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Relationship matters: How government organization-public relationship impacts disaster recovery outcomes among multiethnic communities*

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ABSTRACT

Government and emergency management (EM) agencies play a leading role in managing natural disasters. However, it is less well understood how the quality of the relationship between government and various publics may impact long-term disaster-coping and recovery outcomes. Extending the relationship management framework to the context of disaster management, the current study tests the relationships among different ethnic publics' OPR quality, their communicative behaviors of seeking government and EM information, and disaster-coping outcomes. Results suggest that government OPR quality is positively related to information seeking and major disaster-coping outcomes, including self-efficacy, collective efficacy, and community resilience perceptions. Moreover, the extent to which OPR quality impacts disaster-coping outcomes significantly diverges across ethnic lines. Results provide implications for multicultural relationship management in the context of post-disaster recovery and community building.

1. Introduction

The field of public relations has long recognized the importance of mutually beneficial relationships between organizations and their publics (Cheng, 2018; Huang, 2001; Huang & Zhang, 2013; Ledingham & Bruning, 1998, 2000). Positive organization-public relationships (OPRs) can help organizations achieve goals such as improved organizational reputation (Yang, 2007), citizen satisfaction (Bruning et al., 2004), and public support behaviors (Ki & Hon, 2007). While existing work consistently documents the relational benefits that organizations can reap, less research has taken a public-centered approach to investigate how OPRs empower the publics and advance their interests in everyday or crisis situations (Ni, Xiao, Liu, & Wang, 2019).

Coupled with the scarcity of research on public centered OPRs is also the lack of focus on culturally diverse publics (Brunner, 2009). With urban communities increasingly characterized by racial and ethnic diversity (Horowitz, 2019), cultivating relationships with diverse publics has become a more pressing relationship management practice than ever (Laninga, Austin, & McClure, 2019). Such practices may be especially important for public and emergency management (EM) organizations. During and after a natural disaster, as the negative impact of disasters often disproportionally falls on minority residents (Davidson et al., 2013), it is crucial to understand how government disaster communication—ranging from the federal, state, to local level, and the subsequent relationships built with diverse publics may become an important pathway to empower communities and mitigate the negative impact of the disaster (Granville, Mehta, & Pike, 2016).

To bridge the research gaps mentioned above, the current study extends the relational management framework to the context of government disaster communication. Government disaster communication in the current study refers to a broad range of disaster-related information, updates, and advisories from multiple communication channels and sent by government agencies at various jurisdiction levels. We choose to adopt a holistic conceptualization of government and EM communication, because disaster and emergency response systems almost always consist of multiple government agencies. Individuals rarely interact with only a single source of government information when navigating a disaster (Kapucu, 2009). In the study, we first investigate how the OPRs quality between EM agencies and the affected publics is related to public disaster information-seeking behaviors and three forms of disaster-coping outcomes. We then assess if such relationships may diverge across multicultural publics, a vital research question germane to an intercultural approach of relationship management (Ni, Wang, & Sha, 2018).

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The rest of the paper is organized as follows. First, we review the concept of OPRs, focusing specifically on the relationship management practices among public-sector organizations. We then discuss the relationships between government OPRs and disaster-coping outcomes among multicultural publics. Using community survey data collected from different ethnic groups, the study offers an empirical assessment of the role of government OPRs in disaster recovery efforts after a major natural disaster. Theoretical and practical implications are discussed in the end.

2. Literature review

2.1. Conceptualizing government OPRs

As a core concept in the relationship management paradigm, organization-public relationship (OPR) is defined as "the state which exists between an organization and its key publics, in which the actions of either can impact the economic, social, cultural or political well being of the other" (Ledingham & Bruning, 1998, p. 62). The accumulating interest in OPR reflects a theoretical shift in the public relations scholarship (Cheng, 2018; Huang & Zhang, 2013; Ki & Shin, 2006), which emphasizes the importance of mutually beneficial organization-public relationship in achieving positive outcomes ranging from enhanced organizational reputation (e.g., Haigh & Brubaker, 2010) to effective health intervention (e.g., Chon & Park, 2019).

While the conceptualization of OPR diverges across different lines of work (see Cheng, 2018 for a recent review), the four dimensions—control mutuality, trust, relational satisfaction, and commitment—are consistent indicators of organization-public relationship quality, especially in cross-cultural settings (Huang, 2001; Ki & Hon, 2007). Control mutuality refers to the extent to which both parties—organizations and their publics—are equally involved in decision-making, or "has the rightful power to influence one another" (Hon & Grunig, 1999, p. 3). Trust is defined as the willingness and confidence to rely on the other party (Hon & Grunig, 1999). Relational satisfaction describes the level of favorable evaluation toward the other, which is often achieved when the relationship fulfills or reinforces positive expectations (Ki & Hon, 2007). Finally, commitment is "the belief that an ongoing relationship with the other party is important as to warrant efforts at maintaining it" (Ki & Hon, 2007, p. 423).

Existing research has focused on the antecedents, processes, and outcomes of OPRs (Cheng, 2018), among which OPR outcomes have received significant scholarly attention. Overall, the quality of OPRs contributes to various attitudinal and behavioral outcomes. For example, Yang (2007) identified the positive relationship between active communication behaviors and the quality of OPRs, which further led to enhanced corporate reputation. Similarly, Kang and Yang (2010) found that OPRs mediated the relationship between stakeholder awareness and their intention to support nonprofit organizations. In the context of political public relations, research showed that positive OPRs between political parties and citizens were significantly associated with favorable attitudes toward the party, stronger party affiliation, and higher issue approval (Seltzer & Zhang, 2011). In the health communication context, Chon and Park (2019) found that individuals' positive relationship with the Centers for Disease Control and Prevention (CDC thereafter) contributed to better adherence to health instructions and a higher propensity to re-share CDC information about the health crisis.

The diverse OPR research has also investigated organizations from multiple sectors from corporations (e.g., Jo, 2006), nonprofits (e.g., Sisson, 2017), to public sector organizations (e.g., Dong & Ji, 2018; Seltzer & Zhang, 2011). While OPRs of public sector organizations share much of the fundamental principles of relationship management, the public-serving nature of government agencies makes their OPRs practices unique in the following ways (Liu & Horsley, 2007). First, compared to private-sector organizations, public agencies are under greater public scrutiny to manage relationships with a multitude of publics, including multicultural or even ideologically divided publics (Hong, Park, Lee, & Park, 2012). The intercultural aspect of relationship management is, therefore, particularly important for public organizations due to their routine needs to reach out and engage with different segments of the publics. Second, for public organizations, the OPR outcomes are more likely to be centered around public interests. That is, government OPRs are evaluated by their effectiveness to promote public interests, as opposed to asymmetrically advancing organizational interests like profit-making or reputation maintenance (Horsley, Liu, & Levenshus, 2010).

The focus on public organizations and public-centered OPR outcomes thus bridges a significant gap in the relationship management literature, where the majority of existing work focuses on how organizations manage OPRs to only benefit organizations themselves (Ni et al., 2019). Heeding the call that OPR research should devote more attention to public-centered outcomes, we examine government OPRs in the specific context of disaster communication and explore how such OPRs may impact the publics' information seeking and the subsequent disaster-coping outcomes at both individual and community levels.

2.2. Government OPRs and disaster communicative actions

From Federal Emergency Management Agency (FEMA) to local EM offices, government and EM organizations at different levels are at the forefront of disaster preparedness, response, and post-disaster recovery (Comfort, Waugh, & Cigler, 2012). Community members not only rely on EM agencies for immediate disaster-relief, but their success of long-term recovery also hinges on obtaining aids and resources from these organizations. For example, research has shown that even with the abundance of alternative information sources, individuals still relied on official government and EM communication for disaster-related information (Freberg et al., 2013; Wukich & Mergel, 2015). Therefore, government-public disaster communication is of vital importance both during and after disasters.

Whether and to what extent the public seeks and responds to disaster information can be critical to how they cope with the disaster (Jin, Liu, & Austin, 2014). Coping is a central concept in disaster and crisis communication literature. Research has recognized the multidimensional nature of crisis coping, among which cognitive coping—obtaining information and making sense of the crisis situation, conative coping—taking action to deal with the problem, and emotional coping—exchanging emotional support and venting, are strategies that are most useful to help individuals reduce uncertainty, adapt to the changing situation, and relieve psychological stress caused by the disaster (Jin & Hong, 2010; Jin, Fraustino, & Liu, 2016).

Individuals' cognitive appraisal and coping of the disaster rely on a series of proactive and reactive information behaviors. To better understand communicative action, research in public relations has examined the situational perceptions, motivations, and information behaviors of publics as proposed in the Situational Theory of Problem Solving (STOPS, e.g., Kim & Grunig, 2011) and Communicative Action in Problem Solving (CAPS, Kim, Grunig, & Ni, 2010). In particular, communicative action in problem-solving (Kim et al., 2010) encompasses broader aspects of communication behaviors related to a problematic life situation. The constructs that explain information behaviors in STOPS include three domains: information acquisition, information transmission, and information selection, each containing an active and passive variable (Kim & Grunig, 2011).

Among the three domains of information behaviors, active information acquisition—that is, information seeking, is most important in the context of disaster communication. *Information seeking* is defined as "planned scanning of the environment for messages about a specific topic" (Grunig, 1997, p. 9).

Recent research has tested the connection between the two lines of research, OPR and CAPS, by investigating how the relationships between an organization and its publics may affect the communicative

action of the publics. Recently, Ni et al. (2018) proposed a public segmentation approach in intercultural public relations that examined the interaction between the situational and cross-situational approaches. Specifically, semi *cross-situational* factors like organization-public relationships might influence the publics' *situational* perceptions, and in turn, their communication behaviors in a given situation. This framework has been tested and supported in a general public health context in the Asian community (Ni et al., 2019), indicating that OPR was positively related to community members' communicative actions.

In the disaster communication context, it is important to re-assess whether similar relationships apply. In our study, we choose to focus on one of the most important domains of the communicative action, information seeking, for the following reasons. First, compared to other behaviors such as information sharing, information seeking represents the most frequently engaged communication activity that directly helps individuals navigate a disaster and reduce uncertainty (e.g., Berger & Calabrese, 1975; Lachlan, Westerman, & Spence, 2010; Ranjit, Lachlan, Basaran, Snyder, & Houston, 2020). Second, research argues that individuals' ability to obtain information in the aftermath of a disaster can critically influence how well members of a community self-organize and provide support (Silver & Matthews, 2017). The critical role of information seeking thus makes it one of the most examined communication behaviors in disaster communication research. For example, Ryan (2013, 2018) focused only on information seeking when understanding how individuals sought problem-specific information in various disaster contexts. To assess how individuals' information seeking is associated with their relationship with government and EM agencies, we ask:

H1. Individuals' positive relationship with government and EM organizations (i.e., trust, control mutuality, satisfaction, and commitment) will be positively associated with their information seeking of government and EM disaster communication.

2.3. Government OPR and disaster-coping outcomes

Before examining the relationship between government OPR and disaster-coping outcomes, it is essential to first theorize the role of government disaster communication. Government disaster communication has been found to directly facilitate individuals' disaster-coping in the following ways. First, by providing updates and guidance about the disaster, government communication fulfills the function of *providing information* and *adjusting information,* both of which are cornerstones of effective crisis communication (Coombs, 2007). Second, government communication can play the role of *resource brokers* by connecting citizens to various resources that are essential for disaster recovery. For example, Liu, Austin, Lee, Jin, and Kim (2020) and Liu, Xu, and Tsai (2020) content analysis of government social media messages showed that during and immediately after Hurricane Harvey, a significant portion of government messages were about directing the public to disaster-relief agencies or relevant resource providers. Finally, government communication can boost community morale by providing affirmative narratives about the community, much like what journalistic narratives can do to mitigate disaster impact (Wilkins, 2016). Therefore, how such information is actively sought after by the public may play an important role in how well the public cope with disasters.

In the current study, we focus on disaster-coping outcomes in three interrelated forms as perceived by community members: disaster-coping *self-efficacy*, *collective efficacy*, and *community resilience*. A sense of personal efficacy has long been viewed as the foundation of human agency (Bandura, 1997). Disaster-coping self-efficacy is a sense of efficacy beliefs that are specific to the disaster context, indicating "how well (individuals) motivate themselves and persevere in the face of difficulties; the quality of their emotional life and vulnerability to stress and depression; resiliency to adversity (Benight & Bandura, 2004, p. 1131). Meanwhile, collective efficacy is the belief that a group, as opposed to individuals themselves, can effectively solve problems and mobilize resources through concerted effort (Bandura, 1997). In the context of post-traumatic recovery such as natural disasters, collective efficacy can be equally important as a full-scale recovery depends on the trust of other community members and the subsequent collective action (Benight, 2004). We thus hypothesize:

H2a. Individuals' information-seeking of government and EM disaster communication will be positively associated with disaster-coping self-efficacy.

H2b. Individuals' information-seeking of government and EM disaster communication will be positively associated with disaster-coping collective efficacy.

For the community as a whole, one concept that assesses a community's ability to bounce back from disasters is *community resilience*, defined as the capacity for a community to adapt to an erupted environment and recover after a disaster or crisis (Houston, Spialek, Cox, Greenwood, & First, 2015; Manyena, O'Brien, O'Keefe, & Rose, 2011; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). Norris et al. (2008) viewed community resilience as a set, rather than a single form of adaptive capacities that supported a community to recover from disaster, and these capacities were reflected in the subsequent operationalization consisting of economic development, social capital, information and communication, and community competence. Research has suggested that media and communication are vital agents that may enhance a community's level of resilience (e.g., Houston et al., 2015). Compared to collective efficacy, community resilience goes beyond coping with the current disaster to include a community's long-term recovery capacity.

Among various forms of communication, individuals' information-seeking of government and EM communication is particularly likely to make a difference. Information seeking from government sources is an important antecedent to community resilience perceptions. For example, Guo, Sim, and Ho (2020) found that Hong Kong residents' information seeking from government-based weather information was positively associated with perceived community resilience after extreme storm events. Using household community samples, Cohen, Goldberg, Lahad, and Aharonson-Daniel (2017) study similarly found that accessing information provided by municipal authorities was positively related to community resilience scores during emergency situations. We thus hypothesize:

H2c. Individuals' information-seeking of government and EM disaster communication will be positively associated with the community resilience perception.

While timely and transparent communication between organizations and their publics are essential (Liu, 2009), the sheer presence of communication is not enough to produce positive outcomes in the context of crisis or disaster management. For example, Coombs and Holladay (2001) found that the past relationship history between organizations and their publics, particularly the negative one, significantly impacted individuals' potential supportive behaviors in a crisis. On the other hand, positive OPRs can enhance an organization's ability to manage crises and achieve desired goals. Brown and White (2010) found that regardless of an organization's crisis response strategies, individuals were less likely to assign blame to an organization if positive OPRs were in place. In the specific context of government public relations, Chon (2019) similarly found that OPRs quality—indicated by control mutuality, satisfaction, trust, and commitment—significantly contributed to individuals' pro-government megaphoning, the word-of-mouth towards the government in the context of government crisis.

To test the direct relationships between government OPR and individuals' disaster-coping outcomes, we propose the following set of hypotheses:

H3a. Individuals' positive relationship with government and EM

organizations (i.e., trust, control mutuality, satisfaction, and commitment) will be positively associated with disaster-coping self-efficacy.

H3b. Individuals' positive relationship with government and EM organizations (i.e., trust, control mutuality, satisfaction, and commitment) will be positively associated with disaster-coping collective efficacy.

H3c. Individuals' positive relationship with government and EM organizations (i.e., trust, control mutuality, satisfaction, and commitment) will be positively associated with community resilience perceptions.

Finally, we complete the theoretical model by testing the interrelationships among disaster-coping outcome variables. Empirical work identifies the positive impact of fostering community members' disaster-coping efficacy in promoting a sense of togetherness, which ultimately translates into greater community resilience after a disaster (Shing, Jayawickreme, & Waugh, 2016). To test how disaster-coping efficacy variables are related to a community's disaster resilience, we propose the last set of hypotheses:

H4a. Individuals' disaster coping self-efficacy will be positively associated with community resilience perceptions.

H4b. Individuals' disaster coping collective efficacy will be positively associated with community resilience perceptions.

Thus far, we have proposed a theoretical model examining the role of government OPR in public communication activeness and disaster-coping outcomes. In the model, Fig. 1 presents this conceptual model summarizing all the hypotheses:

2.4. OPRs and disaster coping outcomes across multicultural publics

The theoretical model proposed above assesses the global impact of OPRs in the process of fostering community resilience. However, it is not clear how it applies to publics from different ethnoracial backgrounds, an issue that is important for EM agencies. Segmenting publics, an approach that "divides a population, market, or audience into groups whose members are more like each other than members' of other segments" (Grunig & Repper, 1992, p. 129), has been identified as an effective strategy for organizations to make effective crisis plans and tailor messages when facing diverse publics (Chon, 2019).

In an integrated, theory-driven framework of segmenting and understanding publics (Kim, Ni, & Sha, 2008), two main categories of approaches are identified: situational and cross-situational. Situational segmentation approaches (i.e., the situational theory of publics, e.g., Grunig, 1997, and situational theory of problem solving, Kim & Grunig, 2011) focus on non-enduring or dynamic characteristics. In contrast, cross-situational approaches use concepts based on enduring characteristics, such as demographics, psychographics, and others (Kim et al., 2008).

Synthesizing the two approaches proposed in Kim et al. (2008), Hong et al. (2012) identified different clusters of publics in government-public relationships. Kim (2015) further tested the different levels of public trust towards different levels of government. In particular, cross-situational variables such as race were strong predictors of trust in the federal government. However, race and most other demographic variables did not significantly predict trust in state or local government.

Cross-situational variables are important to consider in general intercultural public relations. For example, avowed (or self-identified) cultural identity has been shown to affect an individual's situational perceptions such as problem recognition and the level of involvement (Sha, 2006), and, in turn, public communication behaviors. These variables are important to consider in the specific context of emergency management as well. Focused on hurricane emergency response, Heath, Lee, and Ni (2009) examined demographics as one heuristic for thinking about the community members as clusters of publics. In particular, the study found that diverse voices in EM, as reflected in source similarity and message sensitivity, increased residents' sense of self-efficacy and community efficacy. Although OPR between residents and EM organizations was not tested, the results indicated that individuals from different ethnic backgrounds might respond differently to EM messages.

In the current study, we treat one's avowed (versus ascribed) ethnic background as a cross-situational factor in understanding publics. Different ethnic groups tend to have distinct perceptions about government and EM organizations. Racial and ethnic differences in political trust have been documented in research from various fields. For example, compared to Anglo Americans, African Americans were found to exhibit lower levels of trust in government and law enforcement agencies (Mangum, 2016). Contributing factors to such discrepancy included policy satisfaction (Mangum, 2016), historical and contemporary discrimination, neighborhood context, and ethnoracial socialization (Smith, 2010). Meanwhile, many members of the Latino community tended to be suspicious of government agencies as well due to their immigration status (Ni & Shi, 2019).

We also anticipate that the relationship between OPR and disaster-coping outcomes to be different across ethnic groups. Different ethnic groups possess varying levels of financial, social, and cognitive resources. The lack of these resources becomes tangible barriers that impact individuals' sense of efficacy. Therefore, even if individuals perceive the same level of government OPR quality, the extent to which such OPR can translate into actual disaster coping outcomes can be different. For example, for the ethnic groups traditionally associated

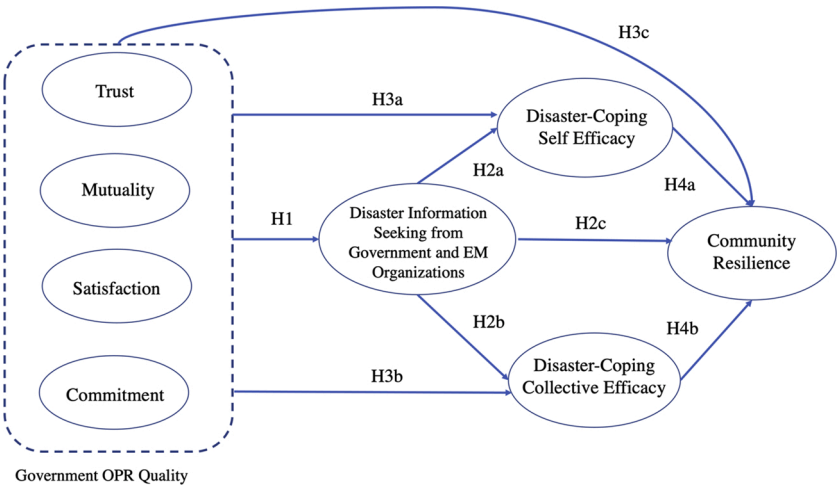

Fig. 1. Hypothesized theoretical model predicting disaster-coping self-efficacy, collective efficacy, and community resilience.

with lower socioeconomic status or deprived of adequate social connections, their sense of disaster coping efficacy may be lower than those with higher levels of income, education, and social connections. In the case of Hurricane Katrina, for example, despite the government EM efforts, many low-income community members simply did not have the physical, financial, and local network capacities to respond to and recover from the disaster compared to other social groups (e.g., Elliott, Haney, & Sams-Abiodun, 2010). To explore such differences, we propose the next research question:

RQ1. How do the associations between government organization-public relationships and disaster-coping outcomes vary across the four major ethnic groups?

3. Method

3.1. Sampling and data

With approval from the Institutional Review Board, an online community survey was conducted in the great Houston area between October 28 and December 28, 2019, with adult residents who experienced direct loss during Hurricane Harvey. Participants were recruited through Qualtrics, a professional survey service provider, using its probability-based and opt-in web panels. Using quota sampling, Qualtrics invited eligible respondents from White, Hispanic, Black, and Asian backgrounds to complete the online survey, and the recruitment was actively made until a quota of 200 respondents was reached for each ethnic group. Two screening questions were used to select participants. First, respondents were asked if they lived in the great Houston area between August and September 2017, when Hurricane Harvey hit the region. Second, whether the respondents or their household members experienced flooding, financial loss, or other types of loss due to the hurricane. Only those who answered "yes" to both questions were then directed to the webpage to review study consent and participate. Participants were provided with small cash incentives (i.e., $5 in e-reward currency) for survey completion.

The final 800 participants consisted of 598 females (74.8 %) and 199 males (24.9 %), overrepresenting the city's female population at 50 % (U.S. Census Bureau, 2018). The average age of the sample was 36.3 ($SD = 13.09$), slightly older than the city's average at 32.9. Almost half of the participants owned their current residence (47.5 %, $n = 380$), compared to the city's average at 42.9 % (U.S. Census Bureau, 2018). The majority of the respondents had "some college education without degree" (25.9 %, $n = 207$), higher than the city population's average at 18.17 % (U.S. Census Bureau, 2018). In terms of household income, the top two most selected categories were "between $25,000 and $49,999" ($n = 219$, 27.4 %) and "between $50,000 and $74,999" ($n = 166$, 20.8 %), comparable to the median income at $51,140 (U.S. Census Bureau, 2018). Finally, in terms of immigration status,[1] 14.9 % ($n = 119$) were first-generation, foreign-born immigrants, lower than the city's foreign-born population at 29.46 % (U.S. Census Bureau, 2018). Table 1 presents the key demographic characteristics of all participants, as well as the breakdown descriptive statistics across each ethnic group.

3.2. Measures

3.2.1. Exogenous variables

3.2.1.1. Control mutuality. Adopting the OPR measurement by Hon and Grunig (1999), respondents were asked to indicate the level of agreement on five statements on a five-point scale ($M = 3.36$, $SD = .74$, Cronbach's $\alpha = .74$). The specific items are included in Table 1.

3.2.1.2. Trust. Following Hon and Grunig (1999), six questions were adapted and used to measure individuals' trust of government and emergency management organizations ($M = 3.44$, $SD = .96$, Cronbach's $\alpha = .91$).

3.2.1.3. Commitment. Commitment was measured by four questions on a five-point scale, following Hon and Grunig (1999) ($M = 3.20$, $SD = 1.05$, Cronbach's $\alpha = .91$)

3.2.1.4. Relational satisfaction. Relational satisfaction was measured by four questions on a five-point scale, following Hon and Grunig (1999) ($M = 3.33$, $SD = 1.12$, Cronbach's $\alpha = .93$).

3.2.2. Endogenous variables

3.2.2.1. Information seeking from government and EM communication. Adapting the measure for information seeking from Kim and Grunig (2011) to assess the degree to which residents seek information from the government about the disaster, the following four statements were presented for respondents to provide their levels of agreement on a five-point scale (1 = Strongly disagree, 5 = strongly agree): 1) I closely follow hurricane-related information from government websites; 2) I closely follow hurricane-related information from government social media accounts; 3) I closely follow hurricane-related information from other offline sources like official brochures or pamphlets, and 4) I closely follow hurricane-related information by talking to government officials or visiting their offices. A composite was created by averaging responses of the four items ($M = 3.18$, $SD = .95$, Cronbach's alpha = .70).

3.2.2.2. Disaster-coping self-efficacy. Following Benight et al. (1999), hurricane-coping self-efficacy was measured by asking respondents how capable that they thought they were in handling the following activities on a seven-point scale: 1) dealing with demands of clearing debris caused by the hurricane; 2) maintaining a sense of normality in daily routines; 3) dealing with the disruption caused by the hurricane. The final scale is created by averaging scores of the three items ($M = 4.68$, $SD = 1.51$, Cronbach's $\alpha = .83$).

3.2.2.3. Disaster-coping collective efficacy. Adapting the scale developed in Benight (2004), collective efficacy was measured by 12 items that asked respondents to rate how well their community as a whole handled Hurricane Harvey on a seven-point scale (see Appendix I for specific items). The composite was created by averaging responses to the 12 items ($M = 4.96$, $SD = 1.35$, Cronbach's $\alpha = .96$).

3.2.2.4. Community resilience. The measure was adapted from the five-factor measure of community resilience developed by Pfefferbaum et al. (2013, 2015) as part of the Communities Advancing Resilience Toolkit (CART). Different versions of this measurement have been applied in studies such as Spialek et al. (2016) and Binder et al. (2015). The most up-to-date measurement includes the following five domains covering a total of 24 items: 1) connection and care, including five questions such as "people in my community feel like they belong" ($M = 3.89$, $SD = .86$, Cronbach's alpha = .88); 2) resources, consisting of four questions such as "people in my community was able to get the services they need" ($M = 3.50$, $SD = .95$, Cronbach's alpha = .87); 3) transformative potential, consisting of six questions such as "my community has effective leaders" ($M = 3.66$, $SD = .88$, Cronbach's alpha = .92); 4) disaster management, consisting of four items such as "community prepares for future disasters" ($M = 3.63$, $SD = .95$, Cronbach's alpha = .86); and finally (5) information and communication, including four questions such as "my community keeps people informed" ($M = 3.65$, $SD = .91$, Cronbach's alpha = .81).

[1] Immigration status was asked by the question "who in your family first came to the United States". Those who answered "Me/spouse/sibling" were coded as first-generation immigrants.

Table 1
Socio-demographic Profile of Survey Participants and Breakdown by the Ethnic Group.

	All (N = 800)		White (N = 200)		Black (N = 200)		Hispanic (N = 200)		Asian (N = 200)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender (female)	74.8 %		73.5 %		81 %		77 %		67.5 %	
Age	36.3	13.09	43.96	13.92	37.36	11.27	31.03	10.82	32.86	12.26
Income[a]	3.73	1.89	3.91	1.79	3.15	1.66	3.51	1.78	4.36	2.10
Education[b]	4.49	1.47	4.46	1.42	4.31	1.36	3.88	1.32	5.29	1.42
Homeownership	47.5 %		55.5 %		30.5 %		44.5 %		59.5 %	
Residential tenure	11.27	10.09	12.75	11.36	10.73	11.24	12.36	9.47	9.23	7.43
Immigration status (immigrants[c])	39.2 %		12.5 %		22 %		54 %		76 %	

[a] Income was measured on a nine-point scale from "under $10,000" to "$200,000 or more.".
[b] Educational level was measured on a seven-point scale from "8th grade or less" to "Graduate or professional degree.".
[c] Immigration status was asked by the question "who in your family first came to the United States". Those who answered "Me/spouse/sibling" were coded as first-generation immigrants, "Parent/aunt/uncle" were coded as second-generation immigrants, and "Grandparents or great grandparents" were coded as native citizens. Both were considered "immigrants" in the current study.

3.3. Analysis strategy

To simultaneously test the interrelationships among the set of latent and outcome variables, Structural Equation Modeling (SEM) was used to fit the hypothesized model using the overall and the four sub-group samples. The use of SEM was appropriate because it not only enabled the testing of direct effects, but also the indirect, mediating effects of variables in the model (see Oh, Lee, & Han, 2020 for an example). A two-step latent variable modeling approach was used, including an evaluation of construct validity using Confirmatory Factor Analysis (CFA), and an evaluation of the structural model. In the structural model, the four OPR quality indicators— trust, control mutuality, commitment, and satisfaction—were included as four exogenous variables. The endogenous variables included individuals' connection to government and EM communication, and three disaster-coping outcome variables (i.e., disaster-coping self-efficacy, collective efficacy, and community resilience). Besides, the following seven variables were included as controls in the model: age, gender, education, income, residential tenure, homeownership, and immigrant status.

The *lavaan* statistical package for structural equation modeling on the platform of R (Rosseel, 2012) was used to estimate the direct and indirect effects among a set of endogenous and exogenous variables as proposed in the study. The following three goodness-of-fit indices were assessed. First, a chi-square to degrees-of-freedom (χ^2/df) ratio was calculated; this statistic should be less than 3 (Jöreskog & Sörbom, 1993). Second, the comparative fit index (CFI) was obtained. The CFI compares the hypothesized model with a null model. Higher CFI value suggests the relative advantage of the hypothesized model over the null model and values greater than .90 indicates an acceptable fit (Bentler, 1992). Third, the root mean square error of approximation (RMSEA) was obtained. The RMSEA is a parsimony-adjusted index that evaluates the size at which the observed variances and covariances differ from the hypothesized ones. RMSEA $\leq$ .05 indicates an excellent fit, RMSEA $\leq$ .08 a satisfactory fit, RMSEA between .08 and .10 a fair fit, and RMSEA $\geq$ .10 a poor fit (Jöreskog & Sörbom, 1993).

4. Results

4.1. Confirmatory factor analysis to validate latent constructs

A confirmatory factor analysis (CFA) was first conducted on the entire sample to evaluate the measurement model. The model achieved a satisfactory level of fit, $\chi^2 = 2443.99$, $df = 832$, $p < .001$, $\chi^2/df = 2.94$; CFI = .93; RMSEA = .054 (95 % confidence interval: .052–.057). All factor loadings from the indicators to their corresponding latent constructs were significant ($p < .01$) and at .65 or above (see Table 2 for specific factor loadings). These statistics supported the construct validity of the measurement model.

In addition, we assessed each latent variable's construct validity by examining both convergent validity and discriminant validity. To evaluate convergent validity, the Average Variance Extracted (AVE) of each construct was calculated, all of which were greater than the threshold value of .5 (Strauss & Smith, 2009). Discriminant validity was assessed by using the Fornell-Lackerthe criterion (Hamid, Sami, & Sidek, 2017), where the square root of AVE was compared against the correlations of latent constructs. Result suggested that the square root of each construct's AVE was greater than the construct's inter-factor correlations, confirming that all constructs had achieved satisfactory convergent validity.

4.2. Hypothesis testing and structural equation modeling results

The hypothesized structural model demonstrated satisfactory fit to the data ($\chi^2 = 3172.31$, $df = 1017$, $p < .001$, $\chi^2/df = 2.20$), CFI = .93, and RMSEA = .047 (95 % confidence interval: .045–.049). Fig. 2 presents all significant paths identified among the four indicators of OPRs quality, government and EM information seeking, and disaster-coping outcomes. Estimated coefficients are presented in Table 3.

4.2.1. General model results

H1 tested the relationship between OPRs and individuals' information seeking from government and EM agencies. Results suggested that control mutuality ($b = .27$, $p < .001$) and commitment ($b = .19$, $p < .001$) significantly predicted the level of such information seeking, whereas the other two indicators did not exhibit any significance. The results thus partially supported H1.

H2a through H2c further tested the relationships between individuals' information seeking from government and EM organizations and one's self-efficacy, collective efficacy, and community resilience perceptions. The overall sample results supported H2a and H2b, identifying information seeking as a positive predictor of one's self-efficacy ($b = .52$, $p < .01$) and collective efficacy ($b = .36$, $p < .05$). Meanwhile, H2c was not supported.

H3a hypothesized that individuals' relationship with government and EM organizations would be positively associated with disaster-coping self-efficacy, and this hypothesis was largely supported. Specifically, control mutuality ($b = .37$, $p < .001$), trust ($b = .30$, $p < .001$), and relational satisfaction ($b = .44$, $p < .001$) were all positive and significant predictors of one's disaster-coping self-efficacy.

H3b tested the relationships between OPRs quality and disaster-coping collective efficacy, and this hypothesis was partially supported. Trust ($b = .39$, $p < .001$) and relational satisfaction ($b = .43$, $p < .001$) remained as two significant predictors, whereas commitment ($b = .13$, $p < .05$) had a weaker but still significant effect on collective efficacy.

In terms of impacting one's community resilience perception (H3c), all four OPRs indicators were significant predictors. In particular, commitment ($b = .13$, $p < .001$) had the greatest magnitude of impact, followed by relational satisfaction ($b = .09$, $p < .001$), trust ($b = .07$,

Table 2
Confirmatory Factor Loadings, Reliability and Descriptive Statistics for All Variables ($N = 800$).

Factors	Items	Coefficients	s. e.
Information Seeking from Government and EM Agencies ($M = 3.18$, $SD = .95$, $\alpha = .70$, AVE = .52)	I closely follow hurricane-related information from government websites.	.67	.05
	I closely follow hurricane-related information from government social media accounts like their Facebook pages of Twitter accounts.	.68	.07
	I closely follow hurricane-related information from other offline government sources like brochures or pamphlets.	.86	.05
	I closely follow hurricane-related information by talking to government officials or visiting their offices.	.87	.05
Trust ($M = 3.44$, $SD = .96$, $\alpha = .91$, AVE = .69)	Government and EM organizations treated people like me fairly and justly.	.92	.04
	Whatever decisions were made by government and EM organizations, I know these decisions were concerned about people like me.	.88	.04
	Government and EM organizations could be relied on to keep their promises.	.99	.04
	I believe that Government and EM organizations would take the opinions of people like me into account when making decisions.	.87	.04
	I felt very confident about Government and EM organizations' competence in handling the disaster.	.96	.04
	Government and EM organizations had the ability to accomplish what they promise.	.87	.04
Mutuality ($M = 3.36$, $SD = .74$, $\alpha = .74$, AVE = .53)	Government and EM organizations and people like me were both attentive to what each other say.	.72	.04
	Government and EM organizations believed the opinions of people like me are legitimate.	.78	.04
	Government and EM organizations had a tendency to throw their weight around when dealing with people like me (reverse-coding).	.85	.05
	Government and EM organizations genuinely listened to what people like me have to say.	.95	.04
	Government and EM organizations gave people like me enough say in the decision-making process.	.94	.04
Relational Satisfaction ($M = 3.33$, $SD = 1.12$, $\alpha = .93$, AVE = .82)	People like me were happy with Government and EM organizations during Hurricane Harvey.	.96	.06
	Both government and EM organizations and people like me benefited from our relationship during Hurricane Harvey.	.95	.07
	Most people like me were happy in their interaction with Government and EM organizations during Hurricane Harvey.	.86	.04
Commitment ($M = 3.20$, $SD = 1.05$, $\alpha = .91$. AVE = .78)	Generally speaking, I am pleased with the relationship Government and EM organizations have established with people like me during Hurricane Harvey.	.94	.04
	Government and EM organizations cared about a long-term commitment.	.98	.09
	Government and EM organizations were trying to cultivate a relationship with people like me.	.99	.04
	Government and EM organizations were establishing a long-lasting bond with people like me	.93	.06
	Government and EM organizations valued this relationship with people like me.	.85	.09
Disaster Coping Self-Efficacy ($M = 4.68$, $SD = 1.51$, $\alpha = .83$, AVE = .75)	Dealing with the demands of clearing debris caused by the hurricane.	.89	.06
	Maintaining a sense of normality in my daily routine.	.95	.06
	Dealing with the disruption caused by the hurricane.	.83	.07
Disaster Coping Collective Efficacy ($M = 4.96$, $SD = 1.35$, $\alpha = .96$, AVE = .70)	Ability to quickly coordinate community wide action.	.95	.05
	Ability to organize how specific demands facing the community was addressed across the community.	.93	.05
	Ability for organizational structure to delegate responsibility to the most appropriate individuals to meet crisis demands.	.96	.07
	Ability of community to identify and respond to individuals in greatest needs.	.82	.07
	Ability of community to recognize the need for outside support.	.87	.07
	Effective utilization of outside resources (physical labor, money, food) that are offered.	.75	.05
	Ability to adequately solve conflicts within the community.	.84	.06
	Ability of community to successfully respond to a future disaster.	.82	.04
	Ability for me to work effectively with others in the community.	.81	.07
	Ability of others within the community to work effectively with me.	.93	.05
	Ability to identify appropriate individuals within the community to lead recovery efforts.	.92	.05
	Ability of community to deal with emotional responses that are part of a disaster.	.93	.05
Community Resilience ($M = 3.67$, $SD = .08$, $\alpha = .93$, AVE = .78)	Connection and care	.65	.03
	Resources	.83	.03
	Transformative potential	.82	.04

(continued on next page)

Table 2 (*continued*)

Factors	Items	Coefficients	s. e.
	Disaster management	.84	.03
	Information and communication	.78	.02

Note. All standardized factor loadings are significant at $p < .01$. *AVE* stands for Average Variance Extracted.

$p < .01$), and control mutuality ($b = .07, p < .05$). The results therefore fully supported H3c.

Finally, H4a and H4b tested the positive associations between individuals' disaster coping self-efficacy, collective efficacy and community resilience perceptions, and both hypotheses were supported. A higher level of self-efficacy ($b = .08, p < .001$) and collective efficacy ($b = 26, p < .001$) both significantly contributed to the level of community resilience. The significant effects thus indicated that government OPR quality not only directly promoted community resilience, but it could indirectly do so through the mediating path of promoting community members' self- and collective efficacy.

4.2.2. Sub-group comparison

To answer RQ1, the same SEM model was run using the four subsamples. Table 4 presented estimated coefficients and goodness-of-fit indices for each model, all suggesting a satisfactory model fit. Fig. 3 showed significant paths identified for each ethnic group based on the SEM results.

The relationship between OPRs and the level of government, EM information-seeking slightly diverged across the ethnic line. Positive OPRs quality motivated greater information-seeking behaviors among Black and Hispanic individuals than their White or Asian counterparts, as control mutuality, trust, and commitment all significantly predicted the information-seeking level among Black and Hispanic individuals. For both White and Asian individuals, only control mutuality ($b_{White} = .27, p < .001$; $b_{Asian} = .44. p < .001$) and commitment ($b_{White} = .22, p < .001$; $b_{White} = .18, p < .05$) significantly predicted their levels of government and EM information seeking.

In terms of how OPRs directly predicted individuals' disaster-coping outcomes (H1 through H3), the sub-group models exhibited great divergence across the four ethnic groups. For White individuals, satisfaction emerged as a consistent OPR dimension predicting disaster-coping self- ($b = .43, p < .05$) and collective efficacy ($b = .37, p < .05$), whereas trust ($b = .34, p < .01$) and commitment ($b = .37, p < .001$) better predicted their levels of community resilience. For Black individuals, almost all dimensions of OPRs well predicted their self- and collective efficacy, but only satisfaction ($b = .32, p < .001$) and control mutuality ($b = .16, p < .05$) predicted Black individuals' community resilience. Meanwhile, control mutuality ($b_{self\text{-}efficacy} = .70, p < .001$; $b_{collective\ efficacy} = .79, p < .001$) and trust ($b_{self\text{-}efficacy} = .70, p < .001$; $b_{collective\ efficacy} = .79, p < .001$) are the two ORP quality variables that best predicted Asian individuals' self- and collective efficacy. For the Hispanic subgroup, however, only relational satisfaction significantly contributed to individuals' self- ($b = .50, p < .001$) and collective efficacy ($b = .51, p < .001$), and only control mutuality significantly

Table 3
Structural Equation Model Predicting Individuals' Disaster-Coping Self-Efficacy, Collective Efficacy, and Community Resilience, Overall Sample (N = 800).

	Gov and EM Info Seeking	Disaster-Coping Self-Efficacy	Disaster-Coping Collective Efficacy	Community Resilience
Socio-demographics				
Age	−.001 (.002)	.001(.004)	−.001(.004)	−.001(.001)
Gender	−.089 (.047)	.044(.108)	.035(.104)	−.001(.041)
Income	-.029 (.013) *	.021(.029)	.097(.028) **	.012(.011)
Education	.005 (.016)	−.029 (.037)	−.015(.036)	.006(.014)
Residential tenure	−.000 (.002)	−.007 (.005)	−.001(.005)	−.003(.002)
Homeownership	.048 (.045)	.115(.104)	−.124(.100)	.000(.040)
Immigrant status	.023 (.043)	−.117 (.099)	.049(.095)	.001(.038)
OPR Quality				
Control mutuality	.265 (.039) ***	.373(.081) ***	.106(.075)	.073(.031) *
Trust	.025 (.023)	.297(.056) ***	.394(.054) ***	.068(.023) **
Commitment	.193 (.030) ***	.028(.060)	.125(.058) *	.131(.024) ***
Relational satisfaction	−.026 (.02)	.440 (.051) ***	.433(.048) ***	.091(.022) ***
Gov and EM Communication		.521(.154) **	.363(.142) *	. 062(.058)
Disaster-coping self-efficacy				.077(.020) ***
Disaster-coping collective efficacy				. 257(.021) ***

Note: *p<.05, **p<.01, ***p<.001

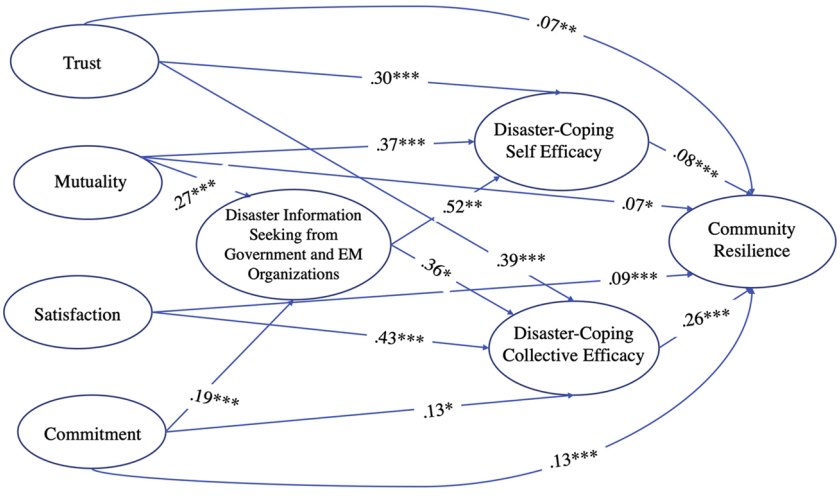

Fig. 2. Significant paths in the proposed model using the entire community sample.

Table 4
Structural Equation Model Predicting Individuals' Disaster-Coping Self-Efficacy, Collective Efficacy, and Community Resilience: The Four Ethnic Group Samples.

	White ($N = 200$)				Black ($N = 200$)			
	Gov and EM Info Seeking	Self-Efficacy	Collective Efficacy	Community Resilience	Gov and EM Info Seeking	Self-Efficacy	Collective Efficacy	Community Resilience
Socio-demographics								
Age	−.004(.003)	−.005 (.008)	−.010(.008)	−.002(.003)	−.007(.004)	.015(.009)	.008(.009)	.001(.003)
Gender	−.064(.088)	−.012 (.219)	−.074(.238)	.016(.073)	−.172(.124)	−.170 (.255)	−.019(.242)	.193(.098) *
Income	−.026(.026)	.036(.064)	.096(.069)	−.021(.022)	−.050(.031)	.030(.064)	.078(.061)	.038(.024)
Education	−.023(.033)	−.025 (.081)	.028(.088)	.040(.027)	.029(.037)	.045(.077)	.034(.074)	−.025(.029)
Residential tenure	−.003(.004)	−.015 (.010)	−.001(.011)	−.03(.003)	.002(.004)	−.013 (.009)	.012(.009)	−.007(.004) *
Homeownership	.069(.086)	.476(.218)	−.281(.232)	−.055(.073)	.064(.116)	.029(.244)	−.232(.232)	.105(.093)
Immigrant status	.035(.108)	.187(.269)	.580(.292) *	.071(.091)	.035(.115)	.200(.242)	.214(.230)	−.025(.092)
OPR Quality								
Control mutuality	.265(.073)***	.365(.168) *	.025(.176)	.009(.056)	.246(.089)***	.137(.169)	.365(.165) *	.159(.069) *
Trust	.054(.041)	.028(.102)	.337(.113)**	.096(.036) **	.167(.064)*	.411(.130) **	.421(.124) **	−.059(.053)
Commitment	.224(.057) ***	.254(.126) *	.068(.134)	.243(.047) ***	.106(.054)*	.529(.118) ***	.640(.115)***	.008(.054)
Satisfaction	.062(.035)	.427(.095) ***	365(.096)***	−.003(.034)	.031(.045)	.723(.111) ***	.665(.102)***	.324(.061)***
Gov and EM info seeking		.377(.360)	.265(.383)	−.069(.120)		.298 (.280)	.151(.261)	.206 (.113)
Self-efficacy				.098(.024) **				.087(.040) *
Collective efficacy				.329(.037) ***				.122(.037) **
Model Fit Indices	**$\chi^2 = 2469.13$, $df = 1084$, $p <. 001$, $\chi^2/df = 2.28$), CFI = .91, RMSEA = .051(95 % confidence interval: .050−.052).**				**$\chi^2 = 2075.12$, $df = 1084$, $p <. 001$, $\chi^2/df = 1.91$), CFI = .89. RMSEA = .061(95 % confidence interval: .059−.063).**			
	Hispanic ($N = 200$)				Asian ($N = 200$)			
	Gov and EM Info Seeking	Self-Efficacy	Collective Efficacy	Community Resilience	Gov and EM Info Seeking	Self-Efficacy	Collective Efficacy	Community Resilience
Socio-demographics								
Age	.004(.004)	.008(.008)	.009(.008)	−.001(.004)	−.004(.004)	−.006 (.009)	−.009(.007)	.000(.003)
Gender	−.198(.094)	.213(.202)	.124(.196)	.010(.098)	.036 (.088)	−.133 (.218)	.002(.160)	−.137(.058)
Income	−.086(.029)	.024(.061)	.230 (.060)***	−.008(.031)	.016(.022)	−.054 (.056)	−.008(.041)	.015(.016)
Education	.039(.034)	−.073 (.074)	−.099(.072)	.025(.036)	−.025(.035)	−.040 (.087)	.021(.063)	.005(.022)
Residential tenure	.001(.004)	−.015 (.010)	−.012(.009)	−.004(.005)	−.009(.006)	.030(.016)	.007(.011)	.007(.005)
Homeownership	.093(.090)	.476(.218)	.005(.189)	−.100(.094)	−.058(.099)	−.142 (.245)	−.061(.180)	−.114(.063)
Immigrant status	.025(.079)	.187(.269)	-.289 (.168) *	−.044(.087)	.084(.105)	−.636 (.263)*	−.252(.191)	.097(.099)
OPR Quality								
Control mutuality	.357(.078)***	.056(.115) *	.011(.146)	.269(.077)**	.438(.104)***	.700(.003) ***	.794(.207)***	.152(.226)
Trust	.312(.068)***	−.041 (.134)	.051(.130)	.062(.065)	.019(.142)	.947(.142) ***	.635(.109)***	.068(.112)
Commitment	.214(.056) ***	.118 (.113)	.030(.108)	.091(.055)	.177 (.070)*	.386(.180)	.111(.129)	.053(.052)
Satisfaction	.028(.039)	.495(.099) ***	.508(.092)***	.038(.055)	−.057 (.051)	.165(.125)	.157(.093)	.045(.040)
Gov and EM info seeking		.213(.259)	.193(.251)	−.032(.126)		.821(.26) **	1.118(.394)**	.007(.291)
Self-efficacy				-.077(.053)				.059(.093)
Collective efficacy				.319(.051) ***				. 308(.058) ***
Model Fit Indices	**$\chi^2 = 2436.81$, $df = 1084$, $p <. 001$, $\chi^2/df = 2.25$), CFI = .90, RMSEA = .053(95 % confidence interval: .051−.055).**				**$\chi^2 = 2730.36$, $df = 1084$, $p <. 001$, $\chi^2/df = 2.52$), CFI = .92, RMSEA = .048(95 % confidence interval: .047−.049).**			

Note: *p<.05, **p<.01, ***p<.001

predicted their level of community resilience ($b = .27$, $p < .001$).

Finally, the relationship between individuals' information seeking from government, EM agencies and disaster-coping outcomes exhibited significant differences, especially between Asian and the other three ethnic groups. Government and EM information-seeking did not directly impact any disaster-coping outcomes among White, Black, or Black individuals. In contrast, it significantly contributed to Asian residents' disaster-coping self-efficacy ($b = .82$, $p < .01$) and collective efficacy ($b = 1.12$, $p < .01$).

5. Discussion

Guided by an intercultural approach of OPR, the current study examines how government-public relationship quality may directly and indirectly impact disaster-coping outcomes among multicultural publics. Several major findings can be summarized from the analyses above.

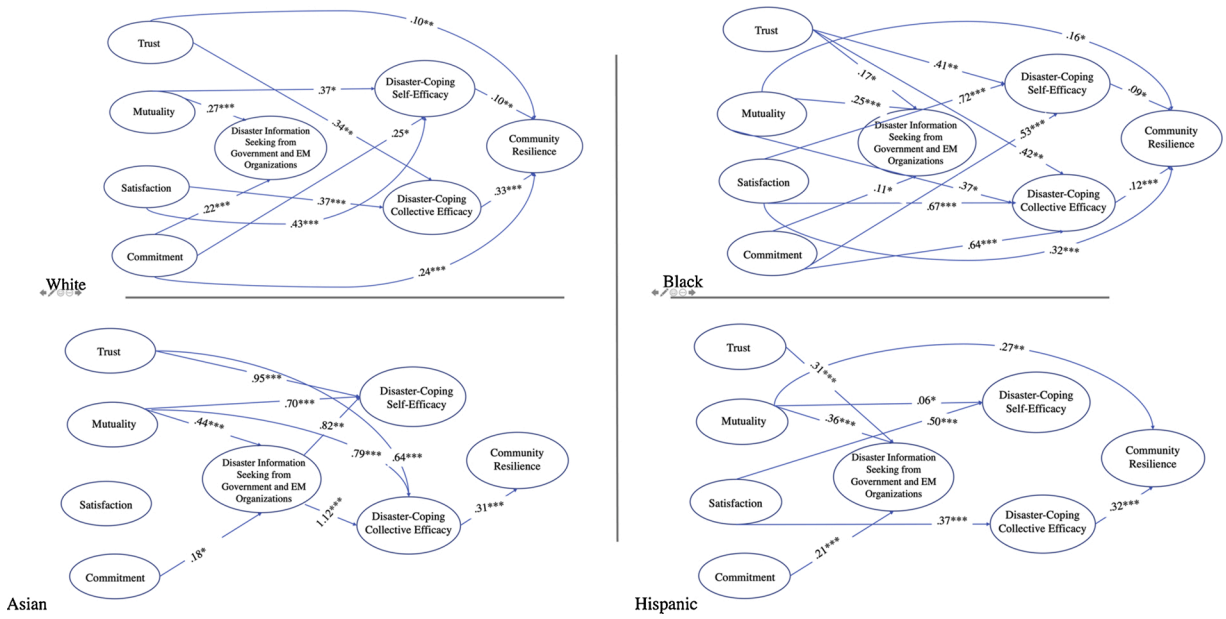

Fig. 3. Significant paths in the models predicting the four ethnic group samples.

First, for government and EM agencies, the study confirms the importance of cultivating quality relationships with the public. Such relationships not only motivate public information seeking from official sources but also directly contribute to the development of disaster-coping efficacy and community resilience.

Second, it is worth noting that the hypothesized relationship between individuals' information seeking from government organizations and community resilience perceptions was not supported. There are several implications of this finding. First, as Zhang and Shay's (2019) study similarly suggests, while information seeking helps reduce uncertainty, too much information may also be overwhelming and anxiety-inducing (Lazarus & Folkman, 1984). This finding also indicates that the nature of information sought needs more scrutinization. For example, whether the information is presented in a narrative versus non-narrative format may differently impact individuals' crisis coping behaviors and emotional response (Liu, Austin et al., 2020; Liu, Xu et al., 2020). Furthermore, the finding points to the importance of looking at other types of disaster-coping strategies other than cognitive coping. Emotional venting, for example, has been found to be highly instrumental in activating individuals' self-support and re-orientation behaviors after disasters (Jin & Hong, 2010).

Last but not least, the findings lend support to an intercultural approach of OPR, as the extent to which government OPR brings about positive disaster-coping outcomes significantly diverges across ethnic and cultural lines. On the one hand, the specific dimension(s) of OPR that best predicts disaster-coping outcomes varies across the four ethnic groups. On the other hand, the magnitude of the overall OPRs effect is also greater in certain ethnic groups than others. Below, we further discuss the specific findings regarding government OPR in the general public, as well as ethnicity-based divergence. Second, in terms of how individuals' information seeking from government and EM organizations is related to community resilience perceptions, the findings do not identify a significant relationship.

5.1. *The role of government OPR in disaster coping among the general public*

Similar to the findings from past research in the health context (e.g., Chon & Park, 2019; Ni et al., 2019), current results also indicate that OPR quality positively contributes to the disaster coping outcomes that are important to community empowerment. In particular, the OPR with government and EM agencies is effective in bringing a sense of efficacy, resilience, and empowerment to disaster-affected communities. This supports and extends similar research in the public health arena, where positive OPR with the CDC significantly enhances public compliance with health instructions (Chon & Park, 2019).

Among the four indicators of OPRs quality—trust, control mutuality, commitment, and relationship satisfaction, the overall sample results suggest that trust and relationship satisfaction are the two most robust predictors of disaster-coping outcomes. In contrast, the effects of control mutuality and commitment are less consistent. This finding is broadly consistent with existing strategic communication literature, where trust and relational satisfaction are among the most important antecedents leading to relational commitment, customer loyalty, and the public's support behaviors of organizations (e.g., Kang, 2011; Sirdeshmukh, Singh, & Sabol, 2002).

In terms of predicting the public's communication activeness, however, the results suggest that the other two OPR quality dimensions—control mutuality and commitment, are significant predictors of individuals' information seeking from government and official emergency management sources. This indicates that for any disaster information to reach the public and be considered useful, all members need to have some say in the decision-making process and have a sense that the government agencies are committed to keeping a long-term relationship with them.

5.2. *The intercultural nuances of government OPRs consequences*

Following recent research on segmenting and understanding publics, the current study examines the effect of cross-situational factors at the meso-level (Ni et al., 2018)—that is, government OPR, on the communication activeness of culturally diverse publics. Among the four sub-groups of community members with different avowed identities (Sha, 2006), findings first indicate that the effects of OPR on communication activeness are different across multiple publics. For example, trust is a critical factor affecting information seeking for Black and Hispanic communities. This might be because the level of trust towards government agencies is disproportionately lower among Black and Hispanic populations (e.g., Mangum, 2016). Therefore, for these groups to actively seek disaster information from government and EM agencies, it is imperative to first build and maintain trust with them. Otherwise, government disaster communication may miss or even alienate these

groups, leaving a significant gap in meeting their unique information needs regarding disaster-coping and community rebuilding.

The cross-group comparison further reveals that the effect of government OPRs on public disaster-coping outcomes operates through different routes across the multicultural publics. While it is difficult to identify a clear-cut pattern across the four cultural groups, some unique variances are worth noting. First, compared to White and Hispanic residents, trust is a more significant factor contributing to the sense of self- and collective efficacy among Black and Asian residents. Meanwhile, control mutuality and relational satisfaction are more important factors to boost Hispanic residents' disaster-coping self- and collective efficacy. Finally, for the perception of community resilience, control mutuality plays a critical role for both Black and Hispanic residents, but not the other two groups. This indicates that to foster a sense of confidence in community recovery, Black and Hispanic groups have a particularly strong need for having their voices heard in the decision-making process. Overall, there are a greater number of significant paths between government OPR and disaster-coping outcomes among White and Black groups than their Asian, and particularly Hispanic counterparts.

Another intriguing finding is that public disaster information seeking is related to disaster coping outcomes to the greatest degree among Asian residents. In contrast, for the other three cultural groups, information seeking does not have any effect. This may be due to both cultural values and different patterns of media-dependency. Culturally, power distance, a sense of social hierarchy and the willingness to act in accordance with such a hierarchy, is high among individuals from Asian culture (Hofstede, 2001). Asian residents are therefore more likely to consider government agencies as the authority figures whose information and directions need to be strictly followed. The other reason might be that many Asian communities tend to rely on ethnic media for everyday information. Such media are more likely to produce content about one's home country rather than the local community (Lin & Song, 2006). When a disaster hits the local community, therefore, government and EM channels may well be the only information source from which Asian residents feel comfortable and legitimate to seek information.

5.3. Practical implications

Practical implications from the current study can inform disaster and emergency management organizations in the following ways. First, given the positive role of government OPR in disaster-coping, government and EM agencies may consider investing more in relationship building during the regular time, prior to the actual occurrence of a disaster. To maintain trusting relationships with communities and their members is critical for implementing timely disaster response. More importantly, it goes a long way in terms of fostering a proactive community that can collaborate with official agencies on future disaster preparedness. After all, quality relationships with the public are not built overnight; sustained effort is needed to cultivate strong government OPR.

In addition, government and EM agencies may consider tailoring their communication channels and message strategies when working with diverse community members. For example, the current findings suggest that official disaster communication channels are less effective among Black and Hispanic communities. For better outreach outcomes, EM agencies need to be more mindful of alternative communication channels, especially those that are more trusted and preferred among the targeted groups. For example, some disaster communication research suggests that interpersonal communication is heavily relied upon for disaster preparedness information among the Hispanic community (Peguero, 2006). Therefore, it would be worthwhile for agencies to build relationships with the ethnic community through personal relationships, such as utilizing "influencers" or "opinion leaders" in the community to disseminate disaster communication messages rather than exclusively relying on official channels.

5.4. Limitations and future research directions

There are several limitations in the current study that point to opportunities for future research. First, the quota sampling strategy used for recruitment may not produce a sample representative to the general population under study. For example, participants in the current study disproportionally over-represent female, older, and native-born populations, who also appear to come from higher socioeconomic strata than the average city populations. This may limit generalizability of the findings. Therefore, current findings may not be generalized to other communities with different characteristics. However, this sampling strategy enables the researchers to achieve the goal of conducting cross-group comparisons. A related issue with sampling is also the undercount of non-English-speaking immigrants, as the survey was only administrated in one language. Immigrants represent an essential segment of multicultural publics that is rapidly growing. Yet, it is often challenging for government and EM agencies to devise effective strategies to target this group. Future work may utilize multi-lingual surveys to identify how government OPRs may uniquely impact the non-English speaking immigrant groups.

Second, the measurement of communication activeness in the current study is limited only to information seeking, leaving other dimensions such as information sharing or forefending unexamined (Ni et al., 2019). Future work may incorporate a more comprehensive measure of the public's communication behaviors and assess them across different stages of a disaster. After all, research has shown that individuals' disaster communication behaviors not only diverge across demographic and cultural lines, but they may also vary across different stages of a disaster (Spialek & Houston, 2018).

Third, the study does not differentiate disaster communication from government agencies at different levels. Research has suggested that public trust, an important dimension of organization-public relationship quality, may diverge across different levels of government (e.g., state versus local, Hong, 2013), and it may be worthwhile for future studies to examine more nuanced types of government communication and their roles in disaster recovery.

Fourth, the moderating role of ethnicity can be an important factor to consider in the context of disaster communication. Future research should engage in further theorizing and testing how ethnicity moderates the different pathways between OPRs and disaster recovery outcomes.

Last but not least, as two years have passed since the occurrence of the disaster event, the responses collected may be less accurate due to issues related to retrospective self-report (Schwarz, 2007). Future research may consider collecting data in real-time and at multiple time points, assessing whether and how residents' communication behaviors may evolve as a disaster unfolds.

6. Conclusion

As diverse publics are becoming more prevalent today, public sector organizations must understand how to maintain quality relationships with them. This study is one of a few early studies that examine the role of OPRs among culturally diverse publics. Its findings shed light on the role of ethnoracial diversity in the process of OPR, extending the research on intercultural relationship management to the disaster coping context.

Declaration of Competing Interest

The authors report no declarations of interest.

References

Bandura, A. (1997). Self-efficacy: The exercise of control. *New York: Freeman.*

Benight, C. C., Swift, E., Sanger, J., Smith, A., & Zeppelin, D. (1999). Coping self-efficacy as a mediator of distress following a natural disaster. *Journal of Applied Social*

Psychology, 29(12), 2443–2464. https://doi.org/10.1111/j.1559-1816.1999.tb00120.x.
Benight, C. C. (2004). Collective efficacy following a series of natural disasters. *Anxiety, Stress & Coping, 17*(4), 401–420. https://doi.org/10.1080/10615800512331328768.
Benight, C. C., & Bandura, A. (2004). Social cognitive theory of post-traumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy, 42*(10), 1129–1148. https://doi.org/10.1016/j.brat.2003.08.008.
Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin, 112*(3), 400–404.
Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a theory of interpersonal communication. *Human Communication Research, 1*(2), 99–112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x.
Binder, S. B., Baker, C. K., & Barile, J. P. (2015). Rebuild or relocate? Resilience and postdisaster decision-making after Hurricane Sandy. *American Journal of Community Psychology, 56*(1), 180–196. https://doi.org/10.1007/s10464-015-9727-x.
Brown, K. A., & White, C. L. (2010). Organization-public relationships and crisis response strategies: Impact on attribution of responsibility. *Journal of Public Relations Research, 23*(1), 75–92. https://doi.org/10.1080/1062726X.2010.504792.
Brunner, B. R. (2009). Defining public relations relationships and diversity's part in the process: Practitioners' perspectives. *Journal of Promotion Management, 14*(3-4), 153–167. https://doi.org/10.1080/10496490802623820.
Bruning, S. D., Langenhop, A., & Green, K. A. (2004). Examining city-resident relationships: Linking community relations, relationship building activities, and satisfaction evaluations. *Public Relations Review, 30*(3), 335–345. https://doi.org/10.1016/j.pubrev.2004.05.005.
Cheng, Y. (2018). Looking back, moving forward: A review and reflection of the organization-public relationship (OPR) research. *Public Relations Review, 44*(1), 120–130. https://doi.org/10.1016/j.pubrev.2017.10.003.
Chon, M. G. (2019). Government public relations when trouble hits: exploring political dispositions, situational variables, and government-public relationships to predict communicative action of publics. *Asian Journal of Communication, 29*(5), 424–440. https://doi.org/10.1080/01292986.2019.1649438.
Chon, M. G., & Park, H. (2019). Predicting public support for government actions in a public health crisis: Testing fear, organization-public relationship, and behavioral intention in the framework of the situational theory of problem solving. *Health Communication, 36*(4), 1–11. https://doi.org/10.1080/10410236.2019.1700439.
Cohen, O., Goldberg, A., Lahad, M., & Aharonson-Daniel, L. (2017). Building resilience: The relationship between information provided by municipal authorities during emergency situations and community resilience. *Technological Forecasting and Social Change, 121*, 119–125. https://doi.org/10.1016/j.techfore.2016.11.008.
Comfort, L. K., Waugh, W. L., & Cigler, B. A. (2012). Emergency management research and practice in public administration: Emergence, evolution, expansion, and future directions. *Public Administration Review, 72*(4), 539–547. https://doi.org/10.1111/j.1540-6210.2012.02549.x.
Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. *Corporate Reputation Review, 10*(3), 163–176. https://doi.org/10.1057/palgrave.crr.1550049.
Coombs, W. T., & Holladay, S. J. (2001). An extended examination of the crisis situations: A fusion of the relational management and symbolic approaches. *Journal of Public Relations Research, 13*(4), 321–340. https://doi.org/10.1207/S1532754XJPRR1304_03.
Davidson, T. M., Price, M., McCauley, J. L., & Ruggiero, K. J. (2013). Disaster impact across cultural groups: Comparison of Whites, African Americans, and Latinos. *American Journal of Community Psychology, 52*(1), 97–105. https://doi.org/10.1007/s10464-013-9579-1.
Dong, C., & Ji, Y. (2018). Connecting young adults to democracy via government social network sites. *Public Relations Review, 44*(5), 762–775. https://doi.org/10.1016/j.pubrev.2018.05.004.
Elliott, J. R., Haney, T. J., & Sams-Abiodun, P. (2010). Limits to social capital: Comparing network assistance in two New Orleans neighborhoods devastated by Hurricane Katrina. *The Sociological Quarterly, 51*(4), 624–648. https://doi.org/10.1111/j.1533-8525.2010.01186.x.
Freberg, K., Palenchar, M. J., & Veil, S. R. (2013). Managing and sharing H1N1 crisis information using social media bookmarking services. *Public Relations Review, 39*(3), 178–184. https://doi.org/10.1016/j.pubrev.2013.02.007.
Granville, F., Mehta, A., & Pike, S. (2016). Destinations, disasters and public relations: Stakeholder engagement in multi-phase disaster management. *Journal of Hospitality and Tourism Management, 28*, 73–79. https://doi.org/10.1016/j.jhtm.2016.02.001.
Grunig, J. E. (1997). A situational theory of publics: Conceptual history, recent challenges and new research. In D. Moss, T. MacManus, & D. Verčic (Eds.), *Public relations research: An international perspective* (pp. 3–48). International Thomas Business.
Grunig, J. E., & Repper, F. C. (1992). Strategic management, publics, and issues. In J. Grunig (Ed.), *Excellence in public relations and communication management* (pp. 117–158). Lawrence Erlbaum.
Guo, C., Sim, T., & Ho, H. C. (2020). Impact of information seeking, disaster preparedness and typhoon emergency response on perceived community resilience in Hong Kong. *International Journal of Disaster Risk Reduction, 50*, Article 101744. https://doi.org/10.1016/j.ijdrr.2020.101744.
Haigh, M. M., & Brubaker, P. (2010). Examining how image restoration strategy impacts perceptions of corporate social responsibility, organization-public relationships, and source credibility. *Corporate Communications: An International Journal, 15*(4), 453–468. https://doi.org/10.1108/13563281011085538.
Hamid, M. R., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. *Journal of Physics: Conference Series, 890*(September (1)), 012163. IOP Publishing.
Heath, R. L., Lee, J., & Ni, L. (2009). Crisis and risk approaches to emergency management planning and communication: The role of similarity and sensitivity. *Journal of Public Relations Research, 21*(2), 123–141. https://doi.org/10.1080/10627260802557415.
Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.
Hon, L. C., & Grunig, J. E. (1999). *Measuring relationships in public relations*. Gainesville, FL: Institute for Public Relations.
Hong, H. (2013). Government websites and social media's influence on government-public relationships. *Public Relations Review, 39*(4), 346–356. https://doi.org/10.1016/j.pubrev.2013.07.007.
Hong, H., Park, H., Lee, Y., & Park, J. (2012). Public segmentation and government–public relationship building: A cluster analysis of publics in the United States and 19 European countries. *Journal of Public Relations Research, 24*(1), 37–68. https://doi.org/10.1080/1062726X.2012.626135.
Horowitz, J. M. (2019). Americans see advantages and challenges in country's growing racial and ethnic diversity. *Pew research center: Social & demographic trends*. Retrieved from https://www.pewsocialtrends.org/2019/05/08/americans-see-advantages-and-challenges-in-countrys-growing-racial-and-ethnic-diversity/.
Horsley, J. S., Liu, B. F., & Levenshus, A. B. (2010). Comparisons of US government communication practices: Expanding the government communication decision wheel. *Communication Theory, 20*(3), 269–295. https://doi.org/10.1111/j.1468-2885.2010.01363.x.
Houston, J. B., Spialek, M. L., Cox, J., Greenwood, M. M., & First, J. (2015). The centrality of communication and media in fostering community resilience: A framework for assessment and intervention. *American Behavioral Scientist, 59*(2), 270–283. https://doi.org/10.1177/0002764214548563.
Huang, Y.-H. (2001). OPRA: A cross-cultural, multiple-item scale for measuring organization-public relationships. *Journal of Public Relations Research, 13*(1), 61–90. https://doi.org/10.1207/S1532754XJPRR1301_4.
Huang, Y. H. C., & Zhang, Y. (2013). Revisiting organization–public relations research over the past decade: Theoretical concepts, measures, methodologies and challenges. *Public Relations Review, 39*(1), 85–87. https://doi.org/10.1016/j.pubrev.2012.10.001.
Jin, Y., & Hong, S. Y. (2010). Explicating crisis coping in crisis communication. *Public Relations Review, 36*(4), 352–360. https://doi.org/10.1016/j.pubrev.2010.06.002.
Jin, Y., Fraustino, J. D., & Liu, B. F. (2016). The scared, the outraged, and the anxious: How crisis emotions, involvement, and demographics predict publics' conative coping. *International Journal of Strategic Communication, 10*(4), 289–308. https://doi.org/10.1080/1553118X.2016.1160401.
Jin, Y., Liu, B. F., & Austin, L. L. (2014). Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses. *Communication Research, 41*(1), 74–94. https://doi.org/10.1177/0093650211423918.
Jo, S. (2006). Measurement of organization–Public relationships: Validation of measurement using a manufacturer–Retailer relationship. *Journal of Public Relations Research, 18*(3), 225–248. https://doi.org/10.1207/s1532754xjprr1803_2.
Jöreskog, K. G., & Sörbom, D. (1993). LISREL 8: Structural equation modeling with the SIMPLIS command language. *Scientific Software International.*
Kang, M. (2011). *Toward a model of engaged publics: Trust, satisfaction, and identification and the mediating role of public engagement between organization-public relationships and supportive behaviors*. Unpublished Doctoral Dissertation. Syracuse University.
Kang, M., & Yang, S. U. (2010). Mediation effects of organization–public relationship outcomes on public intentions for organizational supports. *Journal of Public Relations Research, 22*(4), 477–494. https://doi.org/10.1080/10627261003601614.
Kapucu, N. (2009). Interorganizational coordination in complex environments of disasters: The evolution of intergovernmental disaster response systems. *Journal of Homeland Security and Emergency Management, 6*(1), 1–26. https://doi.org/10.2202/1547-7355.1498.
Ki, E. J., & Hon, L. C. (2007). Reliability and validity of organization-public relationship measurement and linkages among relationship indicators in a membership organization. *Journalism & Mass Communication Quarterly, 84*(3), 419–438. https://doi.org/10.1177/107769900708400302.
Ki, E. J., & Shin, J. H. (2006). Status of organization–public relationship research from an analysis of published articles, 1985–2004. *Public Relations Review, 32*(2), 194–195. https://doi.org/10.1016/j.pubrev.2006.02.019.
Kim, Y. (2015). Toward an effective government–public relationship: Organization–public relationship based on a synthetic approach to public segmentation. *Public Relations Review, 41*(4), 456–460. https://doi.org/10.1016/j.pubrev.2015.06.020.
Kim, J. N., & Grunig, J. E. (2011). Problem solving and communicative action: A situational theory of problem solving. *Journal of Communication, 61*(1), 120–149. https://doi.org/10.1111/j.1460-2466.2010.01529.x.
Kim, J.-N., Grunig, J. E., & Ni, L. (2010). Reconceptualizing public's communicative action: Acquisition, selection, and transmission of information in problematic situations. *International Journal of Strategic Communication, 4*(2), 126–154. https://doi.org/10.1080/15531181003701913.
Kim, J. N., Ni, L., & Sha, B. L. (2008). Breaking down the stakeholder environment: Explicating approaches to the segmentation of publics for public relations research. *Journalism & Mass Communication Quarterly, 85*(4), 751–768. https://doi.org/10.1177/107769900808500403.
Lachlan, K. A., Westerman, D. K., & Spence, P. R. (2010). Disaster news and subsequent information seeking: Exploring the role of spatial presence and perceptual realism. *Electronic News, 4*(4), 203–217. https://doi.org/10.1177/1931243110387092.
Laninga, T., Austin, G., & McClure, W. (2019). University-community partnerships in small-town Idaho: Addressing diverse community needs through interdisciplinary

outreach and engagement. *Journal of Community Engagement and Scholarship, 4*(2), 5–17.
Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York, NY: Springer.
Ledingham, J. A., & Bruning, S. D. (1998). Relationship management in public relations: Dimensions of an organization-public relationship. *Public Relations Review, 24*(1), 55–65. https://doi.org/10.1016/S0363-8111(98)80020-9.
Ledingham, J. A., & Bruning, S. D. (2000). Background and current trends in the study of relationship management. In J. A. Ledingham & S. D. Bruning (Eds.), Public relations as relationship management: A relational approach to public relations (pp. xi–xvii). Lawrence Erlbaum Associates, Inc.
Lin, W. Y., & Song, H. (2006). Geo-ethnic storytelling: An examination of ethnic media content in contemporary immigrant communities. *Journalism, 7*(3), 362–388. https://doi.org/10.1177/1464884906065518.
Liu, B. F. (2009). An analysis of US government and media disaster frames. *Journal of Communication Management, 13*(3), 268–283. https://doi.org/10.1108/13632540910976707.
Liu, B. F., & Horsley, J. S. (2007). The government communication decision wheel: Toward a public relations model for the public sector. *Journal of Public Relations Research, 19*(4), 377–393. https://doi.org/10.1080/10627260701402473.
Liu, B. F., Austin, L., Lee, Y.-I., Jin, Y., & Kim, S. (2020). Telling the tale: The role of narratives in helping people respond to crises. *Journal of Applied Communication Research, 48*(3), 328–349. https://doi.org/10.1080/00909882.2020.1756377.
Liu, W., Xu, W. W., & Tsai, J. Y. J. (2020). Developing a multi-level organization-public dialogic communication framework to assess social media-mediated disaster communication and engagement outcomes. *Public Relations Review, 46*(4), Article 101949. https://doi.org/10.1016/j.pubrev.2020.101949.
Mangum, M. (2016). Explaining political trust among African Americans. *Journal of Public Management & Social Policy, 23*(2), 84–100.
Manyena, B., O'Brien, G., O'Keefe, P., & Rose, J. (2011). Disaster resilience: a bounce back or bounce forward ability? *Local Environment: The International Journal of Justice and Sustainability, 16*(5), 417–424. https://doi.org/10.1080/13549839.2011.583049.
Ni, L., & Shi, W. (2019). Exploring the role of stakeholder engagement in enhancing resilience in emergency communication: A qualitative study. August. In *Paper presented at the Annual Convention of Association for Education in Journalism and Mass Communication*.
Ni, L., Xiao, Z., Liu, W., & Wang, Q. (2019). Relationship management as antecedents to public communication behaviors: Examining empowerment and public health among Asian Americans. *Public Relations Review, 45*(5), Article 101835. https://doi.org/10.1016/j.pubrev.2019.101835.
Ni, L., Wang, Q., & Sha, B. L. (2018). *Intercultural public relations: Theories for managing relationships and conflicts with strategic publics.* New York: Routledge.
Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology, 41*(1–2), 127–150. https://doi.org/10.1007/s10464-007-9156-6.
Oh, S. H., Lee, S. Y., & Han, C. (2020). The effects of social media use on preventive behaviors during infectious disease outbreaks: The mediating role of self-relevant emotions and public risk perception. *Health Communication*, 1–10. https://doi.org/10.1080/10410236.2020.1724639.
Peguero, A. A. (2006). Latino disaster vulnerability: The dissemination of hurricane mitigation information among Florida's homeowners. *Hispanic Journal of Behavioral Sciences, 28*(1), 5–22. https://doi.org/10.1177/0739986305284012.
Pfefferbaum, R. L., Pfefferbaum, B., Van Horn, R. L., Klomp, R. W., Norris, F. H., & Reissman, D. B. (2013). The communities advancing resilience toolkit (CART): An intervention to build community resilience to disasters. *Journal of Public Health Management and Practice, 19*(3), 250–258. https://doi.org/10.1097/PHH.0b013e318268aed8.
Pfefferbaum, B., Pfefferbaum, R. L., & Van Horn, R. L. (2015). Community resilience interventions: Participatory, assessment-based, action-oriented processes. *American Behavioral Scientist, 59*(2), 238–253. https://doi.org/10.1177/0002764214550298.
Ranjit, Y. S., Lachlan, K. A., Basaran, A. B., Snyder, L. B., & Houston, J. B. (2020). Needing to know about the crisis back home: Disaster information seeking and disaster media effects following the 2015 Nepal earthquake among Nepalis living outside of Nepal. *International Journal of Disaster Risk Reduction, 50*, Article 101725. https://doi.org/10.1016/j.ijdrr.2020.101725.
Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0. 5-12 (BETA). *Journal of Statistical Software, 48*(2), 1–36.
Ryan, B. (2013). Information seeking in a flood. *Disaster Prevention and Management, 22*(3), 22–242. https://doi.org/10.1108/DPM-05-2012-0059.
Ryan, B. (2018). A model to explain information seeking behaviour by individuals in the response phase of a disaster. *Library and Information Science Research, 40*(2), 73–85. https://doi.org/10.1016/j.lisr.2018.05.001.
Schwarz, N. (2007). Retrospective and concurrent self-reports: The rationale for real-time data capture. In A. Stone, S. Shiffman, A. Atienza, & L. Nebeling (Eds.), *The science of real-time data capture: Self-reports in health research* (pp. 11–26). Oxford University Press.
Seltzer, T., & Zhang, W. (2011). Toward a model of political organization-public relationships: Antecedent and cultivation strategy influence on citizens' relationships with political parties. *Journal of Public Relations Research, 23*(1), 24–45. https://doi.org/10.1080/1062726X.2010.504791.
Sha, B. L. (2006). Cultural identity in the segmentation of publics: An emerging theory of intercultural public relations. *Journal of Public Relations Research, 18*(1), 45–65. https://doi.org/10.1207/s1532754xjprr1801_3.
Shing, E. Z., Jayawickreme, E., & Waugh, C. E. (2016). Contextual positive coping as a factor contributing to resilience after disasters. *Journal of Clinical Psychology, 72*(12), 1287–1306. https://doi.org/10.1002/jclp.22327.
Silver, A., & Matthews, L. (2017). The use of Facebook for information seeking, decision support, and self-organization following a significant disaster. *Information, Communication & Society, 20*(11), 1680–1697. https://doi.org/10.1080/1369118X.2016.1253762.
Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing, 66*(1), 15–37. https://doi.org/10.1509/jmkg.66.1.15.18449.
Sisson, D. C. (2017). Control mutuality, social media, and organization-public relationships: A study of local animal welfare organizations' donors. *Public Relations Review, 43*(1), 179–189. https://doi.org/10.1016/j.pubrev.2016.10.007.
Smith, S. S. (2010). Race and trust. *Annual Review of Sociology, 36*, 453–475. https://doi.org/10.1146/annurev.soc.012809.102526.
Spialek, M. L., Czlapinski, H. M., & Houston, J. B. (2016). Disaster communication ecology and community resilience perceptions following the central Illinois tornadoes. *International Journal of Disaster Risk Reduction, 17*, 154–160. https://doi.org/10.1016/j.ijdrr.2016.04.006.
Spialek, M. L., & Houston, J. B. (2018). The development and initial validation of the citizen disaster communication assessment. *Communication Research, 45*(6), 934–955. https://doi.org/10.1177/0093650217697521.
Strauss, M. E., & Smith, G. T. (2009). Construct validity: Advances in theory and methodology. *Annual Review of Clinical Psychology, 5*, 1–25. https://doi.org/10.1146/annurev.clinpsy.032408.153639.
U.S. Census Bureau. (2018). *Houston city*. Texas. Retrieved from https://data.census.gov/cedsci/profile?g=1600000US4835000.
Wilkins, L. (2016). Affirmative duties: The institutional and individual capabilities required in disaster coverage. *Journalism Studies, 17*(2), 216–230. https://doi.org/10.1080/1461670X.2014.974985.
Wukich, C., & Mergel, I. (2015). Closing the citizen-government communication gap: Content, audience, and network analysis of government tweets. *Journal of Homeland Security and Emergency Management, 12*(3), 707–735. https://doi.org/10.1515/jhsem-2014-0074.
Yang, S. U. (2007). An integrated model for organization-public relational outcomes, organizational reputation, and their antecedents. *Journal of Public Relations Research, 19*(2), 91–121. https://doi.org/10.1080/10627260701290612.
Zhang, X. A., & Shay, R. (2019). An examination of antecedents to perceived community resilience in disaster postcrisis communication. *Journalism and Mass Communication Quarterly, 96*(1), 264–287. https://doi.org/10.1177/1077699018793612.