertainty avoidance affecting the social media engagement behaviors. This is in line with previous research that has supported the idea that high-arousal emotions could be stronger driving factors on social media than low-arousal emotions in crisis situations (e.g., Berger, 2011; Kim and Niederdeppe, 2013; Turner, 2007). For instance, according to Kim and Niederdeppe (Kim and Niederdeppe, 2013); one of the most important predictors of public engagement in social media, during times of crisis, is the high arousal negative emotion of anger. Thus, this study confirms that high-arousal emotions play a more critical role in explaining how uncertainty avoidance functions in publics' social media behaviors (Berger, 2011; Turner, 2007).

Regardless of the aroused emotions' type, uncertainty avoidance was found to influence publics' cognitive appraisal of the crisis situation (i.e., perceived threat severity), confirming its mediating role. Consistent with the previous literature (De Meulenaer et al., 2015; Hofstede et al., 2010), this study found that high uncertainty avoidance individuals are more likely to perceive the crisis situation to be severe. The high-threat severity perception may be due to the fact that high uncertainty-avoidance people perceive themselves to have relatively low control over their own lives (De Meulenaer et al., 2015; Sanchez-Francisco et al., 2009). Findings suggested that high uncertainty-avoidance people are not only extremely risk averse (Hillson and Murry-Webster, 2007), but also perceive a crisis to be more severe, followed by an amplified sense of physical or psychological danger (i.e., perceived susceptibility; So, 2013). This study confirms that individual variances in uncertainty avoidance may drive variance in psychological reactions to crisis contexts.

5.2. Social media usage

Regarding people's usage of social media, the way this leads to post-crisis social media engagement behavioral intentions did not, during the process, differ by the type of aroused emotion (high vs. low arousal). Regardless the arousal emotion being activated (i.e., high or low), the patterns were the same. However, the relationships that social media usage have with information seeking were different from those with support-seeking and negative word-of-mouth intentions. That is, while only direct effect was observed for information-seeking intentions, both direct and indirect effects were found for support-seeking and negative word-of-mouth intentions for social media usage.

It is worth noting that neither high arousal negative emotion nor low arousal negative emotion functioned as a mediator between social media usage and information seeking intentions. Instead, social media usage's effect on information-seeking behavioral intentions was mediated only by cognitive appraisals of perceived threat severity and perceived susceptibility. This suggests that information-seeking intention induced by the increased social media usage requires only the cognitive appraisals of the situation without the activation of negative emotions. In other words, publics' information-seeking intentions could increase during a crisis based on increased social media usage and cognitive appraisals of perceived threat severity and susceptibility without experiencing negative emotions about the crisis. This may imply that publics' coping strategy of information seeking in crisis is primarily to make sense of self-threatening information (Witte, 1994), not necessarily to reduce undesirable emotions from the environment (Duhachek, 2005). Previous research has considered the reduction of negative emotions to be a primary motivation for coming up with coping strategies without differentiating the varying coping strategies (Lazarus and Folkman, 1984). Our findings suggest, however, that the motivations for the varying coping strategies may differ. That is, for information seeking, it could be to make sense of self-threatening information (Witte, 1994), while for support-seeking and negative word-of-mouth intentions, it could be both to reduce negative emotions and to make sense of the situation (Tandoc and Takahashi, 2016; Watson, 2016).

As for the mediating role of cognitive appraisals, this study confirms previous literature (e.g., Hampton et al., 2015), showing that publics who generally use more social media are more likely to find the crisis severe. Compared to traditional media, social media are more likely to become outlets of crisis information (Sung and Hwang, 2014). Furthermore, as social media information is mostly peer-generated content (Cho et al., 2013), exposure to such crisis-related content may exacerbate the perceived threat severity of the crisis

(Lim, 2017). This heightened severity perception may then give rise to a higher sense of physical or psychological danger (So, 2013), thus increasing the perceived likelihood of being affected by the crisis personally.

5.3. The role of negative emotions

Previous research has found that low-arousal emotions such as sadness may inhibit social media communication behaviors (Berger and Milkman, 2012). However, contrary to our original predictions for both uncertainty avoidance and social media usage as antecedents, this study found that low-arousal emotions increase rather than decrease social media engagement behavioral intentions, just as do high-arousal emotions. This contradictory finding could be explained by the special circumstances of crisis communication contexts. Previous studies addressing low-arousal emotions such as sadness, embarrassments, guilt and shame (Berger and Milkman, 2012; Cavanaugh et al., 2015) have examined them as self-directed rather than other-directed emotions. Thus, the negative feelings towards the self may decrease communication intentions. However, the feelings of these low-arousal emotions in crisis contexts are geared toward the crisis situation or the organization (i.e., other-directed emotions). Thus, the low-arousal emotions may become the intensifying factors for social media engagement behaviors. As very little research has addressed the effects of low-arousal emotions such as shame, guilt and embarrassment, additional future research is needed to verify this aspect.

5.4. Theoretical and practical implications

While crisis communications continue to adapt to a more stakeholder-centric model of crisis communications (Coombs et al., 2015), research is still in the process of better understanding the roles of emotions and individual differences in social media communication behaviors. The current research intends to move this growing area of literature forward. Incorporating theoretical perspectives from functional emotion theories (Lazarus, 1991; Nabi, 2002) and EPPM (So, 2013; Witte, 1992), this study adds to the crisis literature by proposing that how people cognitively and affectively appraise situational factors and engage in social media communication behaviors may in fact be influenced by the individual level predisposition of uncertainty avoidance and social media usage. This study contributes to the existing knowledge by confirming the mediating functions of cognitive appraisals and affective processing. Findings in this study further add to emotion theories (Berger, 2011; Cavanaugh et al., 2015; Nabi, 2002) that, in addition to high arousal emotions (i.e., fear and anger), low-arousal emotions such as shame may, in a crisis context, also trigger social media communication behavioral intentions. The study also sheds light on the functions of low-arousal emotions in a corporate crisis by suggesting that the role low-arousal emotions play in social media engagement behavioral intentions may differ according to whether such emotions are targeted as self-centered or other-centered (e.g., the organization in crisis, Berger and Milkman, 2012; Cavanaugh et al., 2015).

Understanding the drivers (i.e., antecedents and mediators) of publics' post-crisis social media engagement behaviors will be key to predicting and adequately addressing public needs in crisis. Without understanding specific motivations that drive publics to the social media space, communicators may be ill-equipped to engage appropriately or effectively with crisis-affected publics. The findings presented here suggest that antecedents of social media engagement indicate unique expectations or needs among publics who turn to social media in times of crisis. Publics resort to social media in the post-crisis phase not only to seek out important crisis information, but also to cope with the crisis threats by gaining social support and engaging in negative word-of-mouth.

Drivers of publics' existing communication behaviors on social media can be used as barometers to determine appropriate crisis-communication strategies (Brummette and Sisco, 2015; Coombs and Holladay, 2014). Practitioners could utilize our findings to improve post-crisis social media communication efforts based on the varying characteristics of publics in uncertainty avoidance and social media usage. The key to segmenting publics for better planning and executing of crisis communication could be an awareness and a better understanding of the publics' individual characteristics such as uncertainty avoidance and media usage. Indeed these characteristics may affect publics' cognitive appraisals, negative affective arousal, and the subsequent social media engagement intentions. Since increased uncertainty avoidance and social media usage lead to higher negative word-of-mouth intentions, practitioners should strive to lower publics' uncertainty levels by providing through social media immediate yet accurate information.

6. Study limitations and conclusion

This study has several limitations. First, though adapted from previous studies(De Meulenaer et al., 2015; Wu, 2006), the uncertainty avoidance scale shows a relatively low reliability score (Cronbach's α = .80) and indicates needs for further refinement (De Meulenaer et al., 2015). In addition, future research may benefit from a higher variance of uncertainty avoidance. For example, the use of participants from different cultures may increase the variance and give a clearer comparison between low and high uncertainty avoidance levels.

Second, approaching social media as a holistic entity, we conceptualized social media usage as the general usage of various social media platforms. It is plausible that this approach may neglect specific characteristics or unique motivators on specific platforms. Future research may thus incorporate variances in different functions of specific social media platforms to discover how publics may, during a crisis, use varying social media platforms differently. Third, as this study employed a survey method to examine the topic, caution should be used when interpreting the causal relationships among the proposed constructs. Furthermore, while the use of serial mediation model to test the hypotheses has its merits, it also increased the number of analyses needed in this study. Future research should apply experiments to detect the causal relationships. Fourth, to ensure a parsimonious model, this study examined only two concepts (perceived threat severity and perceived susceptibility) from EPPM. Future research may look into testing all EPPM

factors for holistic insights.

All in all, this study sheds light on the underlying psychological mechanisms that individual differences (i.e., uncertainty avoidance and social media usage) give rise to varying post-crisis social media engagement intentions. The different cognitive and affective processing patterns found between uncertainty avoidance and social media usage offer important insights into the essential mediating steps in the process of each individual factor inducing information-seeking, support-seeking and negative word-of-mouth intentions.

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Appendix A. Supplementary data

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