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An Examination of Missing Person Social Media Engagement Through Data Mining and Experimentation: An Application of the Crisis and Emergency Risk Communication Model

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An Examination of Missing Person Social Media Engagement Through Data Mining and Experimentation: An Application of the Crisis and Emergency Risk Communication Model

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DEDICATION

I would like to dedicate this dissertation to the loved ones I lost during this program, Richard Wayne Francesconi, Robert O'Dell Kuchenbecker, and Ellie Nicole Kuchenbecker. They all dedicated their lives to others which inspires me daily. I deeply miss you all.

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To the 97,127 missing persons in the United States - your faces may fade from the public's mind, your stories may get buried by other news in the media, but your families, law enforcement, and researchers like me will not forget about you. We will be your voices.

ABSTRACT

An Examination of Missing Person Social Media Engagement Through Data Mining and Experimentation: An Application of the Crisis and Emergency Risk Communication Model

by Cailin M. Kuchenbecker

According to the Federal Bureau of Investigation (FBI), approximately 600,000 individuals are reported missing each year in the United States (2022). When missing person cases do not meet alert (e.g., AMBER) criteria, law enforcement often utilize social media to crowdsource information to ultimately return the missing home. Therefore, guided by the crisis and emergency risk communication model (CERC; Reynolds & Seeger, 2005) and its recently clarified propositions (Miller et al., 2021), the purpose of this dissertation was to (a) identify strategies law enforcement use to crowdsource missing person information and (b) experimentally test message characteristics that facilitate prosocial sharing of missing person posts on social media. In study one, a quantitative content analysis of 600 extracted missing person X (Twitter) posts identified that all CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, respect) were present in current law enforcement crowdsourcing posts. Additionally, a linear regression analysis indicated that timeliness, empathy, and respect predict message engagement (i.e., retweets, likes, replies) and were used to inform experimental messages in study two. In study two, participants (N = 377) who were 18 years or older and use X (Twitter) were randomly assigned one pilot tested experimental missing person message (i.e., timeliness, empathy, respect, or control). Parallel multiple mediation analyses indicated that timeliness is positively related to self-efficacy and uncertainty; empathy is positively related to self-efficacy, knowledge of risks and resources, and emotional turmoil; and respect is positively related to self-efficacy and uncertainty as well as

negatively related to emotional turmoil. Additionally, self-efficacy, uncertainty, and emotional turmoil are positively related to behavioral intention whereas only self-efficacy and emotional turmoil can predict actual behavior. Finally, indirect relationships exist between timeliness and behavioral intention through self-efficacy and uncertainty; empathy and behavioral intention through self-efficacy and emotional turmoil; as well as respect and behavioral intention through self-efficacy, uncertainty, and emotional turmoil. This inquiry offers theoretical implications by being one of the first to experimentally investigate the recently clarified propositions of the CERC model. Practically, this work provides law enforcement with clear recommendations on crafting missing person messages on social media.

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Chapter I: A Communication Approach to Missing Person Messages

A missing person is "an individual who, voluntarily or involuntarily, cannot be located because their whereabouts are unknown" (see Chakraborty, 2019, p. 4). According to the Federal Bureau of Investigation (FBI), approximately 600,000 adults and children are reported missing each year in the United States (2022). Although the majority of individuals are located, the number of long-term missing individuals in the United States is rising (FBI, 2023). Recently, the United States has made initial efforts to allocate resources to combat the increase in cases. In the fiscal year 2021, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) within the Department of Justice (DOJ) allocated $47.3 million to aid in the search for missing children and the prevention of child abductions and abuses (OJJDP, 2022). Additionally, the DOJ established a commission in 2022 to address the high rate of missing and murdered individuals in indigenous communities (Office of Public Affairs, 2022). The government's current interest in providing resources to combat the rising number of missing person cases presents an opportunity for scholars from multiple disciplines, including communication, to investigate solutions to locate missing individuals. Although some scholarly inquiry into missing persons have taken place, limitations to these investigations are present which necessitates further examination, specifically from a crisis communication perspective.

Risk and crisis communication scholars' goal is in part to avoid or minimize any harmful consequences resulting from a crisis (e.g., Coombs, 1999; Seeger, 2006; Sellnow & Sellnow, 2014). Whereas risk communication specifically focuses on relaying information on negative health, safety, or environmental events that *may* occur (e.g., "smoking may cause cancer"), crisis communication is centered on events that *have* occurred and aims to reduce harm either organizationally or for individuals by disseminating information to the public (e.g., Coombs &

Holladay, 2002; Lundgren & McMakin, 2018; Reynolds & Seeger, 2005; Seeger, 2006). Given there is often concern for a missing individual's safety necessitating communication with the public, an individual going missing can be considered a crisis event as it is consistent with the above conceptualization of crisis communication (Management Counseling and Projects Bureau [MCPB], 2021). Thus, crisis communication scholars are particularly poised to study the missing person phenomenon to reduce negative outcomes for missing individuals.

Recent empirical investigations into missing persons place an emphasis on technologies that can be used to locate missing persons (e.g., virtual reality; Cárdenas et al., 2010) and the effectiveness of message distribution (e.g., Lampinen & Moore, 2016). Although tools like the America's Missing: Broadcast Emergency Response (AMBER) Alert (for missing children) and Silver Alert (for missing older adults and/or cognitively impaired) are available for law enforcement to request that the public be on the lookout for a missing individual, specific criteria must be met for authorized use of these resources (e.g., age restrictions, believed to be in immediate danger; National Center for Missing & Exploited Children [NCMEC], 2021). Thus, to promote non-qualifying missing persons cases, law enforcement often turns to social media to request that the public report sightings or share missing person messages (Solymosi et al., 2021). Therefore, it is imperative that law enforcement is given actionable recommendations on how to approach online public requests. Notably, several studies have explored the topic of missing persons and social media messaging; however, these analyses lack a theoretical foundation (e.g., Solymosi et al., 2021) or offer very general recommendations for law enforcement which are not applicable to crisis situations (e.g., timing of posts; Tiry et al., 2019). Thus, investigating missing person messages from a communication theory perspective (e.g., media and crisis

communication theory) can arm law enforcement with specific, founded, and replicable ways to effectively crowdsource missing person information that can ultimately bring the missing home.

The purpose of this chapter is to provide an overview of the research conducted on missing persons within and outside the communication discipline and propose theoretical communication perspectives that can drive future inquiry into missing person crisis messages. First, the magnitude of the missing person epidemic in the United States is discussed along with unique communication challenges law enforcement face when handling missing person cases and the current systems in place that disseminate missing person information. Next, existing research on how missing person crisis messages spread, including crowdsourced criminology processes, is provided. Specifically, the chapter discusses how communication scholars are in a unique position to aid the missing person problem in the United States. To conclude, a theoretical framework, crisis and emergency risk communication (CERC) model (Reynolds & Seeger, 2005), is introduced to understand current practice in missing person message creation.

The United States Missing Person Problem

In 1967, the FBI launched the National Crime Information Center (NCIC) database which is used by law enforcement and contains records of known terrorists, sex offenders, stolen property, missing persons, etc. (National Institute of Justice [NIJ], 2022). As of December 31, 2022, the NCIC database contains 97,127 active missing persons cases (FBI, 2023) up from 93,718 in 2021 (FBI, 2022) and 89,637 in 2020 (FBI, 2021). According to the FBI (2023), 41% of missing individuals are juveniles under the age of 21. Of the active missing person cases in 2022, 31% were identified as White males, followed by 23% White females, 16% Black males,

15% Black females, 11% unknown, 1.2% Asian males, 1% Asian females, and <1% Indian males and females (FBI, 2023)[1].

When individuals under the age of 21 are reported missing, law enforcement must enter the juvenile into the NCIC database within two hours of the report being made (Congressional Research Service, 2019). On the other hand, there is no federal regulation requiring non-critical missing adults over the age of 21 be reported to the NCIC system *or even be investigated* as there is no law prohibiting an adult from leaving a community without informing anyone (Chakraborty, 2019). When an adult or child is entered into the NCIC database, there are six classifications of missing persons: (a) juvenile (i.e., not emancipated minor), (b) endangered (i.e., physical safety in danger), (c) involuntary (i.e., kidnapping), (d) disability (i.e., physical or mental impairment), (e) catastrophe victim (i.e., missing following catastrophe), or (f) other (i.e., individuals do not fall in another category, but there is concern for their safety or individuals that are under 21 years old and emancipated) (FBI, 2021). If law enforcement suspects an individual is unaccounted for due to personal choice, they will not be entered into the NCIC system. Therefore, much of the reporting and investigating decisions are left to the discretion of the local law enforcement agency.

Missing person cases present a unique challenge to law enforcement given the sheer number of cases requiring attention as well as gaps that exist in knowledge and current practice. In fact, the MCPB warn officers that, "investigating a missing person case can be one of the most challenging assignments you will handle in your career" (2021, p. xiii). Although disappearing as an adult is not a crime, adults go missing due to circumstances ranging from voluntary

[1] It is important to note that, similar to the United States Census, in the NCIC database, Hispanic descent is considered an ethnicity, not a race (Jensen et al., 2021). Thus, the above race statistics include individuals of Hispanic descent identified as White, Black, Indian, Asian, or unknown.

disappearances to foul play (Congressional Research Service, 2019), which may necessitate a quick response from law enforcement given that the first few hours in missing person cases are crucial to finding the individual alive (MCPB, 2021). In an analysis conducted by Tarling and Burrows (2004) on 1,008 missing person cases in the United Kingdom, a majority of missing persons' outcomes had already occurred before law enforcement's involvement (e.g., found safe, natural death, suicide, etc.). However, in the cases where law enforcement could prevent the death of a missing person, officers had between an hour-and-a-half and four hours before the missing persons' deaths occurred. Thus, time is of upmost importance for successful resolution of a missing person case.

Local and state agencies are left to their own discretion on how to handle adult missing persons cases including how they overcome the challenges that arise from these types of investigations. Some states create their own missing person trainings and guidelines (e.g., California; MCPB, 2021), however, gaps in regulation standardization have led to limited exposure for missing individuals in other states (e.g., Montana; Montana Division of Criminal Investigation, 2017). Additionally, lack of information sharing between databases also presents a disadvantage for law enforcement. Although the NCIC database is only accessible to law enforcement, in 2009, the NIJ launched a missing person database accessible to the public called the National Missing and Unidentified Persons System (NamUs) (NIJ, 2022). The NCIC and NamUs databases are two separate systems with two separate reporting procedures. Not only do multiple reporting databases make it more difficult for law enforcement to obtain and disseminate all available information, but given that the NamUs database information is not as complete, it also leaves the public in the dark about critical information on missing person cases

(U.S. Government Accountability Office, 2016). Thus, some agencies utilize alternative ways of gathering and distributing information from the public.

Crowdsourcing Missing Person Information

Some state and local agencies (e.g., California) train their responding officers to reach out to the public to aid in the search if they suspect a missing individual is at-risk (e.g., living with dementia; MCPB, 2021). Allowing the public to engage in missing persons cases (e.g., via AMBER Alert, social media) is an example of crowdsourced criminology. Crowdsourced criminology refers to "the ways in which online communities and other sources of media provide ordinary citizens opportunities to participate in crowdsourced investigations" (Gray & Benning, 2019, p. 1). There are both formal (internally managed by the government) and informal (externally managed by media sources) methods of crowdsourced criminology which are utilized by law enforcement and described below.

Formal Crowdsourcing Avenues

A formal crowdsourcing strategy commonly adopted by law enforcement is the use of emergency alert systems distributed across networks of broadcasters. Although each state has variations of alert systems for missing individuals ranging in scope (e.g., California's Feather Alert for the disappearance of an indigenous woman or indigenous person; California Highway Patrol, 2023a), the AMBER Alert and Silver Alert are most commonly utilized across the United States (NCMEC, 2023a; Wasser & Fox, 2013). These systems are regulated by government agencies, which make them a formal avenue of crowdsourcing.

AMBER Alert. The AMBER Alert system was created by law enforcement and local broadcasters in 1996 following the kidnapping and murder of 9-year-old Amber Hagerman (DOJ, 2019). Today, the AMBER Alert System is utilized in all 50 states including territories as

well as internationally (NCMEC, 2023a). If a missing juvenile meets certain criteria (e.g., thought to be in imminent danger; Table 1), law enforcement may utilize the AMBER Alert system which relays pertinent information regionally about missing juveniles or suspected abductors to the public (e.g., vehicle information) using a network of broadcasters, agencies, and wireless carriers (NCMEC, 2021). For example, AMBER Alerts may appear on billboards, radio, and television (NCMEC, 2023a). In California, the AMBER Alert system has a voluntary partnership with Facebook and Twitter (California Highway Patrol, 2022), meaning that when an alert is issued, the message about the missing juvenile is distributed on Facebook and Twitter allowing the public to comment, like, and share the information.

Crowdsourced criminology via the AMBER Alert system has a history of success. In 2020, AMBER Alerts were attributed to the successful resolution of 46 missing juvenile cases (70 juveniles) out of 200 cases where alerts were issued. Out of the 46 cases that were resolved, 43% were the result of an individual or member of law enforcement recognizing the vehicle based on the information in the alert (NCMEC, 2021). More impressive, as of June 30, 2023, over 1,000 children have been recovered as a result of the system (NCMEC, 2023a). However, the DOJ outlines specific guidelines for AMBER Alert issuance including being 17 years old or younger and belief that there is immediate danger (Table 1) which limits the amount of cases gaining public assistance (NCMEC, 2021).

Silver Alert. The Silver Alert system was established following the 2004 death of Mattie Moore, a 68-year-old woman who suffered from Alzheimer's disease and wandered from her home only to be found deceased 500 yards away (Dube, 2009). As of 2023, the Silver Alert (or comparable alert system for missing older adults) is being utilized in 37 states (Purvis, 2023). Although every state has their own criteria for Silver Alert issuance, Congress urges states to

consider the mental capacity and situation surrounding the disappearance before issuing a Silver Alert (U.S. House of Representatives, 2008). For example, in California, the criteria for a Silver Alert to be issued include: (a) the missing person must be at least 65 years old, be cognitively or intellectually disabled, (b) the agency attempted to use all other available resources, (c) there is suspicion surrounding the individual's disappearance, and d) law enforcement believes the individual is in danger (California Highway Patrol, 2023b). However, in Florida, to issue a Silver Alert, different criteria are outlined: (a) an individual must be at least 60 years old or between 18-59 with the inability to consent, (b) reaching out to the public is the last resort, and (c) the individual is cognitively impaired (Glass, 2023).

Similar to AMBER Alerts, Silver Alerts have also proven successful in several states. For example, in Florida, between 2008 and 2010, 31 (23.7%) missing persons with Dementia who were driving a car were located as a result of the Silver Alert (Rowe et al., 2012). Additionally, during the first year of the Silver Alert's inception in Texas, 13 (25%) missing seniors were located as a direct result of the system (U.S. House of Representatives, 2008). However successful, similar to AMBER Alerts, the criteria for issuance limits the amount of missing individuals who receive the media coverage that could bring individuals home. Thus, informal avenues of crowdsourced criminology, like social media, should be examined due to the affordances they offer.

Informal Crowdsourcing Avenues

Although there are state-wide and regional alert systems for missing children (AMBER Alert) and older adults (Silver Alert), specific guidelines exist for these alerts to be issued to the public (e.g., U.S. House of Representatives, 2008; NCMEC, 2021). Thus, local law enforcement agencies can utilize low-cost, informal crowdsourcing criminology strategies which are not

under government regulation like reaching out to traditional media sources (e.g., broadcasts, bulletins) and/or maintaining their own agency social media accounts to seek assistance from the public for juvenile and adult missing person cases that do not meet governmental guidelines for AMBER Alert or Silver Alert issuance.

Traditional Media. In addition to formal alert systems, law enforcement may also use traditional media (e.g., television, radio, and print; Catalan-Matamoros & Peñafiel-Saiz, 2019) to disseminate missing person information to the public. For instance, in California's Missing Persons Investigations Guidelines & Curriculum (MCPB, 2021), when a child is reported missing, officers are instructed to prepare a press release for the media containing important information (e.g., child's age and description, last known location) and transmit the information over local radio. In fact, some law enforcement agencies even have media liaisons or public information officer positions that work directly with the public and media (MCPB, 2021).

Although traditional media may circulate more slowly than new media (e.g., social media), television, radio, and print still greatly influence information-seeking behavior (Hunt & Gruszczynski, 2021). For example, law enforcement agencies have participated in external call-in crime shows (e.g., *Missing*; NCMEC, 2023b) and podcasts (e.g., *The Deck*; Flowers, 2023) to gain attention from the public for missing person cases. Law enforcement's collaboration with traditional media is especially important given that negative attitudes toward law enforcement may negatively impact directly requested behavior (Kuchenbecker, 2023). Although issues of homogeny exist with the types of missing individuals that are covered on traditional media (e.g., Missing White Woman Syndrome; Slakoff & Duran, 2023), an influx of tips are received after media coverage using traditional means (Maclin et al., 2010). However, media agencies often have their own criteria of which content to cover as well as limiting production schedules. Thus,

if law enforcement cannot successfully collaborate with media outlets, agencies can utilize their own social media account to immediately disseminate missing person information to the public.

Social Media. Considering the many approaches to studying the topic, in the context of missing persons, social media will be discussed in terms of the technological affordances it offers to users (Treem & Leonardi, 2013). Social media affordances are "the perceived actual or imagined properties of social media, emerging through the relation of technological, social, and contextual, that enable and constrain specific uses of the platforms" (Ronzhyn et al., 2022, p. 14). Treem and Leonardi (2013) suggested that there are four affordances of social media (i.e., visibility, persistence, editability, and association) that allow certain communication behavior to occur. In the context of missing persons, these social media affordances offer arguments to why law enforcement's use of social media to crowdsource information can be successful if the channel's constraints are overcome.

The first social media affordance suggested by Treem and Leonardi (2013) is visibility. *Visibility* refers to social media's ability to make the formerly invisible (behaviors, knowledge, etc.) easily accessible to others (Treem & Leonardi, 2013) and contains three attributes: "availability of information, approval to disseminate information, and accessibility of information to third parties" (Stohl et al., 2016, p. 124). For example, law enforcement may struggle to have a missing person's case known to the public if the missing individual does not meet the government's criteria for AMBER or Silver Alert issuance, therefore making some missing person cases largely invisible. Thus, the visibility social media affords allows more cases to be accessible to the public with little exertion on the part of the community even if a missing individual does not meet certain criteria for established alert systems.

The visibility that social media affords can also have self-presentational implications by giving users the opportunity to present themselves positively in their network using a very public forum (Bregman & Haythornthwaite, 2001; Treem et al., 2020). Individuals are motivated to engage in certain social behaviors (e.g., sharing or not sharing missing person messages) because of their desire to gain favor with an audience and to create a visible identity which is consistent with their own values (Hollenbaugh, 2021). Thus, when a member of the public is deciding whether to share law enforcement's missing person posts to their own account, they may consider if doing so will create a public image that builds favor with their network and is congruent with their own values. Therefore, members of the public may share missing person posts if they believe the action will make them appear positively (e.g., caring or civically engaged) or they may avoid sharing if they believe the action will make them appear negatively (e.g., attention seeking).

The potential constraints of individuals' self-presentational motivations that accompany the visibility affordance should not be understated. One major constraint could be the negative attitude some individuals hold towards police agencies (e.g., Kuchenbecker, 2023). If individuals have a negative attitude toward law enforcement or individuals perceive that their network holds a negative attitude toward law enforcement, they may be less likely to engage in social behaviors (e.g., sharing) given the perceived incongruence in values between themselves (or their network) and law enforcement. However, future research would be needed to confirm this relationship. Thus, self-presentational opportunities stemming from the visibility social media affords makes the medium appropriate for the missing person context only if constraints do not thwart the potential positive benefits from this affordance.

The next social media affordance is *persistence*, which refers to the long-term accessibility of content regardless of time and space (Treem & Leonardi, 2013). In the context of missing persons, if law enforcement posts a be-on-the-lookout request to the public, that same post will remain on their public social media account until it is removed or updated. This is an especially important affordance in this context as there are currently 97,127 cases of individuals who have been missing longer than one-year (FBI, 2023). Given the potential longevity of investigations into certain cases, the posts remaining accessible to the public with the ability to be reshared at various time intervals may boost visibility and therefore prevent cold cases.

Not only can posts persist on law enforcement social media accounts, but they can also be edited, which is the third affordance posed by Treem and Leonardi (2013). *Editability* is important in the context of missing persons as cases often move quickly (Tarling & Burrows, 2004). Some scholars argue that an abundance of missing person alerts can create a 'car alarm' effect in which individuals who view the alerts end up tuning them out (Griffin et al., 2007; Lampinen & Moore, 2016). Thus, having the ability to update missing person posts to accurately reflect the situation may keep the public informed and interested. However, if law enforcement does not update or re-post content, members of the public may avoid or tune out the posts as they do not offer resolution, another possible constraint of social media.

The fourth social media affordance suggested by Treem and Leonardi (2013) is association. *Association* is conceptualized as the connection experienced between individuals and/or content. This affordance speaks to the community building opportunity presented from law enforcement posting about missing persons. Seeing a member of one's community in need may induce action and feelings of connection between the community member, the missing person, and law enforcement, especially considering that a positive relationship exists between

social media use and civic engagement (Skoric et al., 2016). Although confounding factors may exist that impede community building (e.g., stigmatization of the missing person due to lifestyle), social media presents the potential for communal problem solving. Given the four social media affordances posed by Treem and Leonardi (2013), posting about missing persons on social media may be a viable and effective informal crowdsourcing criminology strategy for law enforcement if the constraints of this medium (e.g., self-presentational motivations, lack of maintenance) are overcome.

Given the advantages these affordances offer, it is not surprising that some agencies are already finding success through crowdsourcing information via their social media accounts. On November 10, 2021, Mason County, Michigan, Sheriff Kim Cole, whose state ranks in the top ten highest unresolved missing persons cases (NIJ, 2022), stated to 9&10 News that "we put those [AMBER Alerts] on our social media page and we find great success in getting good information and intelligence from our community on missing folks" (Triplett, 2021, para. 9). Although there are no statistics available on how many missing persons have been located using social media, there are several exemplars of this strategy. For example, in 2010, Lorena Perez was reunited with her son, Isaiah, four years after his father abducted him when the father's former partner recognized the boy in a missing child post on Facebook and contacted law enforcement (Friedman, 2010).

Despite social media's success in crowdsourcing information, after collecting and analyzing 86,977 tweets from 280 law enforcement agencies' Twitter accounts, Tiry et al. (2019) found that only 3% of the topics posted requested information from the public on missing persons and suspects. Therefore, studying how to improve crowdsourcing methods for law

enforcement may be the key to widespread use of the tactic which could result in locating more missing individuals.

Approaches to Effective Missing Person Messaging

This is not the first time communication scholars have tackled the topic of crowdsourcing information. In 2022, the *Journal of Applied Communication Research* published a study conducted by Arora, who examined citizen participation (i.e., allowing the public an opportunity to participate in public decision-making; Arora, 2022) on social media following an earthquake in Nepal as well as how authority-to-citizen communication occurred following this crisis. Arora's findings indicated that online communities provide an arena for citizens to crowdsource information (e.g., share community needs, locate missing individuals), but over time citizens reported being exhausted by the volume of posts and left the online community. This demonstrates the need for communication scholars to study messaging tactics regarding missing persons that can cut through any message fatigue (i.e., burnout felt due to repeated exposure to prolonged health messages; So et al., 2017) experienced as a result of this emotionally taxing subject. Additionally, Arora (2022) found that citizens became dissatisfied with the government's lack of response to public engagement via social media. In fact, Arora calls for future scholars to study ways in which governments can collaboratively communicate with citizens during crises and disasters.

Additionally, several studies in policing journals (e.g., *Policing and Society*) have explored the topic of missing persons and social media. For example, Solymosi et al. (2021) analyzed missing person tweets from the Greater Manchester Police to identify effective message features and rates of retweets. However, their analysis was purely descriptive and lacked a theoretical foundation which limits the predictive power for effective future messaging. Scholars

(e.g., Tiry et al., 2019) have also created guidebooks for law enforcement's successful utilization of social media. However, the suggestions were general (e.g., recommended day of the week to post) which would not apply to crisis situations and lacked specifics on how to communicate about missing persons.

Up to this point, citizen participation, specifically crowdsourced criminology, in the context of missing persons has not been studied from a communication theory perspective despite the potential insights offered by this viewpoint. Thus, investigating missing person messages from a communication theory perspective can arm law enforcement with specific, founded, and replicable ways to effectively crowdsource missing person information. Communication scholars are in a unique position to aid law enforcement and families of the missing by applying the field's social media and crisis communication scholarship to create stronger tactics to engage the public in crowdsourcing efforts to locate missing individuals. Specifically, communication scholars are best positioned to contribute to the understanding of how best to craft missing person messages that lead to sharing and reporting behaviors (Eriksson, 2018). Given that repeated exposure to missing person messages decreases their effectiveness (Lampinen & Moore, 2016), it is imperative that these missing person messages are as enticing as possible to capture the public's attention at first exposure and avoid message fatigue.

As described above, message fatigue is conceptualized as burnout felt due to repeated exposure to prolonged health messages (So et al., 2017). According to So et al. (2017), there are four dimensions of message fatigue. The first dimension is *overexposure* of a message, which describes when an individual is exposed to a message beyond the desired amount. The second dimension is *redundancy*, which explains that an individual perceives that the message is being repeated. *Exhaustion* is the third dimension, which represents the experience of message burnout.

Finally, *tedium* is the fourth dimension, which describes when individuals experience monotonous messages.

When an individual experiences message fatigue, negative consequences may occur. For example, if the message is persuasive, any fatigue experienced may result in an individual resisting the message (Kim & So, 2017). In fact, message fatigue toward COVID-19 messaging was positively related to individuals feeling that their freedom was being threatened, which was linked to the experience of reactance (i.e., anger and negative cognitions; Dillard & Shen, 2005) toward this messaging and in turn associated with decreased adherence to social and hygiene prevention behaviors (Ball & Wozniak, 2021). Given that message fatigue is likely experienced in missing person messaging (Kuchenbecker, 2023; Lampinen & Moore, 2016), messages must effectively urge individuals to share missing person information with very few message exposures. The CERC model (Reynolds & Seeger, 2005) is a crisis communication framework that can help inform the creation of impactful missing person messages that reduce the need for repeated exposures that otherwise risk experiences of message fatigue.

Crisis and Emergency Risk Communication (CERC) Model Overview

The CERC model (Reynolds & Seeger, 2005) may be helpful in guiding missing person message creation. The CERC model poses five stages in which crises unfold and identifies communication strategies to implement at each point for effective response. The five stages are: (a) *pre-crisis* (i.e., potential threat is detected; communication activities focus on risk messages such as urging publics to prepare in case the identified threat evolves into a crisis), (b) *initial event* (i.e., onset of a crisis; requires the dissemination of messages to reduce uncertainty, promote reassurance, and foster self-efficacy among the public and individuals affected by the crisis), (c) *maintenance* (i.e., when the crisis unfolds; messages should provide more

information), (d) *resolution* (i.e., end of the crisis event; communication to the public and affected individuals address restoration and rebuilding), and (e) *evaluation* (i.e., reflect on the circumstances of the crisis and discussion of lessons learned).

According to Reynolds and Seeger (2005), communication during a crisis should address the problems and needs at each stage (i.e., pre-crisis, initial crisis, maintenance, resolution, and evaluation). During the pre-crisis stage, Reynolds and Seeger (2005) recommended that communication to relevant audiences should focus on encouraging self-efficacy, establishing credibility through consistent expert recommendations, and changing behavior to minimize potential harm. On the other hand, the goal of the initial crisis stage is to rapidly reduce uncertainty, boost self-efficacy, and provide reassurance through empathetic, explanatory, and action-oriented messages (Reynolds & Seeger, 2005). Reynolds and Seeger (2005) also suggested that during the maintenance stage of a crisis, spokespersons should continue to promote self-efficacy and action-orientation by accurately clarifying information to the public. During the resolution of a crisis, communication should emphasize remediation efforts facilitated by honest and respectful discussions about the causes of the crisis (Reynolds & Seeger, 2005). Finally, Reynolds and Seeger (2005) recommended that during the evaluation stage, responses to a crisis should be assessed to identify lessons learned and future improvements to communication efforts.

Although introduced to the academic community in 2005, the CERC model has been widely used in practice since 2000, including by the Centers for Disease Control and Prevention (CDC; Miller et al., 2021). Since its entrance into the academic community, the CERC model has been applied and/or tested in a variety of risk and crisis contexts, including infectious diseases (e.g., Nour et al., 2017; Vos & Buckner, 2016), natural disasters (e.g., Anthony &

Sellnow, 2011; Rice & Spence, 2016), and chemical spills (e.g., Thomas et al., 2016). According to a systematic review conducted by Miller et al. (2021), the CERC model is most often studied retrospectively via content analyses of crisis events and rarely receives experimental investigation. Miller et al. (2021) also noted that in its current state, the CERC model lacks the ability to be theoretically tested given the absence of and/or vague propositions made in prior literature (i.e., Reynolds & Seeger, 2005; Veil et al., 2008). Thus, based on the original CDC CERC manual, Miller et al. (2021) proposed that the CERC model can be strengthened by forwarding statements which predict relationships between characteristics of communication (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, respect) and audience outcomes (i.e., self-efficacy, uncertainty, emotional turmoil, knowledge of risks and resources), ultimately leading to protective behavior. Miller et al.'s (2021) resulting propositions based on existing CERC model principles are presented in Figure 1. Each message characteristic is outlined in the CERC manual updated by the CDC (2018) and described below followed by a discussion of audience outcomes and behavior as proposed by Miller et al. (2021).

Message Characteristics

According to the CDC's CERC manual, there are six principles of effective emergency and risk communication: "be first, be right, be credible, express empathy, promote action, and show respect" (CDC, 2018, p. 3). These principles serve as a blueprint for developing messages that allow individuals and organizations to prepare for and respond to emergencies.

Timely Information

The first characteristic is *timeliness*, meaning that the crisis message should be communicated quickly as the first source of information is often the source that becomes preferred (CDC, 2018). One goal of crisis communication is to reduce harm for organizations

and/or individuals by disseminating protective information to relevant publics (e.g., Coombs & Holladay, 2002; Lundgren & McMakin, 2018; Reynolds & Seeger, 2005; Seeger, 2006). Therefore, in the event of a crisis, it is imperative that organizations and individuals receive information as fast as possible (i.e., during the initial crisis stage) to have time to engage in recommended actions that will result in favorable outcomes. For example, timeliness of information sharing from an organization was found to be an important factor in determining stakeholder satisfaction (Strong et al., 2001). Timeliness of information distribution has also played an important role in other prescriptive crisis models (e.g., Emerging Media Crisis Value Model; Page et al., 2013).

In the missing person context, one barrier faced by law enforcement in satisfying this message characteristic is the personnel and technology resources required to maintain timely communication on social media (e.g., Falco & Kleinhans, 2018). Despite the challenges of posting timely information, many individuals expect information quickly. Specifically, Yang et al. (2022) found that individuals who live in urban areas expect information quicker compared to individuals who live in rural areas. Given that missing person reports are more frequent in urban areas (NIJ, 2023), law enforcement agencies in highly populated cities may be expected to communicate to the public closely following a report of a missing person. Therefore, timeliness may serve as an important characteristic to include in missing person crisis messages.

Accurate Information

It is not enough for crisis information to be timely; this information must also be *accurate.* As defined by the CDC (2018), accuracy is whether the information in the message is perceived as correct in describing what is known, unknown, and what is being done to know more about a crisis situation. Correct information is necessary for individuals to assess what

level of action they need to take. Accuracy of information during a crisis was found to be especially important for African Americans who reported feeling concerned about the truthfulness of crisis information from government officials (Meredith et al., 2007). Therefore, relaying all appropriate and available information during a crisis is recommended, especially if the crisis is being communicated by government officials (Meredith et al., 2007). The CDC (2018) recommended that organizations should determine who will lead the information approval process ahead of time to ensure accuracy is met at each stage of a crisis event.

Whereas accurate information from officials can increase credibility (Appelman & Sundar, 2016), inaccurate information can lead to unnecessary panic. For example, in an incident at the University of Iowa, information about a nearby active shooter was disseminated to campus constituents sending students fleeing. In actuality, the active shooting incident was miles away from campus not necessitating direct action from students on campus (Fox & Savage, 2009). Therefore, it is important that accurate missing person information is spread to the public to maximize desired outcomes (e.g., sharing missing person information). Specifically, social media may offer a fast and accurate way of communicating missing person information to the public as written communication was found to offer more accurate transmission of crisis information compared to verbal communication (Edworthy et al., 2015). Thus, ensuring accurate information while communicating about a missing person on social media may substantially impact desired outcomes.

Credible Sources

Credibility is the perception of believability based on judgements from a message receiver (O'Keefe, 2003). Credibility has three dimensions according to McCroskey and Teven (1999), including competence (i.e., perception of expertise), trustworthiness (i.e., having moral

character), and care (i.e., perception of goodwill). Notably, the perception of source credibility varies based on the message receiver (O'Keefe, 2003). Therefore, how individuals respond to a message is based on their individual valuation. For example, in a study exploring the sharing behavior of law enforcement's missing person posts, Kuchenbecker (2023) found that greater negative attitude toward law enforcement (i.e., belief that law enforcement is harmful, bad, wrong, unfair, negative, foolish) was related to greater perceived freedom threat experienced from law enforcement asking the public to share missing person posts.

To avoid negative outcomes from credibility issues, the CERC manual recommends that spokespersons should be respected leaders with expertise on the situation who may also be affected by the crisis (CDC, 2018). Therefore, in the missing person context, law enforcement may mention the missing person's loved ones who are close to the case to boost credibility when posting information. Regardless of how, increasing expertise, trustworthiness, and care should be a priority throughout the crisis communication process.

Empathetic Tone

State empathy is a process in which we understand others (Lazarus, 1991). Thus, empathetic messages communicate the distress that is experienced by individuals during a crisis event. State empathy is comprised of affective (i.e., recognizing and experiencing emotions of others), cognitive (i.e., taking on the perspective of another), and associative (i.e., identification with another's experience) components (Shen, 2019). The CDC's CERC manual (2018) argued that acknowledging how the crisis event impacted individuals builds trust and rapport which is important to communicate during the initial stage of a crisis. In fact, persuasive messages inducing empathy have been shown to strengthen the persuasive impact of the communication (e.g., Shen, 2010a). Specifically, Shen (2010a, 2011) found that messages which induced state

empathy reduced the experience of freedom threat and psychological reactance due to (a) empathy being in direct opposition to anger (affective function), (b) perspective taking minimizing counter arguments (cognitive function), and (c) the perception of persuasive messages being external and thus reducing perceived threats to freedom (associative function) (see Shen, 2010a).

Including empathy in missing person messages may be especially impactful as Berger (2013) argued that due to the human inclination to connect with others through emotion, content showcasing emotion can be a powerful motivator for spreading content. However, special attention should be paid to the volume of empathy-inducing missing person posts as individuals may be fatigued by emotionally overwhelming messages (similar to compassion fatigue; Kinnick et al., 1996). Although Kuchenbecker (2023) reported difficulties inducing empathy in experimental missing person messages, the emotional nature of this crisis type provides several opportunities that agencies can use to foster this message characteristic (e.g., emotions of missing person's loved ones).

Action-Oriented Information

Action-orientation stresses that individuals should be aware of certain behaviors that will help restore their safety and a sense of control during a risk or crisis event (CDC, 2018). The action-oriented message characteristic plays an important role in several other risk and crisis frameworks, including the internalization, distribution, explanation, and action (IDEA) model (Sellnow & Sellnow, 2014). This framework was developed to aid practitioners in crafting instructional risk and crisis messages that facilitate affective, cognitive, and behavioral learning (Sellnow & Sellnow, 2014). The action component of the IDEA model is rooted in the domain of behavioral learning, which is conceptualized as the change in psychomotor or behavioral

performance (Bloom, 1956). In past IDEA model literature, action is manipulated in messages by including what an individual should do to protect themselves or others from a threat. For example, in Sellnow et al.'s (2017) application of the IDEA model to a crisis involving tainted beef, the IDEA model-informed message provided specific actions like urging individuals to wash their hands often and return the tainted beef. Sellnow et al. (2017) found that compared to a message which only emphasized an explanation of the crisis event without recommending action, the IDEA model-informed message which included recommended actions was perceived as more effective and resulted in greater intention to engage in self-protection behaviors.

Given prior success when including recommended actions in crisis messages (e.g., Johansson et al., 2021; Sellnow et al., 2017; Sellnow et al., 2019), practitioners should ensure that recommend behaviors in the missing person context are in the interest of protecting a missing individual. Previous recommended behaviors in missing person cases have included: reviewing any security cameras, reporting a tip or information (MCPB, 2021), and sharing missing person information (Captain of Services Daniel Barnes, 2023). Therefore, to encourage individuals to act during a missing person crisis, recommended behaviors must be clearly communicated to the public.

Respectful Tone

Respect is another important message characteristic denoted in the CERC manual (CDC, 2018) as it establishes rapport with the community. Respect is based on the idea that individuals want to be treated in a way that makes them feel good about themselves (Hendrick & Hendrick, 2006). For example, Jackson et al. (2001) described respect as an attitude that communicates to another that their feelings and behaviors are valued. Given that individuals may feel vulnerable during an emergency (CDC, 2018), a respectful crisis message should acknowledge individuals'

vulnerable feelings experienced during a crisis. Prior research confirms the importance of respectful communication in health contexts. For example, Williams and Herman (2011) investigated the implicit ratings of care, respect, and control in dementia patient communication and found that negative associations occurred between resistiveness to care and respect in messages. Additionally, the CERC manual recommended that the spokespersons delivering crisis messages at each stage should be individuals who are respected (i.e., thoughts and behaviors valued) in their community (CDC, 2018). Given that crowdsourced criminology relies on individuals participating in investigations (e.g., sharing on social media, reporting information; Gray & Benning, 2019), making the public feel that their contributions are valued may be an important message attribute in encouraging individuals to assist in missing person cases.

Audience Knowledge and Attitudes

In their systematic review, Miller et al. (2021) proposed four audience knowledge and attitude benchmarks that are consistent with the CERC model (Reynolds & Seeger, 2005) as well as beneficial to individuals experiencing risk and crisis events. Miller et al. (2021) suggested that the six message characteristics detailed above (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) are positively related to individuals' self-efficacy and knowledge of risks and resources, as well as negatively related to uncertainty and emotional turmoil. Additionally, the knowledge and attitude outcomes described below are important indicators of whether an individual will engage in a recommended protective behavior.

Self-Efficacy

Before individuals follow suggested protective behaviors, they need to be confident in their ability to carry out the recommended behavior (i.e., *self-efficacy*; Witte, 1992). Originally conceptualized by Bandura (1977), self-efficacy has been shown to be positively related to

individuals' willingness to follow recommended protective behaviors in the health and crisis domain (e.g., Avery & Park, 2016; Heath et al., 2009). In fact, perceived efficacy was an important determinant of intention to perform health behaviors in the protection motivation theory (Rogers, 1975) and the extended parallel process model (Witte, 1992). For example, while investigating cigarette health warnings, Thrasher et al. (2016) found that self-efficacy positively influenced cessation behavior. In crisis communication literature, Avery and Park (2016) found that in the contexts of a public health emergency (i.e., whopping cough), a natural disaster (i.e., tornado), and a food-borne illness (i.e., mad cow), self-efficacy positively predicted intention to comply with recommended protective behaviors (e.g., take cover).

The CERC manual (CDC, 2018) identified the importance of self-efficacy by suggesting that risk and crisis messages should provide individuals with options on how to act in a crisis to empower an individual to choose which action they can realistically carry out (CDC, 2018). Therefore, in the missing person context, messages may need to include several recommended actions as individuals may not be confident in their ability to engage in some behaviors (e.g., share a missing person message and/or call their local law enforcement to report a sighting). Given self-efficacy's consistent role in the CERC model's (Reynolds & Seeger, 2005) crisis stages, this outcome should be investigated in the missing person context.

Knowledge of Risks and Resources

Boosting an individual's perception that they can engage in an action to protect themselves or others is moot without the actual *knowledge* on how to perform those actions. Therefore, cognitively learning what the risk or crisis is and how to respond is imperative. Cognitive learning is the expected change in the development of skill and recall of knowledge (Bloom, 1956), and serves not only an important role in the CERC model (Reynolds & Seeger,

2005), but is a foundational idea in other risk and crisis frameworks (e.g., IDEA model; Sellnow & Sellnow, 2014). Specifically, IDEA model literature (e.g., Sellnow et al., 2017) states that cognitive learning is an imperative impetus for motivating individuals to engage in recommended actions. Also consistent with CERC model principles (Reynolds & Seeger, 2005), the IDEA model posed that to boost cognitive learning from an explanation of a crisis, the information about a situation must come from a credible source and be accurate (Sellnow et al., 2017).

In the context of missing persons, most individuals who view a missing person post will have no information to report to law enforcement. However, if an individual does spot a missing person in the future, they must rely on their cognitive recall obtained from the past message to know how to respond. Thus, knowledge of risks and resources can influence whether a missing individual is reported to law enforcement or not. Although learning about a situation and how to respond is imperative, several negative factors (i.e., uncertainty and emotional turmoil) should be minimized to increase the likelihood that an individual will use the knowledge they retain to engage in recommended behaviors (Miller et al., 2021).

Uncertainty

Although crisis communication scholarship lacks a clear definition of *uncertainty*, interpersonal communication literature has extensively conceptualized the concept (Liu et al., 2016). Brashers (2001) defined uncertainty as the feeling of insecurity when knowledge of an event is unpredictable, unknown, or inconsistent. Outcomes of uncertainty depend on if it is appraised positively or negatively; therefore, if uncertainty is perceived as a danger or threat, individuals may engage in behaviors to reduce those negative feelings (e.g., information seeking; Brashers, 2001). Risk and crisis communication scholars define crises as inherently negative

uncertain events given the unpredictable nature and potential threat of these situations (e.g., Seeger, 2006; Seeger et al., 2002). Therefore, reducing negatively appraised uncertainty is an important goal of risk and crisis communication.

Feelings resulting from negatively appraised uncertainty have been shown to impact behavior. For example, when investigating how to predict individuals' response to COVID-19 crisis health messages, Kim et al. (2023) found a significant positive relationship between uncertainty reduction motivation (i.e., reducing negative effects of uncertainty) and behavioral responses (e.g., washing hands) through social media use for COVID-19 information (compared to traditional media use). Given the uncertainty of a missing person's location and condition, investigating message characteristics that induce uncertainty reduction in the missing person context may be helpful in encouraging desired behaviors.

Emotional Turmoil

Although *emotional turmoil* is included in both the CDC's (2018) CERC manual and Miller et al.'s (2021) testable CERC model statements, the term has not been clearly defined in these works or crisis communication literature. However, in interpersonal communication literature, emotional turmoil has been described as the degree of inner conflict felt while resolving a conflict (Yarnell & Neff, 2013). This inner conflict has also been described as emotional distress (Salazar-Fernández et al., 2021), general distress (Barberis et al., 2023), and a negative emotional state (Lovibond & Lovibond, 1995). Lovibond and Lovibond's (1995) Depression Anxiety Stress Scale (DASS-21) comprised of three subscales assessing depression, anxiety, and stress is commonly used to assess these concepts.

It is well established that crisis events are emotional situations that often engender stress and anxiety (e.g., Schuster et al., 2001), which in turn impact how individuals respond to crises

and crisis messages. For example, when investigating reactions to a hypothetical terrorist attack, Jin et al. (2016) found that when individuals felt increased anxiety, they had greater intentions to take protective actions (e.g., evacuation). On the other hand, social psychologists have found that stress may impede rational decision-making (Boin et al., 2017). Therefore, it is unclear if any depression, anxiety, or stress resulting from a crisis involving a missing person will affect how individuals react to requests to share missing person posts. Although Miller et al. (2021) posed that emotional turmoil should be minimized to induce action, further investigation is needed to identify the extent to which depression, anxiety, and stress negatively affect behavior, especially in the missing person context which may not engender intense emotional turmoil given that this type of crisis is not directly relevant to most individuals who read missing person messages.

Audience Behavior

Although audience knowledge and attitudes are impactful outcomes to the stated message characteristics, behavior change that minimizes potential harm for others is a pressing outcome of interest in crisis communication (e.g., Sellnow & Sellnow, 2014). In fact, Miller et al. (2021) suggested that the six message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) are positively related to individuals' experience of self-efficacy and knowledge of risks and resources, and negatively related to uncertainty and emotional turmoil, which are then related to individuals' engagement in risk and protection behavior.

Risk Protection Behavior

Given that the goal of risk and crisis communication is in part to prevent or decrease the amount of negative consequences experienced from a risk or crisis event (e.g., Coombs, 1999; Seeger, 2006), having the public engage in *risk protection behaviors* that minimize potential

harm is an important outcome studied in the field (e.g., Sellnow & Sellnow, 2014). Recommended protection behaviors vary depending on the crisis. For example, during the COVID-19 crisis, protective actions like washing hands and wearing masks were communicated to the public by government officials to prevent the spread of the harmful virus (Zahry et al., 2021).

During a missing person crisis, law enforcement agencies often request that members of the community share information about a missing individual to aid in locating them (e.g., Triplett, 2021) as someone in the community could have knowledge about the disappearance or actually spot the individual. Given that injury and death of missing persons occur quickly after an individual is last seen (e.g., Tarling & Burrows, 2004), missing person message engagement that gets the right information to the right community members may therefore reduce any harm which may befall a missing individual who is in distress. Therefore, during a crisis involving a missing person, engagement with social media messages (i.e., sharing, liking, commenting) about a missing individual is a protective behavior that a community should be encouraged to partake in. Although prior missing person message investigations have conceptualized engagement as sharing (e.g., Solymosi et al., 2021), social media platforms allow users other ways to engage in messages posted (e.g., liking, commenting on posts) which may still boost information spread. Therefore, promoting engagement in the form of sharing, liking, and commenting (i.e., protective behavior) are of utmost importance in the missing person context.

Even individuals who do not perceive a missing person to be a crisis may engage with missing person posts as individuals who were less involved with a crisis event (i.e., felt the event was less important, relevant, and meaningful) were more likely to share crisis information on social media compared to those who were involved in the crisis event (i.e., felt the event was

more important, relevant, and meaningful; Jin et al., 2016). Thus, engagement in missing person posts is an appropriate risk protection behavior in the context being explored in this dissertation.

Therefore, by applying the CERC model (Reynolds & Seeger, 2005) to the missing person crisis context, communication scholars can assist law enforcement in crafting and disseminating missing person messages that are more likely to facilitate public engagement which has the potential to reunite missing individuals with their loved ones.

Limitations to Translating Theory to Practice

Although the study of missing persons and crowdsourcing via social media proves to be compelling, a major limitation of this type of inquiry is the challenges that exist when translating theoretical findings to solve real world problems. Ruben (2016) suggested that one major barrier in bridging theory and practice is that communication theory does not consider the nuances or subtleties of the communication process in practice. For example, it is important to consider that communicating about missing persons is a small percentage of what law enforcement handles. In the La Habra Police Department, a city in Southern California with a population of approximately 60,000 citizens, the same investigations unit handles robbery/theft, homicide, terrorism, sex crimes, child/elder abuse, internet crimes against children, as well as missing persons cases (Captain of Services Daniel Barnes, 2023). Agencies may not have substantial resources to dedicate to every missing person case and thus any social media guidelines presented to law enforcement must be minimal, realistic, and able to easily be integrated into a system that is already running.

Additionally, overhauls of the social media messaging strategies law enforcement use may not necessarily reach all individuals who may hold answers to missing person cases. For example, according to Cao and Goldberg (2022), one in five U.S. households do not have at-

home internet connection. Thus, receiving social media information about a missing person may not be practical. However, the social-mediated crisis communication (SMCC) model (Austin et al., 2012; Jin & Liu, 2010; Liu et al., 2012) posed that when an organization is communicating, there are multiple publics involved (i.e., influencers, followers, and inactives). The *influencers* are those creating the crisis content (e.g., law enforcement), the *followers* are those who access the created content (e.g., those who follow law enforcement's accounts), and the *inactives* are those who indirectly receive the *influencers* content via word of mouth from *followers* or traditional media (e.g., those who watch news report about the missing person). Therefore, internet accessibility may hinder, but not fully exclude individuals who do not have access to social media from seeing missing person messages that law enforcement post. To ensure information diffusion, law enforcement should not singularly rely on social media to bring awareness of missing persons, but continue to vary their distribution strategies (e.g., informal and formal crowdsourcing strategies) to hit all publics (Hunt & Gruszczynski, 2021), including those without internet or social media access.

Another challenge of applying crisis communication theory to real world situations is the policies and ethical values law enforcement agencies must uphold. For example, if you are over the age of 18, going missing is not a violation of any laws which raises privacy concerns if the individual disappears voluntarily and private information is released to the public, including any cognitive impairments the individual possesses (Congressional Research Service, 2019; Wasser & Fox, 2013). However, 13% of missing person cases are suspected to involve foul play (Chakraborty, 2019), which means law enforcement remaining silent could prevent individuals who are missing and in need of help from receiving coverage. Thus, law enforcement must carefully consider every case to determine which ones are likely to benefit most from being

posted on social media. Therefore, current law enforcement procedures should inform how theory should be utilized to boost effective messaging strategies instead of making practice fit within theoretical ideas.

In conclusion, missing person messaging is a worthwhile topic of study that can benefit from a crisis communication approach. Given the magnitude of the missing person problem in the United States and the unique challenges these cases present to law enforcement, expanding our understanding of how messages spread and are crafted is necessary to improve the success of crowdsourcing efforts. Ultimately, communication scholars are in a unique position to not only aid practitioners creating missing persons messages, but advance the applicability of crisis communication theory (i.e., CERC model; Reynolds & Seeger, 2005).

Study Rationale

As discussed above, the number of long-term missing individuals in the United States is rising (FBI, 2023). Although government agencies are allocating more funding to address the missing person epidemic (OJJDP, 2022) and reinforcing existing crowdsourcing efforts (California Highway Patrol, 2023a), the severity of the issue remains. Although law enforcement's use of missing person alert systems (e.g., AMBER Alert, Silver Alert) are successful (e.g., NCMEC, 2023a; U.S. House of Representatives, 2008), the strict criteria missing person cases must meet to be eligible for alert system dissemination leads many law enforcement agencies to utilize social media to distribute missing person messages resulting in varying levels of effectiveness (Solymosi et al., 2021). Prior communication literature investigating crowdsourced criminology (Arora. 2022) indicated that crowdsourcing information on social media during a crisis (e.g., sharing community needs, locating missing individuals) can be beneficial for individuals, but runs the risk of message exhaustion. Therefore, this study

addresses the call for researchers to investigate how governments can collaboratively communicate with citizens during crises and disasters (e.g., Arora, 2022).

The missing person crisis in the United States is particularly suitable for exploration from a crisis communication theory approach given individuals' hesitation in sharing missing person information on social media (Kuchenbecker, 2023; Solymosi et al., 2021) as well as the topic's lack of theoretical application and experimental investigation of message effectiveness (e.g., Solymosi et al., 2021). Given the CERC model's widespread success in practice for communication during risk and crisis events (e.g., Nour et al., 2017; Rice & Spence, 2016), this model is an appropriate communication framework to apply in the missing person crisis context to fill this gap. Specifically, the model suggests that certain message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) should be examined to increase positive audience outcomes (i.e., knowledge, self-efficacy), reduce negative audience outcomes (i.e., uncertainty, emotional turmoil), and ultimately boost willingness to engage in protective behavior (i.e., sharing missing person posts; Miller et al., 2021). Therefore, this two-part study utilizes Reynolds and Seeger's (2005) CERC model to (a) identify strategies law enforcement currently uses to crowdsource missing person information and (b) experimentally test message characteristics that facilitate prosocial sharing of missing person posts on social media.

This study contributes to current law enforcement crowdsourcing practices by recommending message characteristics to emphasize or minimize when communicating to the public about missing persons to encourage sharing behavior. Despite crowdsourced criminology's success, only 3% of the topics posted by law enforcement request information from the public on missing persons and suspects (Tiry et al., 2019). Thus, specific, founded, and

replicable guidelines on ways to effectively crowdsource missing person information may encourage hesitant law enforcement agencies to implement social media as an informal crowdsourcing avenue. Theoretically, this study is one of the first to experimentally test the recently proposed CERC model (Reynolds & Seeger, 2005) relationships outlined by Miller et al. (2021). The CERC model, as originally proposed, lacks the ability to be theoretically tested given the absence of and/or vague propositions made in prior literature (i.e., Reynolds & Seeger, 2005; Veil et al., 2008). However, Miller et al. (2021) proposed a testable model (see Figure 1) which allows researchers to investigate the relationships between message characteristics, audience outcomes, and behavior in the missing person context. Findings from this study inform how the framework functions and identifies message characteristics that need further inquiry in the crisis communication domain.

The following sections outline how the investigator (a) identified strategies law enforcement currently uses to crowdsource missing person information (study one), and (b) experimentally tested message characteristics that facilitate prosocial sharing of missing person posts on social media (study two).

Study One

It is unclear the extent to which current law enforcement crowdsourcing message practices on social media are successful in the United States. Although, Solymosi et al. (2021) analyzed missing person tweets from the Greater Manchester Police in the United Kingdom to identify effective message features and rates of retweets, differences in law enforcement procedures, rates of missing persons, and government resources (e.g., Greenhalgh & Greene, 2021; Metropolitan Police, 2023) require a specific look at missing person messages in the United States. Additionally, Solymosi et al.'s (2021) exploratory analysis was purely descriptive

and lacked a theoretical foundation which limits the predictive power for effective future messaging. Thus, to predict message effectiveness through rigorous and theoretically consistent experimentation (study two), it is imperative that sound theory is used to drive this exploratory analysis (study one). Therefore, the CERC model (Reynolds & Seeger, 2005) and resulting propositions (Miller et al., 2021) were used to identify message characteristics utilized in law enforcement's missing person posts that result in high rates of likes, shares, and comments in the United States. The following research questions are forwarded:

RQ1: To what extent are CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) currently being utilized in law enforcement's missing person messages on social media?

RQ2: To what extent do CERC model message characteristics utilized in law enforcement's missing person messages on social media differ in engagement (i.e., likes, shares, and comments)?

Study Two

Whereas study one identifies current law enforcement crowdsourcing message practices, study two experimentally tests the impact of message characteristics (e.g., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) on audience outcomes (i.e., self-efficacy, knowledge, uncertainty, and emotional turmoil), as well as the subsequent impact of these audience outcomes on protective behaviors (e.g., sharing missing person posts). Specifically, CERC model message characteristics with the highest rates of engagement (i.e., respective likes, shares, and comments) identified in study one were used for experimental testing in study two. Thus, the following hypotheses are forwarded:

H1: The presence of CERC model message characteristics (i.e., timeliness, accuracy,

credibility, empathy, action-orientation, and respect) are positively related to (a) self-efficacy and (b) knowledge of risks and resources, and negatively related to (c) uncertainty and (d) emotional turmoil.

H2: (a) Self-efficacy and (b) knowledge of risks and resources are positively related to and (c) uncertainty and (d) emotional turmoil are negatively related to sharing a missing person post (i.e., behavioral intention and actual behavior).

H3: An indirect relationship exists between CERC model message characteristics and the behavioral intention to share a missing person post through self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil.

Summary

Guided by the CERC model (Reynolds & Seeger, 2005) and its recently clarified propositions (Miller et al., 2021), the purpose of this dissertation is to (a) identify strategies law enforcement use to crowdsource missing person information, and (b) experimentally test message characteristics that facilitate prosocial sharing of missing person posts on social media. Specifically, the first two research questions (RQ1-RQ2) investigate the extent to which timeliness, accuracy, source credibility, empathy, action-orientation, and respect are currently being utilized in law enforcement's missing person social media messages and if any message attributes yield higher rates of engagement (i.e., likes, shares, comments) from social media users. H1-H3 explore the extent to which the presence of message characteristics identified in RQ1 increase positive audience outcomes (i.e., knowledge of risks and resources, self-efficacy) and reduce negative audience outcomes (i.e., uncertainty, emotional turmoil), subsequently increasing engagement in protective behaviors (i.e., intending to and/or actually sharing missing person posts on social media). This inquiry offers theoretical implications by being one of the

first to experimentally investigate the propositions of the CERC model (Miller et al., 2021), a framework commonly used in practice but that has undergone little empirical inquiry. Practically, this work provides law enforcement with clear recommendations on how to craft crowdsourcing crisis messages that are more likely to spread on social media.

Chapter II: Methodology

Overview

The two research questions and three hypotheses discussed above were addressed in two studies. Study one identified the extent to which law enforcement currently use CERC model message characteristics in missing person posts on social media (RQ1) and whether these message characteristics yielded differences in level of engagement (i.e., likes, shares, comments; RQ2). Additionally, study one results informed the creation of experimental missing person messages examined in study two. Study two experimentally tested CERC model-informed missing person social media messages to examine whether the presence of CERC model message characteristics (i.e., timeliness, accuracy, credibility, empathy, action-orientation, and respect) are positively related to (a) self-efficacy and (b) knowledge of risks and resources, and negatively related to (c) uncertainty and (d) emotional turmoil (H1); whether (a) self-efficacy and (b) knowledge of risks and resources are positively related to and (c) uncertainty and (d) emotional turmoil are negatively related to sharing a missing person post (i.e., behavioral intention and actual behavior; H2); and whether an indirect relationship exists between CERC model message characteristics and the behavioral intention to share a missing person post through self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil (H3).

Study One

Procedures

Through a quantitative content analysis using data mining techniques to analyze law enforcement's X (formerly known as Twitter) posts (formerly known as tweets), this dissertation explored the extent that CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) are currently being utilized in law

enforcement's missing person messages on social media (RQ1) and any differences in engagement with these different types of messages (i.e., likes, shares, and comments; RQ2). X (Twitter) was chosen after a survey found that 71% of responding law enforcement agencies use this social media platform to communicate with the public (International Association of Chiefs of Police, 2017). Although law enforcement is more likely to use Facebook to communicate with the public (International Association of Chiefs of Police, 2017), due to limitations in case use for Facebook's Application Programming Interface (API) and a pause in approval for academic access to Facebook's public insights tool (i.e., CrowdTangle; Freelon, 2018; CrowdTangle representative Elizabeth, personal communication, September 29, 2023), X (Twitter) is an appropriate alternative. Additionally, some law enforcement agencies in certain states (e.g., California) have a partnership with X (Twitter) and Facebook such that the same missing person alerts are released on both platforms (California Highway Patrol, 2022).

Consistent with prior web scraping approaches in communication literature (e.g., Alizadeh et al., 2022), the RTwitterV2 R package (Kubli, 2021), housed within GitHub.com and accessed using the R programming language, was utilized to collect and organize X (Twitter) data through the X (Twitter) API (v2 basic access). Recent missing person posts from 58 law enforcement agencies were collected (see Table 2) which is consistent with prior missing person web scraping procedures (Solymosi et al., 2021). Agencies that were non-randomly selected were (a) within states with the highest rate of NamUs missing person reports (NIJ, 2023), (b) serving a population of at least 300,000 people (Bureau of Justice Statistics, 2016), and (c) active on X (Twitter; Dong & Wu, 2022). Given the constraints of X (Twitter) API (v2 basic access) and the RTwitterV2 R package (Kubli, 2021), the most recent 100 posts (regardless of topic) from the selected 58 law enforcement agencies were scraped. After three rounds of data scraping

occurring between October 29, 2023 and December 21, 2023, 17,400 posts were extracted. The extracted data included 120 columns of data (e.g., when the account was created, post language, profile image URL).

Following extraction, data cleaning ensued. First, posts were retained if they included the keywords of "missing," "last seen," or "searching" which is consistent with past missing person web scraping queries (Solymosi et al., 2021). Date of posting, number following law enforcement account, number of accounts law enforcement were following, name of law enforcement agency name, post text, post URL (to access any media posted with text), and public metrics (i.e., likes, retweets, replies) were retained for analysis. Reposts and non-missing person content were removed. After eligibility exclusion (i.e., selected agencies, keywords, reposts, topic), 600 posts returned from the query. Although prior web scraping social media content analyses use approximately 1,000 posts for analysis (e.g., Pressgrove et al., 2017; Solymosi et al., 2021), successful content analyses have analyzed as little as 580 (Massey et al., 2020) and 212 (Zhang et al., 2021) posts. Therefore, analysis continued.

Descriptive Statistics of Extracted Posts

Before data analysis, descriptive statistics of the 600 extracted posts were examined. Posts were created from July 15, 2021 to December 21, 2023. The law enforcement agencies had on average 114,686.88 followers (*SD* = 118,697.04; ranges from 6,386 to 805,335) and followed 785 accounts (*SD* = 959.90; ranges from 93 to 6,863). On average, posts received 23.01 likes (*SD* = 39.88; ranges from 0 to 291), 3.32 replies (*SD* = 26.93; ranges from 0 to 643), and 48.76 retweets (*SD* = 113.43; ranges from 0 to 856). Three hundred and forty-four posts (57.33%) featured an image or poster with information additional to the text in the post compared to 256 (42.67%) posts which featured only an image of the missing person. Male missing persons

represented 368 (61.33%) of featured individuals compared to 227 (37.83%) female missing persons. On average, missing persons featured were 41.81 years old (*SD* = 27.42; ranges from 1 to 96). Three hundred and thirty-eight (56.33%) missing persons posts identified the ethnicity of the individual featured. Of the ethnicities identified, 47.63% (*n* = 161) were Black, 24.85% (*n* = 84) were White, 20.41% (*n* = 69) were Hispanic, 5.03% (*n* = 17) were Asian, 1.18% (*n* = 4) were Indigenous, and <1.0% (*n* = 3) were unknown. On average, the missing person posts contained 196.73 characters, not including any additional information in attached images or posters (*SD* = 169.26; ranges from 0 to 1,226).

Engagement Operationalization

RQ2 investigates the extent that CERC model message characteristics utilized in law enforcement's missing person messages on social media differ in engagement (i.e., likes, shares, and comments). Although prior missing person message investigations have operationalized engagement as the number of shares a post receives (e.g., Solymosi et al., 2021), likes and comments (also referred to as replies) are also measured as these are the three ways X (Twitter) allows users to engage in a post. Therefore, engagement is measured via the number of shares, likes, and comments a post receives since law enforcement's initial publication of the message to their feed.

Data Analysis

To address RQ1 and RQ2, posts were coded by CERC model message characteristic themes using the phronetic iterative approach; in other words, data analysis not only considered existing theory while categorizing data (i.e., CERC model, Reynolds & Seeger, 2005), but coding remained open to themes that emerged from the data itself beyond the CERC model (Tracy, 2019). Considering both existing theory and emergent data during analysis kept the

researcher open to uncovering additional effective message characteristics beyond timeliness, accuracy, source credibility, empathy, action-orientation, and respect.

To establish credibility during the analysis process, investigator triangulation (i.e., several researchers involved in the analysis process) was utilized (Lincoln & Guba, 1985; Tracy, 2019). Specifically, posts were manually coded by the principal investigator and two trained undergraduate research assistants according to a CERC model message characteristic codebook developed by the principal investigator (see Appendix B). The codebook was created using guidelines suggested by Ryan and Bernard (2000). Specifically, detailed descriptions of each message characteristic were included with examples of actual text that represent the message characteristic to be coded (example text was added after preliminary web scraping). Posts could receive multiple codes if multiple message characteristics were present (e.g., Pressgrove et al., 2017).

Before coding the entire data set, the principal investigator explained the codebook to the two research assistant coders who were previously trained in qualitative coding. Both the research assistants and the principal investigator underwent several rounds of practice coding. The text of each missing person X (Twitter) post comprised the unit of analysis for coding. To ensure consistency of coding and identify any discrepancies, intercoder reliability was assessed (Tracy, 2019). The undergraduate research assistants and principal investigator coded approximately 10% of collected posts (60 posts; Lombard et al., 2002) and Krippendorff's (1970) alpha for each message characteristic was calculated with the goal of the reliability alpha achieving .80 or higher (Krippendorff, 1970). The first round of intercoder reliability returned an inadequate reliability alpha for accuracy ($\alpha = .45$), credibility ($\alpha = .35$), empathy ($\alpha = .51$), action ($\alpha = .79$), and respect ($\alpha = .58$). Only timeliness resulted in an acceptable reliability alpha ($\alpha =$

.83). After modifying the CERC message characteristic codebook, re-training the two undergraduate research assistants, and resolving discrepancies through discussion, 60 new units of analysis were used to re-calculate intercoder reliability. The second round of intercoder reliability resulted in acceptable reliability alphas for timeliness ($\alpha = .89$), accuracy ($\alpha = .82$), credibility ($\alpha = .85$), empathy ($\alpha = .93$), action ($\alpha = .95$), and respect ($\alpha = .87$).

Once an acceptable Krippendorff's (1970) reliability alpha was obtained ($\alpha \geq .80$; Krippendorff, 2004), the remaining 540 posts were split between the research assistants and principal investigator for coding. No additional themes emerged. All procedures described above are consistent with prior CERC model-informed X (Twitter) content analyses except for the use of Krippendorff's alpha instead of Cohen's kappa (Meadows et al., 2019). Krippendorff's alpha was chosen to assess intercoder reliability due to its flexibility in allowing more than two coders as well as Cohen's kappa's documented limitations (e.g., Hayes & Krippendorff, 2007; O'Connor & Joffe, 2020).

After coding was complete, data were imported into SPSS Statistics (Version 28) for analysis to address RQ1 and RQ2. First, descriptive statistics were utilized to identify the extent to which timeliness, accuracy, source credibility, empathy, action-orientation, and respect are currently being utilized in law enforcement's missing person posts (RQ1). Following protocol outlined by Pressgrove et al. (2017), RQ2 was addressed by utilizing a linear regression for each message characteristic identified from RQ1 to understand the extent CERC model message characteristics can be used to predict engagement of law enforcement's missing person posts (i.e., likes, shares, comments). Three metrics were used as control variables to account for law enforcement agencies' overall engagement and length of post engagement opportunity, including

(a) law enforcement agencies' number of followers, (b) number of accounts the agencies follow (Pressgrove et al., 2017), and (c) age of post (Solymosi et al., 2021).

Study Two

Participants

A between-subjects experiment with a posttest survey was utilized to address H1-H3. To be eligible to participate in this experiment, individuals were required to be at least 18 years old and an X (Twitter) user (i.e., those who at least rarely passively [i.e., scroll] and actively [i.e., post] use the platform). Accounting for anticipated parallel multiple mediation (H1-H3) using PROCESS (Hayes, 2022), a Monte Carlo power analysis (Schoemann et al., 2017) was conducted for mediation models to determine the number of participants needed for an appropriately powered sample size. Given the relationships between the variables of interest being established in previous literature (e.g., Rogers, 1975; Sellnow et al., 2017), a medium effect size (r = .30; Cohen, 1988) was estimated for all relationships except the direct effect between the independent variables (message characteristics) and dependent variable (behavioral intention) to which a small effect (r = 0.10; Cohen, 1988) was estimated. Using conventional values (α = .05; power = .80), approximately 330 participants were needed to run three parallel multiple mediation models for the three message characteristics of interest. Participants were paid $3.33 for their participation (total cost $1,100).

Participants were 377 X (Twitter) users (i.e., those who at least rarely passively [i.e., scroll] and actively [i.e., post] use the platform) who were over the age 18 and solicited by Cloud Research Prime Panels (see Table 4 for demographics). The sample consisted of 218 females (57.8%), 158 males (41.9%), and 1 participant who did not answer (<1%). Participants' ages ranged from 18 to 85 (M = 55.35, SD = 15.80). Participants' self-described ethnicities are as

follows: 298 (79.05%) White, 53 (14.06%) Black/African American, 20 (5.31%) Hispanic/Latino/Latina, 13 (3.45%) Asian/Asian American, 10 (2.65%) Indigenous, 9 (2.39%) other, 2 (<1.0%) Middle Eastern, and 2 (<1.0%) Pacific Islander (percentages total over 100% as participants could select all that apply). One hundred participants reported their highest level of education was a 4-year degree (26.5%) and 54 reported an income between $20,000 and $29,999 (14.3%) with a majority reporting their employment status as retired (158; 41.9%). Participants reported affiliating as a Republican (139; 36.9%), Democrat (130; 34.5%), Independent (88; 23.3%), no affiliation (15; 4.0%), and other (3; < 1.0%). A majority of participants reported not currently following law enforcement X (Twitter) accounts (285; 75.6%). Thirty-seven participants reported having a friend or family member who has gone missing (9.8%). Additionally, 18 participants report recognizing the missing person(s) featured in the posts they viewed (4.8%).

Procedures

Following Institutional Review Board approval, participants were recruited through CloudResearch's Prime Panels to obtain a diverse research sample from across the United States (Afifi & Cornejo, 2020; Chandler et al., 2019). CloudResearch's Prime Panels is an online participant pool that aggregates dozens of market research platforms to give researchers access to tens of millions of participants. CloudResearch's Prime Panels allows researchers to manage the survey eligibility criteria and attention check questions to ensure quality responses. This participant pool service has been used to successfully recruit for more than 20,000 academic surveys (e.g., Kuang & Wang, 2022; Kuchenbecker & Bevan, 2023; Vendemia et al., 2021) by more than 1,200 universities (CloudResearch, 2023). The full study's recruitment script can be found in Appendix F.

Participants recruited through CloudResearch's Prime Panels were directed to a 14-minute online Qualtrics survey. After providing informed consent, participants were asked their age and whether they use X (Twitter) and if they do, their current usage to assess eligibility [see X (Twitter) Usage in Instrumentation section below]. Participants who are younger than 18 years old or report never using X (Twitter) were excluded from the survey. Qualifying participants were then randomly assigned to one of the six conditions (see Message Creation section below). Participants were instructed that they will be shown an X (Twitter) post from their local police department and to read each part of the post as they cannot return to the post. Participants were informed that they can move on from the message page after 30 seconds (determined through the pilot study described below in Manipulation Check and Pilot Testing section).

After participants viewed the post, they completed a measure of perceived realism of the message (to ensure messages are similarly realistic), as well as manipulation check items for the CERC model message characteristic variables to assess the internal validity of the stimuli. For example, to confirm that empathy is manipulated appropriately, participants in the empathy and control condition groups were asked questions related to their perception of empathy present in the post (see Pilot Testing Instrumentation section below). This manipulation check was replicated on all experimental message characteristic stimuli to ensure internal validity across conditions (described in Manipulation Check and Pilot Testing section below). Although manipulation checks are not necessary to conduct in the full study given message variation testing in the pilot study (O'Keefe, 2003), questions that assess message variations (i.e., manipulation checks) and realism were still included in the full study to ensure validity.

Following the manipulation check questions, participants responded to questions that measured their self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil,

and sharing behavior (intention and actual). Potential control variables were also collected, including participants' negative attitude toward law enforcement and participants' interest in crime information, which were selected using guidelines presented by Bernerth and Aguinis (2016). Specifically, negative attitude toward law enforcement and participants' interest in crime information were chosen as control variables as they have been shown to relate to missing person message characteristics and behavior (Kuchenbecker, 2023).

Participants were then asked demographic questions, including their age, gender, ethnicity, education level, income, employment status, political affiliation, as well as if participants have known a family member or friend who has gone missing, follow law enforcement accounts, and if they recognized the missing person in the post. An open-ended question asking for any final thoughts was included to understand any hesitations participants experienced in the survey, determine if questions were understood, and to offer an opportunity for any feedback (Singer & Couper, 2017). Before exiting the survey, participants were debriefed about the experiment (i.e., told that the information in the missing person post was fictional to protect the identity of the missing individual featured in the post).

Message Creation

Six simulated law enforcement X (Twitter) posts were created as stimulus material. X (Twitter) was chosen after a survey found that 71% of responding law enforcement agencies use X (Twitter) to communicate with the public (International Association of Chiefs of Police, 2017). The results of study one identified that the message characteristics of timeliness, empathy, and respect were most appropriate for further examination in study two (see Message Characteristic Selection for Study Two section below). Five of six conditions contained one X (Twitter) missing person post that each manipulated a CERC model message characteristic (i.e.,

three timely messages, one empathetic message, and one respectful message) while one of six conditions served as a control message (did not include timely, empathetic, or respectful message elements). Consistent with risk and crisis communication literature (e.g., Sellnow & Sellnow, 2014), the missing person featured in all posts was an *actual* missing person selected from the extracted posts from study one. According to study one, the most common type of missing persons posts were of Black (n = 368) males (n = 161), with a mean age of 41.81. Therefore, the missing person featured across all messages was a Black male who was 42 years old. Featuring a Black missing person is also appropriate as there is a disproportionate amount of missing Black individuals (31%; FBI, 2023) compared to the total amount of Black individuals in the United States (13.6%; United States Census Bureau, 2021).

All identifying information from the featured police department is altered and the city name is blurred to avoid preexisting feelings of a particular city. For internal validity, photos are included in all posts which is consistent with current law enforcement posting practices (Tiry et al., 2019; study one). The image of the missing person featured in all conditions was obtained from an extracted post from study one. Likes, shares, and comments (also referred to as replies) are blurred in the posts to exclude any confounding factors (Kuchenbecker, 2023). The messages were simulated to look like X (Twitter) posts using a free online resource that allows individuals to replicate the appearance of X (Twitter) posts (TweetGen.com, 2024). Stimuli can be found in Appendix D. Below I describe how timeliness, empathy, and respect were manipulated for experimental testing. In addition, missing person posts that were coded to include various message characteristic themes in study one were adapted to inform message creation.

Timely. Timeliness was manipulated based on prior experimental social media studies. While investigating the recency of Twitter posts and resulting perceptions of credibility,

Westerman et al. (2014) utilized three-levels of posting recency: fast (one minute ago), medium (one hour ago), and slow (one day ago). Similarly, Spence et al. (2016) manipulated speed of updates using three levels: immediate (one minute ago), recent (one hour ago), and delayed (one day ago). Given that the first few hours of a missing person case are crucial (MCPB, 2021), these three timeliness levels are appropriate in the missing person context. For the purposes of this study, *when the post was published* was compared to *when the missing person was last seen*. Therefore, there were three levels of timely posts: immediate (0-24 hours since last seen), recent (25-48 hours since last seen), and delayed (49+ hours since last seen).

Empathetic. Consistent with prior literature, empathy was manipulated using two levels: presence vs. absence of empathy in a message (e.g., Campbell & Babrow, 2004; Shen, 2010a). Empathy has been aroused in prior literature by highlighting the distress of others and including affect in a realistic message (e.g., Shen, 2010a). For example, in an anti-smoking message arousing empathy, Shen (2011) used a narrative of a 10-year-old girl, Krystell, feeling sadness for her mother who smokes and believes her mother might die. On the other hand, the anti-smoking control message not evoking empathy urged the reader not to smoke to avoid yellow teeth and "the cigarette stench thing" (Shen, 2011, p. 415). Thus, consistent with Shen (2010a, 2011), the missing person empathetic message was manipulated by including (1) distress of the missing person *and* the missing person's loved ones, as inducing empathy of the missing person alone was unsuccessful in prior manipulations (e.g., Kuchenbecker, 2023), and (2) emotions expressed in the message (e.g., "His kids are worried about his well-being"). The missing person's name was used in the empathy condition to humanize the individual and add to the narrative in the message (Shen, 2011). Messages were also based on real missing person

messages collected in study one for the purposes of evoking realism, a requisite for inducing empathy (Shen, 2011).

Respect. There is a lack of prior risk and crisis communication literature experimentally testing respectful messages. However, political communication scholars have a history of investigating respect in messages by experimentally examining incivility of politicians towards their opponents during campaigns and debates. For example, Mölders et al. (2017) manipulated respect by presenting participants with both respectful and disrespectful statements from fictitious politicians directed toward their opponents. The disrespectful condition included politicians attacking their opponent with negative and directed language to harm their credibility (e.g., "You are leading us to perdition;" see Mölders et al., 2017, p. 126). Contrary, the respectful condition focused on rebutting the opponent's arguments (versus attacking) and used fewer negatively and emotionally charged words (e.g., "Our perspective is different" versus "That's all lies;" see Mölders et al., 2017, p. 126). The disrespectful and respectful condition varied significantly on ratings of respect (Mölders et al., 2017).

Respect was manipulated in line with prior political communication experimentation by using two message conditions. However, for consistency in the current study and to better reflect language used in actual missing persons messages (findings from study one), respect was manipulated using the presence and absence of respect in messages. The respect message emphasized emotionally neutral language that is not patronizing, affirmed the value of the audience's feelings and beliefs, and used polite language (e.g., "We respect the members of this community" and "Please spread the word").

Control. The control condition was used as a comparison against the three timeliness conditions, one empathetic message, and one respectful condition. Therefore, the control

condition does not contain elements of time, empathy, or respect. Including a control message in experimental investigations is consistent in prior experimental communication design literature testing message design (e.g., Featherstone & Zhang, 2020; Ivanov et al., 2017; Kuchenbecker & LaBelle, 2023).

Pilot Test Procedure and Participants

Before running the large-scale study described above, a pilot test of message stimuli was conducted. The objective of this pilot test was to ensure that the message characteristics (i.e., timeliness, empathy, and respect) were perceived as intended and the messages were perceived as realistic. A priori analysis to determine an appropriately powered sample size was conducted using G*Power (Faul et al., 2007). Estimating for a medium effect size and accounting for each participant to view two message conditions, 144 participants were sought. Pilot test participants (N = 195) were individuals over the age of 18 (M = 50.50, SD = 17.01) recruited through CloudResearch's Prime Panels. The majority of the sample self-identified as female (n = 118; 60.5%) and White (n = 135; 69.2%). For full demographic information of pilot test participants, see Table 3.

Pilot test participants were randomly assigned to two of six missing person message conditions (see Message Creation section above). Each participant was asked to read two posts from their local police department and answer corresponding questions on perceived message realism as well as manipulation check questions (i.e., timeliness, empathy, respect) to confirm message characteristic validity. Participants then completed demographic questions about their age, gender, ethnicity, education level, income, employment status, and political affiliation. Additionally, they were asked whether they have known a family member or friend who has gone missing, if they follow law enforcement accounts, and if they recognize the missing person

in the post. Two open-ended questions asked for any final thoughts and any confusing elements in the survey (Singer & Couper, 2017). Before exiting the survey, participants were debriefed about the experiment (i.e., told that the information in the missing person post was fictional to protect the identity of the missing individual featured in the post). Pilot test recruitment script can be found in Appendix C. For the full pilot test survey, see Appendix E.

Pilot Test Instrumentation

Perceived Realism. Perceived realism of the missing person messages was assessed using an adapted version of Tian et al.'s (2020) measurement of scenario realism. This 2-item Likert scale was measured from (1) *strongly disagree* to (7) *strongly agree*: "It's possible that I would see a missing person message like this in real life" and "This is a realistic missing person message that a person might see." This adapted scale was utilized successfully in prior experimental research (α = .89; Kuchenbecker & LaBelle, 2023). The mean, standard deviation, and coefficient alpha for the pilot test were as follows: $M = 5.18$, $SD = 1.49$, α = .78.

Timeliness. The items assessing timeliness of missing person posts were created for the purpose of this study. First, participants were asked how long after the individual went missing did the police department post about the missing person. Participants were given response options of "0-24 hours since the missing person was last seen (less than 1 day)," "25-48 hours after the missing person was last seen (1-2 days)," "49+ hours after the missing person was last seen (3+ days)," and "Not mentioned in the post." Accuracy of the timeliness assessment above is discussed below in the Pilot Test Results section.

Because social media users may perceive timeliness of missing person posts differently than the hours outlined above, timeliness was also assessed using one Likert item (1 = *strongly*

disagree, 7 = *strongly agree*) created for the purpose of this study: "The information in this post was timely compared to when the individual was *reported* missing" (M = 4.70, SD = 1.50).

State Empathy. State empathy towards the missing person and their loved ones was measured by adapting Shen's (2010a) State Empathy Scale to the missing person context. The adapted 12-item Likert-type scale measured all three dimensions of state empathy (i.e., affective, cognitive, and associative) by asking participants, "Please think about the missing person and the missing person's loved ones in the post you just viewed and indicate your impressions of the missing person and their loved ones" with response options ranging from (1) *not at all* to (7) *completely* (Shen, 2010b). Sample items include: "I can feel the loved one's emotions" (affective), "I can see the loved one's point-of-view" (cognitive), and "I can identify with the loved ones in the message" (associative). A prior study (Kuchenbecker, 2023) found strong Cronbach's alpha reliability (α = .91) in the missing person context. The mean, standard deviation, and coefficient alpha for the pilot test were as follows: M = 2.91, SD = 1.64, α = .97.

Respect. Respect was assessed using the 4-item Likert-type respect subscale of the Emotional Tone Rating Scale (see Williams & Herman, 2011). Participants were prompted to "Please indicate how well the following adjective represents the X (Twitter) missing person post you just viewed. The missing person message was…" and were given the following adjectives: "polite," "affirming," "respectful," and "patronizing" (reverse coded). Participants rated items on a scale from (1) *not at all* to (7) *completely.* Prior applications of the respect subscale have been reliable (α = .85; Williams & Herman, 2011). The mean, standard deviation, and coefficient alpha for the pilot test were as follows: M = 4.46, SD = 1.21, α = .65.

Pilot Test Results

The main purpose of the pilot test was to ensure messages were perceived as realistic (i.e., above the realism scale's midpoint and equivalent across messages) and that the message characteristics of timeliness, empathy, and respect were perceived as intended. An Analysis of Variance (ANOVA) indicated that there were no significant differences in perceptions of realism across conditions, $F(5, 324) = .09$, $p = .995$, with means above the mid-point for the immediate (0-24 hours since last seen; $M = 5.10$, $SD = 1.43$, $n = 61$), recent (25-48 hours since last seen; $M = 5.16$, $SD = 1.70$, $n = 57$), delayed (9+ hours since last seen; $M = 5.28$, $SD = 1.39$, $n = 50$), empathy ($M = 5.12$, $SD = 1.50$, $n = 60$), respect ($M = 5.22$, $SD = 1.51$, $n = 52$), and control ($M = 5.19$, $SD = 1.46$, $n = 51$) conditions. Therefore, no alterations to perceived realism were made for the full study.

A chi-square test was conducted to identify whether participants in the three timeliness conditions and one control condition (immediate [0-24 hours since last seen], recent [25-48 hours since last seen], delayed [49+ hours since last seen], and no mention of time) selected the correct timeliness option (i.e., whether the missing person was last seen in the past 0-24 hours, 25-48 hours, 49+ hours, or there was no mention of when the missing person was last seen). A chi-square test was appropriate as it allows for the comparison of actual frequencies of the observed categorical timeliness variables (e.g., Larntz, 1978). The relationship between the timeliness conditions and the timeliness manipulation check response options was significant, χ^2 (9, $N = 219$) = 199.33, $p < .001$. The observed frequencies revealed that among individuals in the immediate (0-24 hours since last seen) condition, 72.1% (vs. 27.9%) indicated that the missing person was last seen between 0-24 hours ago. Similarly, the observed frequencies revealed that among individuals in the recent (25-48 hours since last seen) condition, 71.9% (vs. 28.1%)

indicated that the missing person was last seen between 25-48 hours ago. Additionally, the observed frequencies revealed that among individuals in the delayed (49+ hours since last seen) condition, 42% (vs. 58%) indicated that the missing person was last seen between 49+ hours ago. Finally, the observed frequencies revealed that among individuals in the no mention of time condition, 49% (vs. 51%) indicated that there was no mention of time in the message. Although the immediate and recent timeliness conditions were perceived as intended, the delayed and no mention of time were not. Therefore, in the full study, the timeliness manipulation check question was clarified and made more consistent with the immediate and recent timeliness condition answer options (see Appendix G for full study survey).

Additionally, an ANOVA was conducted to identify if the perceptions of timeliness based on the Likert item were accurate. Results indicated that there were no differences in perceptions of timeliness across conditions, $F(3, 219) = .97$, $p = .407$, with means above the mid-point for the immediate (0-24 hours since last seen; $M = 4.80$, $SD = .20$), recent (25-48 hours since last seen; $M = 4.72$, $SD = .21$), delayed (49+ hours since last seen; $M = 4.56$, $SD = .22$), and no mention of time ($M = 4.33$, $SD = .22$) conditions. Therefore, accuracy of the timeliness assessment asking participants how long after the individual went missing did the police department post about the missing person was used as a more valid assessment and no further changes of the timeliness conditions were made for the full study.

Next, an independent samples *t*-test was conducted to determine if empathy was perceived as intended. Results indicated that the individuals in the empathy condition reported significantly higher levels of state empathy ($M = 3.27$, $SD = 1.77$, $n = 59$) than the control condition that contained no empathy ($M = 2.64$, $SD = 1.62$, $n = 49$), $F(1, 106) = 1.91$, $p = .029$. Therefore, no alterations to the empathy condition were made for the full study.

Lastly, an independent samples *t*-test was conducted to determine if respect was perceived as intended. Results indicated that the respect condition ($M = 4.59$, $SD = 1.24$, $n = 52$) was not significantly different from the control condition ($M = 4.45$, $SD = 1.19$, $n = 51$), $F(1, 101) = .61$, $p = .273$. Therefore, for the full study, the respect condition was bolstered using Jackson et al.'s (2001) conceptualization of respect being an attitude that communicates to another that their feelings and behaviors are valued. Specifically, the revised respect message included that the police department "greatly value" the community's help in locating the missing person in the post. Additionally, affirmation's role in the perception of respect (see Williams & Herman, 2011) was fortified by including the phrase, "Your share could make a difference" which was a direct quote from an X (Twitter) post extracted in study one. The revised respect condition can be found in Figure 3.

Full Study Instrumentation

The full study's instrumentation listed below is in addition to the message realism and selected manipulation checks (i.e., timeliness, empathy, respect) from the pilot study (see Pilot Study Instrumentation section). The full study mean, standard deviation, and coefficient alpha of message realism ($M = 5.62$, $SD = 1.29$, $\alpha = .82$), timeliness (Likert item; $M = 4.97$, $SD = 1.37$), and empathy ($M = 3.16$, $SD = 1.70$, $\alpha = .97$) were similar to the pilot study instrumentation outcomes (message realism, $M = 5.18$, $SD = 1.49$, $\alpha = .78$; timeliness Likert item, $M = 4.70$, $SD = 1.50$; empathy, $M = 2.91$, $SD = 1.64$, $\alpha = .97$). However, the coefficient alpha for the full study's respect scale ($M = 5.01$, $SD = 1.15$, $\alpha = .56$) fell below an acceptable threshold ($< .70$; Lovejoy et al., 2016) which was lower than the pilot study ($M = 4.46$, $SD = 1.21$, $\alpha = .65$). Therefore, following a reassessment of the respect scale's language, the reverse coded item of "patronizing" was removed due to issues of clarity. After dropping the "patronizing" item, the

resulting mean, standard deviation, and coefficient alpha for the full study respect scale were as follows: $M = 4.73$, $SD = 1.56$, $\alpha = .91$.

Self-Efficacy. Self-efficacy was assessed by adapting Frisby et al.'s (2013) efficacy scale, which was used to measure self-efficacy during a foodborne illness outbreak ($\alpha = .87$). The 7-item Likert-type scale asked participants to share their beliefs about how to act during a crisis involving a missing person ranging from (1) *completely uncertain* to (7) *completely certain*. Sample items include: "I believe I can do things to help this missing person," and "I know I can take action to help this missing person." The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 4.15$, $SD = 1.62$, $\alpha = .96$.

Uncertainty. Uncertainty was assessed by adapting prior measurements of uncertainty used in the contexts of COVID-19 (Huang & Yang, 2020) and risks of eating contaminated fish (Fung et al., 2018). The adapted scale asked participants from (1) *completely uncertain* to (7) *completely certain*: "Please indicate your degree of certainty when thinking about:" Sample items included: "The danger the missing person is in," and "When the missing person was last seen." The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 5.20$, $SD = 1.14$, $\alpha = .86$.

Emotional Turmoil. Emotional turmoil was assessed by adapting Lovibond and Lovibond's (1995) Depression Anxiety Stress Scale-21 (DASS-21). Prior studies have utilized the DASS-21 to assess general distress ($\alpha = .85$; Barberis et al., 2023) and emotional distress ($\alpha = .92$; Salazar-Fernández et al., 2021). Two items from each subscale was used: depression ("I felt downhearted and blue after reading the message" and "I felt sad and depressed after reading the message"), anxiety ("I was worried about the missing person in the message" and "I felt scared for the missing person when reading message"), and stress ("I felt that I was using a lot of

nervous energy when reading the message" and "I found myself getting impatient when reading the message"). Response options ranged from (1) *strongly disagree* to (7) *strongly agree*. The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 4.06$, $SD = 1.46$, $\alpha = .91$.

Knowledge of Risks and Resources. Frisby and Martin's (2010) Cognitive Learning Measure was adapted to assess participants' knowledge of risks and resources. Participants were asked to respond to a 10-item Likert scale ranging from (1) *strongly disagree* to (7) *strongly agree*. Sample items included: "I have learned a great deal from this message about how to help when a member of the community goes missing," "I have learned more about how to help when a member of the community goes missing from other messages," and "My knowledge about how to help when a member of the community goes missing has increased since before reading the message." This adaptation has been successful in prior experiments within the crisis communication context ($\alpha = .78$; Kuchenbecker & LaBelle, 2023). The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 3.97$, $SD = 1.02$, $\alpha = .80$.

Sharing Behavior. Prosocial sharing behavior was first assessed via intention by adapting Fishbein and Ajzen's (2010) 3-item, 5-point Likert Behavioral Intention Scale including: "I intend to share a missing person post to my X (Twitter) feed in the near future," "Sharing a missing person post on my X (Twitter) feed is something I plan to do soon," and "I would be willing to share a missing person post to my X (Twitter) feed." Participants responded from (1) *strongly disagree* to (7) *strongly agree.* The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 4.75$, $SD = 1.72$, $\alpha = .92$.

However, given concerns about the gap between behavioral intention and actual behavior (e.g., Sheeran & Webb, 2016), actual behavior was assessed as well. Consistent with Reynolds-

Tylus et al.'s (2021) measurement of information seeking in the context of organ donation, actual behavior was measured using a 1-item dichotomous question: "At the end of the survey, would you like to be directed to X (Twitter) so you can share the missing person post you viewed on your X (Twitter) feed?" Participants could select (1) "yes" (27.1%) or (0) "no" (72.9%).

Negative Attitude Toward Law Enforcement. Negative attitude toward law enforcement was measured by adapting McCroskey's (2006) Generalized Attitude Measure, a 6-item, 5-point semantic differential scale and asked participants to "Please indicate your general beliefs about law enforcement. There are no right or wrong answers. Police officers are…" with the anchors of "beneficial/harmful," "good/bad," "right/wrong," "fair/unfair," "positive/negative," and "wise/foolish" ($\alpha = .94$; Kuchenbecker, 2023). The mean, standard deviation, and coefficient alpha for the full study were as follows: $M = 2.72$, $SD = 1.53$, $\alpha = .96$.

Interest in News and Information about Crime. Interest in news and information about crime was measured by adapting Rotgans's (2015) Individual Interest Questionnaire, a 4-item, 7-point Likert scale ranging from (1) *strongly disagree* to (7) *strongly agree*. Based on the lack of relevance of some items in the original scale, four items from the scale were utilized: "I am interested in news and information about crime," "I look forward to reading or watching news and information about crime because I enjoy it a lot," "I read or watch a lot of news and information about crime," and "When I am reading or watching news and information about crime, I am fully focused and forget everything around me" ($\alpha = .85$; Kuchenbecker, 2023). The mean, standard deviation, and coefficient alpha for the full study test were as follows: $M = 4.48$, $SD = 1.43$, $\alpha = .87$.

X (Twitter) Usage. X (Twitter) usage was measured using Chen et al.'s (2022) adaptation of Gerson et al. (2017) and Chen et al.'s (2019) scales assessing active and passive

social media usage. Active social media use was assessed through a 5-item Likert-type scale asking "How frequently do you perform the following activities when you are on X (Twitter)? [Note: Choosing "Very Frequently" means that about 100% of the time that you log on to X (Twitter), you perform that activity]." Items included: "Posting status updates," "Posting photos," "Chatting or interacting with others," "Liking others' posts, pictures, etc.," and "Sharing others' statuses, pictures, etc." (α = .91; Kuchenbecker, 2023). Response options ranged from (1) *never* (0%) to (7) *always* (100%). The mean, standard deviation, and coefficient alpha for the full study test were as follows: $M = 2.72$, $SD = 1.97$, α = .89.

Passive social media use was assessed through a 2-item Likert-type scale with the same instructions and response options as the active social media use scale. Items included: "Browsing others' statuses/posts passively (without liking or commenting on anything)" and "Browsing others' pictures or videos passively (without liking or commenting on anything)" (α = .86; Kuchenbecker, 2023). The mean, standard deviation, and coefficient alpha for the full study test were as follows: $M = 3.25$, $SD = 1.03$, α = .88.

Data Analyses

Manipulation Check. All analyses were conducted using SPSS Statistics (Version 29). Prior to hypothesis testing, messages were tested to ensure they were perceived as realistic (i.e., above the realism scale's midpoint and equivalent across messages) and that the message characteristics of timeliness, empathy, and respect were perceived as intended. An analysis of variance (ANOVA) indicated that there were no differences in perceptions of realism across conditions, $F(5, 377) = .23$, $p = .948$, with means above the mid-point for the immediate (0-24 hours since last seen; $M = 5.67$, $SD = 1.16$, $n = 65$), recent (25-48 hours since last seen; $M = 5.63$, $SD = 1.35$, $n = 63$), delayed (9+ hours since last seen; $M = 5.70$, $SD = 1.21$, $n = 62$),

empathy (M = 5.53, SD = 1.27, n = 61), respect (M = 5.67, SD = 1.41, n = 63), and control (M = 5.52, SD = 1.34, n = 63) conditions.

A chi-square test was conducted to identify whether participants in the three timeliness conditions and one control condition selected the correct timeliness option (i.e., whether the missing person was last seen in the past 0-24 hours, 25-48 hours, 49+ hours, or there was no mention of when the missing person was last seen). The relationship between the timeliness conditions and the timeliness manipulation check response options was significant, χ^2 (9, N = 253) = 154.50, $p < .001$. The observed frequencies revealed that among individuals in the immediate (0-24 hours since last seen) condition, 61.5% (vs. 38.5%) indicated that the missing person was last seen between 0-24 hours ago. Similarly, the observed frequencies revealed that among individuals in the recent (25-48 hours since last seen) condition, 73% (vs. 27%) indicated that the missing person was last seen between 25-48 hours ago. Additionally, the observed frequencies revealed that among individuals in the delayed (49+ hours since last seen) condition, 50% (vs. 50%) indicated that the missing person was last seen between 25-48 hours ago. Finally, the observed frequencies revealed that among individuals in the no mention of time condition, 39.7% (vs. 60.3%) indicated that there was no mention of time in the message. Although the immediate and recent timeliness conditions were perceived as intended, the delayed and no mention of time conditions were not. However, given the clear message variation of the timeliness conditions (i.e., indicating when the missing person was last seen in each message), assessing participants' perceptions is not necessary to continue with data analysis (O'Keefe, 2003). Therefore, data analysis using the four timeliness conditions continued.

Next, an independent samples t-test was conducted to determine if empathy was perceived as intended. Results indicated that the empathy condition (M = 3.16, SD = 1.34, n =

61) was not significantly different in ratings of state empathy from the control condition containing no empathy (M = 3.02, SD = 1.64, n = 63), $F(1, 122) = .53$, $p = .297$. The findings from the empathy manipulations in the full study are contrary to the significant group differences found in the pilot study (pilot empathy condition, M = 3.27, SD = 1.77, n = 59; pilot control, M = 2.64, SD = 1.62, n = 49; $F(1, 106) = 1.91$, $p = .029$).

Lastly, an independent samples t-test was conducted to determine if respect was perceived as intended. Although group means trended in the correct direction, results indicated that the respect condition (M = 4.82, SD = 1.64, n = 63) was not significantly different from the control condition (M = 4.61, SD = 1.44, n = 63), $F(1, 124) = .75$, $p = .228$. Despite the modifications made following the pilot test, the findings from the respect manipulations in the full study are similar to the group differences found in the pilot study (pilot respect condition, M = 4.59, SD = 1.24, n = 52; pilot control, M = 4.45, SD = 1.19, n = 51; $F(1, 101) = .61$, $p = .273$).

Given that the manipulations for empathy and respect were not perceived as intended, the approach of data analysis for these two independent variables must shift. The initial purpose of study two was to experimentally test the impact of timely, empathetic, and respectful messages on audience outcomes (i.e., self-efficacy, knowledge, uncertainty, and emotional turmoil), as well as the subsequent impact of these audience outcomes on protective behaviors (e.g., sharing missing person posts). However, with the empathy and respect manipulations failing, empathy and respect are hereout investigated in terms of the psychological states of the two variables (i.e., continuous measurements of empathy and respect versus empathetic and respectful messages; O'Keefe, 2003) and how those states impact the outcomes of interest (i.e., self-efficacy, knowledge, uncertainty, emotional turmoil, behavior). Given the unpredictability and difficulty of experimental messages, it is not uncommon for researchers to adapt to their failed

manipulations (e.g., Richard et al., 2017). Although conclusions about the language used in empathetic and respectful messages cannot be made, examining the psychological states of empathy and respect will still be suitable to investigate the relationships outlined in the revised CERC model (Miller et al., 2021; O'Keefe, 2003). Therefore, because the psychological state of empathy and respect are investigated, the continuous measures initially used for manipulation checks in the pilot and full study will be used as independent variables in the models.

Hypothesis Testing. To test H1-H3, three parallel multiple mediation analyses were conducted by using Model 4 (four mediators) from the PROCESS macro in SPSS Statistics (Version 29; Hayes, 2022). The parallel multiple mediation conceptual model can be found in Figure 2. This analysis technique was selected as it allows for the examination of the direct and indirect effects of a message characteristic on prosocial sharing behavior via multiple audience outcome mediators (i.e., self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil) simultaneously. Given that timeliness contains more than two levels (i.e., immediate, recent, delayed, and no mention), guidelines outlined by Hayes and Preacher (2014) were followed for mediation models with multicategorical independent variables (i.e., indicator coding). Given the various performances of timeliness in study one and the CERC model's emphasis on timely messages (Reynolds & Seeger, 2005), indicator coding was selected to explicitly compare the non-timely/control messages with the timely message instead of other coding techniques (e.g., sequential coding with no mention of time as reference group; Hayes & Preacher, 2014; Hayes & Montoya, 2017). Additionally, given that a Pearson correlation of variables of interest show empathy and respect are significantly and positively related ($r = .40$, $p < .001$), respect is included as an additional covariate in the empathy parallel mediation analysis

and empathy is included as an additional covariate in the respect parallel mediation analysis. Pearson correlation results can be found in Table 5.

Analyses were conducted utilizing 95% percentile bootstrap confidence intervals from 5,000 resamples, and confidence intervals not containing zero indicated mediation (Hayes, 2022). Model summaries can be found in Tables 6 and 7. Due to PROCESS macro only accepting continuous measures as outcome variables (Hayes, 2022), logistic regression was used to predict actual behavior classifications using audience outcomes as predictors.

Summary

This chapter outlined the procedures, data collection methods, and analyses for both study one and study two. In study one, missing person posts from 58 law enforcement agencies who are within states with high rates of missing person reports, serve a large population, and are active on X (Twitter) were scraped using the X (Twitter) API (v2 basic access). After eligibility exclusion, 600 posts were coded by undergraduate research assistants and the principal investigator to identify the extent that CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) are currently being utilized in law enforcement's missing person messages on social media (RQ1). Investigator triangulation, the phronetic iterative approach, and intercoder reliability were used to ensure valid and reliable results. A linear regression was utilized to understand the extent to which CERC model message characteristics from RQ1 can be used to predict engagement of law enforcement's missing person posts (i.e., likes, shares, comments; RQ2). Linear regression results indicated that timeliness, empathy, and respect can predict engagement and those characteristics were experimentally tested in study two. Specifically, study two recruited individuals at least 18 years old who use X (Twitter) to participate in a between-subjects posttest survey that randomly

exposed them to one of six missing person message conditions (i.e., three timeliness messages, one empathy message, one respect message, one control message) and, following this message exposure, measured self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil (H1), and sharing behavior (H2, intention and actual). Parallel mediation analyses using PROCESS (Hayes, 2022) were conducted to test the direct relationships specified in H1 and H2 (logistic regression used to test actual behavior) as well as the indirect relationship between CERC model message characteristics and the behavioral intention to share a missing person post through self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil (H3).

Chapter III: Results

Research Question One

RQ1 addressed the extent to which law enforcement currently use CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) in missing person posts on social media. Descriptive statistics indicated that all CERC message characteristics were present in the sample of law enforcement messages with varying frequencies. *Source credibility* was the most frequent message characteristic found within the sample (92.8%; $n = 557$) followed by *action-orientation* (81.5%; $n = 489$), *timeliness* (73.1%; $n = 439$; sum of the sample that contained the time of the missing person's last sighting), *respect (*57.5%; $n = 345$), *state empathy* (23%; $n = 138$), and *accuracy* (11.2%; $n = 67$).

In regard to *timeliness*, immediate messages (i.e., posted between 0-24 hours after the missing person was last seen) were most represented in the sample (35.8%; $n = 215$) followed by messages that made no mention of when the missing person was last seen (26.8%; $n = 161$), delayed messages (i.e., posted 49+ hours after the missing person was last seen; 25.8%, $n = 155$), and recent messages (i.e., posted between 25-48 hours after the missing person was last seen; 11.5%, $n = 69$).

Research Question Two

RQ2 addressed the extent CERC model message characteristics utilized in law enforcement's missing person posts on social media differ in engagement (i.e., shares, replies, and likes). Three multiple regression analyses (to address each of the three engagement outcomes) were run to predict the number of (a) *retweets*, (b) *replies*, and (c) *likes* from the presence of each of the six CERC model message characteristics (i.e., timeliness, accuracy, source credibility, state empathy, action-orientation, respect; 1 = message characteristic present,

0 = message characteristic absent), as well as the covariates of age of the post (in days), the number of accounts the law enforcement agency follows, and the number of accounts following the law enforcement agency. The multiple regressions predicting the number of *retweets* (F[11, 587] = 3.12, $p < .001$, $R^2 = .06$), *replies* (F[11, 587] = 4.45, $p < .001$, $R^2 = .08$), and *likes* (F[11, 587] = 5.42, $p < .001$, $R^2 = .09$) all resulted in significant overall models. The individual ability of the six message characteristics to predict each of these engagement metrics are reported below.

Timeliness

Given the four-level categorical independent variable of timeliness (i.e., 0-24 hours, 25-48 hours, 49+ hours, and no mention of time), timeliness was dummy coded for the multiple regression analysis with no mention of time used as the reference group (Aiken & West, 1991). The multiple regression predicting the number of *retweets* revealed that compared to no mention of time, messages posted between 25-48 hours (β = .11, $t = 2.40$, $p = .017$) and 49+ hours (β = .15, $t = 2.85$, $p = .005$) after the individual was reported missing significantly predicted the number of retweets. However, compared to no mention of time, messages posted between 0-24 hours after the individual was reported missing (β = .04, $t = .73$, $p = .469$) was not a significant predictor. The multiple regression predicting the number of *replies* revealed that compared to no mention of time, messages posted between 0-24 hours (β = .02, $t = .46$, $p = .647$), 25-48 hours (β = .00, $t = -.09$, $p = .931$), and 49+ hours (β = .07, $t = 1.43$, $p = 153$) after the individual was reported missing were not significant predictors. Finally, the multiple regression predicting the number of *likes* revealed that, compared to no mention of time, messages posted between 0-24 hours (β = .02, $t = .46$, $p = .649$), 25-48 hours (β = .05, $t = 1.15$, $p = .252$), and 49+ hours (β = .10, $t = 1.88$, $p = .060$) after the individual was reported missing were not significant predictors.

Accuracy

The multiple regression predicting the number of *retweets* revealed that the presence of accuracy (β = .00, t = .04, p = .966) in messages was not a significant predictor. Similarly, the presence of accuracy was not a significant predictor of *replies* (β = -.01, t = -.25, p = .803) or *likes* (β = -.01, t = -.30, p = .764).

Source Credibility

The multiple regression predicting the number of *retweets* revealed that the presence of source credibility (β = .07, t = 1.46, p = .146) in messages was not a significant predictor. Similarly, the presence of source credibility was not a significant predictor of *replies* (β = .02, t = .53, p = .594) or *likes* (β = .08, t = 1.83, p = .067).

Empathy

The multiple regression analyses revealed that the presence of empathy was a significant, negative predictor of *retweets* (β = -.12, t = -2.63, p = .009) and *likes* (β = -.14, t = -3.13, p = .002). Therefore, the presence of empathy resulted in a decrease in *retweets* and *likes*. However, the multiple regression predicting the number of *replies* revealed that the presence of empathy (β = -.05, t = -1.17, p = .242) was not a significant predictor.

Action-Orientation

The multiple regression predicting the number of *retweets* revealed that the presence of action-orientation (β = .04, t = .95, p = .345) in messages was not a significant predictor. Similarly, the presence of action-orientation was not a significant predictor of *replies* (β = .00, t = .10, p = .923) or *likes* (β = .02, t = .53, p = .600).

Respect

The multiple regression analyses revealed that the presence of respect was a significant, negative predictor of *retweets* (β = -.10, t = -2.07, p = .039) and *replies* (β = -.09, t = -1.97, p = .049). Therefore, the presence of respect resulted in a decrease in *retweets* and *replies*. However, the presence of respect was not a significant predictor of the number of *likes* (β = -.05, t = -1.17, p = .243).

Covariates

Age of the post (in days), the number of accounts the law enforcement agency follows, and the number of accounts following the law enforcement agency were included in all three regression analyses as covariates. Results revealed that the number of accounts following the law enforcement agency significantly predicted the number of *replies* (β = .28, t = 6.62, p < .001) and *likes* (β = .27, t = 6.43, p < .001). Therefore, an increased number of accounts following the law enforcement agency resulted in an increase in replies and likes. However, the number of accounts following the law enforcement agency did not significantly predict the number of *retweets* (β = .07, t = 1.62, p = .106). Age of post did not significantly predict *retweets* (β = .00, t = -.03, p = .977), *replies* (β = .04, t = .91, p = .364), or *likes* (β = .04, t = 1.00, p = .317). Finally, the number of accounts the law enforcement agency follow did not significantly predict *retweets* (β = .03, t = .81, p = .417), *replies* (β = -.02, t = -.57, p = .567), or *likes* (β = .02, t = .43, p = .671).

Message Characteristic Selection for Study Two

Although replies (also referred to as comments) and likes are insightful measurements of engagement, information spread in the form of retweets is the most valuable dependent variable in this study given that the more individuals who spread important identifying information about

a missing person, the greater likelihood that someone who has seen the missing person receives the information and can report the sighting to law enforcement. Therefore, when selecting which CERC message characteristics to experimentally test in study two, the characteristics shown to predict retweets were prioritized. Selecting retweets as an outcome is consistent with prior social media content analysis literature (Solymosi et al., 2021). Therefore, timeliness, empathy, and respect were selected for experimental examination in study two.

As mentioned above, timeliness was selected as results of a multiple regression analysis indicated that compared to no mention of time, messages posted between 25-48 hours and 49+ hours after the individual was reported missing significantly predicted the number of retweets. In addition to the results from RQ2 and prior crisis communication literature stating the importance of timely messages (e.g., Coombs & Holladay, 2002; Lundgren & McMakin, 2018; Reynolds & Seeger, 2005), including the time that the missing person was last seen in messages may also provide practical value for social media users by explaining more about the missing person's circumstances, which promotes message spread (Berger, 2013). Additionally, timeliness is an appropriate message characteristic to explore further as missing persons cases move quickly (MCPB, 2021) with many missing persons' outcomes already occurring before law enforcement's involvement (e.g., found safe, natural death, suicide; Tarling & Burrows, 2004). Therefore, four levels of timeliness (i.e., 0-24 hours, 25-48 hours, 49+ hours, and no mention of time) were explored in study two.

Empathy was also selected for further examination in study two. Although multiple regression analyses revealed that the presence of state empathy significantly predicted the number of retweets ($\beta = -.12$, $t = -2.63$, $p = .009$) and likes ($\beta = -.14$, $t = -3.13$, $p = .002$), the relationship was in the negative direction. Contrary to the findings from RQ2, prior literature

indicated that persuasive messages inducing empathy have been shown to strengthen the persuasive impact of the communication (e.g., Shen, 2010a). Therefore, the significant (and unexpected) negative relationship between the presence of state empathy and retweets/likes makes empathy a compelling characteristic to explore further as it deviates from the CERC model (Reynolds & Seeger, 2005).

Finally, respect was chosen for further examination in study two as multiple regression analyses indicated that the presence of respect significantly predicted the number of retweets ($\beta = -.10$, $t = -2.07$, $p = .039$) and likes ($\beta = -.09$, $t = -1.97$, $p = .049$). Although respectful messages have been shown to be impactful in health and crisis contexts (e.g., Reynolds & Seeger, 2005; Williams & Herman, 2011), similar to empathy, results from RQ2 unexpectedly indicated a significant negative relationship between the presence of respect and retweets/likes. Therefore, the respectful message characteristic's deviation from the CEC model (Reynolds & Seeger, 2005) warrants further investigation in the missing person context.

Hypothesis One

H1 predicted that CERC model message characteristics (i.e., timeliness, empathy, and respect) are positively related to (a) self-efficacy and (b) knowledge of risks and resources, and negatively related to (c) uncertainty and (d) emotional turmoil.

Timeliness

To include the multicategorical independent variable of timeliness into the multiple parallel mediation analysis, indicator coding was used as outlined by Hayes and Preacher (2014). The immediate message (i.e., posted between 0-24 hours after the missing person was last seen) was used as the reference group as the CERC model prioritizes timely messages (Reynolds & Seeger, 2005). Thus, effects reported refer to mean differences between the immediate message

condition (i.e., reference group) and the recent message condition (i.e., posted between 25-48 hours after the missing person was last seen; x1), delayed message condition (i.e., posted 49+ hours after the missing person was last seen; x2), and no mention of time condition (x3).

Self-Efficacy. H1a (timeliness) predicted that a timely message (i.e., immediate, 0-24 hours since last seen) is positively related to self-efficacy. Controlling for the covariates (i.e., negative attitude toward law enforcement and interest in news and information about crime), results indicated that individuals who viewed a recent missing person message (i.e., 25-48 hours since last seen), relative to those who viewed an immediate missing person message (i.e., 0-24 hours since last seen; x1), reported a significant decrease in self-efficacy (point estimate = -.77 95% CI[-1.31, -.22]). Similarly, participants exposed to a message with no mention of time, relative to those who were exposed to an immediate missing person message (i.e., 0-24 hours since last seen; x3), reported a significant decrease in self-efficacy (point estimate = -.58, 95% CI [-1.13, -.04]). However, there was no relationship between participants who viewed a delayed missing person message (i.e., 49+ hours since last seen), relative to those who viewed an immediate missing person message (i.e., 0-24 hours since last seen; x2), and self-efficacy (point estimate = -.39, 95% CI [-.94, .16]). Thus, H1a was partially supported in that an immediate missing person message resulted in greater self-efficacy than a recent missing person message as well as a missing person message with no mention of time.

Interest in news and information about crime emerged as a significant covariate in the model (point estimate = .34, 95% CI [.21, .48]). In other words, greater interest in news and information about crime was related to greater self-efficacy. Negative attitude towards law enforcement was not a significant covariate (point estimate = -.002, 95% CI [-.14, .13]).

Knowledge of Risks and Resources. H1b (timeliness) predicted that a timely message (i.e., immediate, 0-24 hours since last seen) is positively related to knowledge of risks and resources. Results when controlling for the covariates indicated that individuals who viewed a recent missing person message (i.e., 25-48 hours since last seen), relative to those who viewed an immediate missing person message (i.e., 0-24 hours since last seen; x1), did not significantly differ in their knowledge of risks and resources (point estimate = .14, 95% CI [-.11, .40]). Similarly, participants who viewed a delayed missing person message (i.e., 49+ hours since last seen; x2, point estimate = -.09, 95% CI [-.34, .17]) as well as participants who viewed a message with no mention of time (x3, point estimate = -.07, 95% CI [-.33, .19]) did not significantly differ in knowledge of risks and resources from those who viewed an immediate missing person message. Thus, H1b (timeliness) was not supported. Neither negative attitude toward law enforcement (point estimate = -.02, 95% CI [-.08, .05]), nor interest in news and information about crime (point estimate = .06, 95% CI [-.01, .12]) were significant contributors.

Uncertainty. H1c (timeliness) predicted that a timely message (i.e., immediate, 0-24 hours since last seen) is negatively related to uncertainty. Results when controlling for the covariates indicated that individuals who viewed a message with no mention of time, relative to those who viewed an immediate missing person message (i.e., 0-24 hours since last seen; x3) reported a significant decrease in uncertainty (point estimate = -.44, 95% CI [-.78, -.10]). However, participants who viewed a recent missing person message (i.e., 25-48 hours since last seen, x1) or a delayed missing person message (i.e., 49+ hours since last seen, x2) did not significantly differ in uncertainty from those who viewed an immediate missing person message (x1, point estimate = -.02, 95% CI [-.36, .32]; x2, point estimate = -.05, 95% CI [-.38, .29]). Thus, H1c (timeliness) was not supported; in addition to the nonsignificant findings, individuals

who viewed a message with no mention of time reported reduced levels of uncertainty relative to those who viewed an immediate missing person message, which was contrary to the relationship hypothesized. Neither negative attitude toward law enforcement (point estimate = -.05, 95% CI [-.13, .03]), nor interest in news and information about crime (point estimate = .06, 95% CI [-.03, .14]) were significant contributors.

Emotional Turmoil. H1d (timeliness) predicted that a timely message (i.e., immediate, 0-24 hours since last seen) is negatively related to emotional turmoil. Controlling for the covariates, results indicated that individuals who viewed a recent missing person message (i.e., 25-48 hours since last seen), relative to those who viewed an immediate missing person message (i.e., 0-24 hours since last seen; x1), did not significantly differ in emotional turmoil (point estimate = .04, 95% CI [-.43, .51]). Similarly, participants who viewed a delayed missing person message (i.e., 49+ hours since last seen, x2) or a message with no mention of time (x3) did not significantly differ in emotional turmoil (x2, point estimate = -.26, 95% CI [-.73, .21]; x3, point estimate = -.16, 95% CI [-.63, .32]) from those who were exposed to an immediate missing person message (i.e., 0-24 hours since last seen). Thus, H1d was not supported.

Interest in news and information about crime was a significant covariate in the model (point estimate = .22, 95% CI [.10, .34]), such that greater interest in news and information about crime was related to greater emotional turmoil. However, negative attitude towards law enforcement was not found as a significant covariate (point estimate = .05, 95% CI [-.07, .17).

Empathy

Self-Efficacy. H1a (empathy) predicted that empathy is positively related to self-efficacy. Controlling for the covariates (i.e., negative attitude toward law enforcement, interest in news and information about crime, respect), H1a was supported (point estimate = .41, 95% CI [.32,

.50]) such that greater perceptions of empathy were associated with greater self-efficacy. Significant covariates in the model included interest in news and information about crime (point estimate = .18, 95% CI [.08, .28]) and respect (point estimate = .11, 95% CI [.01, .21]) such that greater interest in news and information about crime as well as greater perceptions of respect were related to greater self-efficacy. Negative attitude towards law enforcement was not a significant covariate (point estimate = .01, 95% CI [-.08, .10]).

Knowledge of Risk and Resources. H1b (empathy) predicted that empathy is positively related to knowledge of risks and resources. Controlling for the covariates, H1b was supported (point estimate = .14, 95% CI [.08, .21]) such that increased empathy was associated with increased knowledge of risks and resources. However, none of the covariates were significant contributors to the model (i.e., negative attitude toward law enforcement, point estimate = .02, 95% CI [-.03, .07]; interest in news and information about crime, point estimate = .05, 95% CI [-.01, .11], respect, point estimate = -.02, 95% CI [-.07, .04]).

Uncertainty. H1c (empathy) predicted that empathy is negatively related to uncertainty. Controlling for the covariates, H1c (empathy) was not supported (point estimate = .04, 95% CI [-.03, .11]) such that empathy was not associated with uncertainty. Respect emerged as a significant covariate in the model, positively influencing uncertainty (point estimate = .08, 95% CI [.01, .15]). However, negative attitude towards law enforcement (point estimate = -.03, 95% CI [-.09, .03]) and interest in news and information about crime (point estimate = .01, 95% CI [-.06, .08]) were not significant covariates.

Emotional Turmoil. H1d (empathy) predicted that empathy is negatively related to emotional turmoil. Controlling for the covariates, H1d was not supported (point estimate = .50, 95% CI [.41, .58]) as empathy was positively related to emotional turmoil. Respect emerged as a

significant covariate in the model (point estimate = -.13, 95% CI [-.21, -.05]), in that greater perceptions of respect were associated with lower emotional turmoil. Negative attitude towards law enforcement (point estimate = .00, 95% CI [-.07, .07]) and interest in news and information about crime (point estimate = .08, 95% CI [-.005, .17]) were not significant covariates.

Respect

Self-Efficacy. H1a (respect) predicted that respect is positively related to self-efficacy. Controlling for the covariates (i.e., negative attitude toward law enforcement, interest in news and information about crime, empathy), H1a was supported (point estimate = .11, 95% CI [.01, .21]) such that greater perceptions of respect was associated with increased self-efficacy. Interest in news and information about crime (point estimate = .18, 95% CI [.08, .28]) and empathy (point estimate = .41, 95% CI [.32, .50]) emerged as significant covariates such that greater interest in news and information about crime and empathy were each related to greater self-efficacy. Negative attitude towards law enforcement was not a significant covariate (point estimate = .01, 95% CI [-.08, .50]).

Knowledge of Risks and Resources. H1b (respect) predicted that respect is positively related to knowledge of risk and resources. Controlling for the covariates, H1b (respect) was not supported (point estimate = -.02, 95% CI [-.07, .04]) such that respect was not significantly related to knowledge of risk and resources. Empathy was a significant positive covariate (point estimate = .14, 95% CI [.08, .21]). However, negative attitude towards law enforcement (point estimate = .02, 95% CI [-.03, .07]) and interest in news and information about crime (point estimate = .05, 95% CI [-.01, .11]) were not significant covariates.

Uncertainty. H1c (respect) predicted that respect is negatively related to uncertainty. Controlling for the covariates, H1c was not supported (point estimate = .08, 95% CI [.01, .15]) as

there was a significant positive relationship between respect and uncertainty, contrary to the predicted direction. No covariates were significant contributors (Negative attitude toward law enforcement, point estimate = -.03, 95% CI [-.09, .03]; interest in news and information about crime, point estimate = .01, 95% CI [-.06, .08]; empathy, point estimate = .04, 95% CI [-.03, .11]).

Emotional Turmoil. H1d (respect) predicted that respect is negatively related to emotional turmoil. Controlling for the covariates, H1d was supported (point estimate = -.13, 95% CI [-.21, -.05]) such that greater perceptions of respect were associated with lower emotional turmoil. Empathy was a significant covariate in the model (point estimate = .50, 95% CI [.41, .58]), such that increased empathy was linked to increased emotional turmoil. However, negative attitude towards law enforcement (point estimate = .00, 95% CI [-.07, .07]) and interest in news and information about crime (point estimate = .08, 95% CI [-.005, .17]) were not significant covariates.

Hypothesis Two

H2 predicted that both (a) self-efficacy and (b) knowledge of risks and resources are positively related to and (c) uncertainty and (d) emotional turmoil are negatively related to sharing a missing person post (i.e., behavioral intention and actual behavior). First, the relationship between audience outcomes (i.e., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil) and intention to share a missing person post was analyzed via the multiple parallel mediation analysis. Second, logistic regression was used to determine whether the audience outcomes (i.e., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil) predicted actual sharing behavior.

Behavioral Intention

Self-Efficacy. H2a predicted that self-efficacy is positively related to the intention to share a missing person post. Controlling for the covariates (i.e., negative attitude toward law enforcement, interest in news and information about crime, respect, empathy), H2a was supported in both the timeliness (point estimate = .21, 95% CI [.08, .35]) and the psychological states (i.e., empathy, respect; point estimate = .16, 95% CI [.05, .28]) models. In other words, increased self-efficacy resulted in a significant increase in sharing intention.

Knowledge of Risks and Resources. H2b predicted that knowledge of risks and resources is positively related to the intention to share a missing person post. Controlling for the covariates, H2b was not supported in either the timeliness (point estimate = -.06, 95% CI [-.29, .16]) or the empathy and respect (point estimate = -.10, 95% CI [-.29, .09]) models. In other words, increased knowledge of risks and resources did not result in a significant increase in sharing intention.

Uncertainty. H2c predicted that uncertainty is negatively related to the intention to share a missing person post. Controlling for the covariates, H2c was not supported in either the timeliness (point estimate = .21, 95% CI [.04, .38]) or empathy and respect (point estimate = .25 95% CI [.10, .40]) models. In other words, opposite to what was hypothesized, increased uncertainty resulted in a significant increase in sharing intention.

Emotional Turmoil. H2d predicted that emotional turmoil is negatively related to the intention to share a missing person post. Controlling for the covariates, H2d was not supported in either the timeliness (point estimate = .44, 95% CI [.30, .58]) or the empathy and respect parallel mediation models (point estimate = .43, 95% CI [.30, .56]). In other words, opposite to what was hypothesized, increased emotional turmoil resulted in a significant increase in sharing intention.

Covariates. Interest in news and information about crime was a significant covariate in both the timeliness (point estimate = .14, 95% CI [.02, .26]) and the empathy and respect (point estimate = .13, 95% CI [.02, .23]) models in that greater interest in news and information about crime was related to greater sharing intention. Additionally, respect (point estimate = .12, 95% CI [.02, .22]) was a significant covariate in the empathy model (i.e., greater respect was significantly associated with greater sharing intention). Negative attitude towards law enforcement was not a significant covariate in either the timeless (point estimate = -.03, 95% CI [-.14, .08]) or the empathy and respect (point estimate = -.01, 95% CI [-.10, .08]) models. Empathy (point estimate = .06, 95% CI [-.07, .18]) was also not a significant covariate in the respect model.

Actual Behavior

In addition to behavioral intention, the relationship between audience outcomes (i.e., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil) and actual sharing behavior was examined. Due to Hayes (2022) PROCESS macro only accepting continuous measurements as outcome variables (Hayes, 2022), a logistic regression analysis was conducted to predict actual behavior classifications using self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil as predictors. A test of the full model against a constant-only model was statistically significant, indicating that audience outcomes (e.g., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil) reliably distinguished between participants indicating "yes" (1) or "no" (0) to being directed to X (Twitter) to share a missing person post on their own feed [$\chi^2(4) = 55.75$, $p < .001$]. Nagelkerke's R^2 of .20 indicated a small relationship between prediction and grouping. Prediction success overall was 75.1%. The Wald criterion indicated that self-efficacy ($p = .012$) and emotional turmoil ($p < .001$) made a

significant contribution to the prediction whereas knowledge of risks and resources (p = .58) and uncertainty (p = .828) did not. *EXP(B)* value indicated that when self-efficacy is raised by one unit, the odds ratio is 1.32 times as large, 95% CI [1.06, 1.64]. Similarly, when emotional turmoil is raised by one unit, the odds ratio is 1.73 times as large, 95% CI [1.35, 2.23]. Thus, individuals who experienced greater self-efficacy and emotional turmoil were more likely to actually share a missing person post to their own X (Twitter) feed.

Hypothesis Three

H3 predicted that an indirect relationship exists between timeliness, empathy, and respect, and the behavioral intention to share a missing person post through (a) self-efficacy, (b) knowledge of risks and resources, (c) uncertainty, and (d) emotional turmoil. Controlling for the covariates, there was a relative indirect effect of timeliness on sharing intention through self-efficacy (a recent message, x1, point estimate = -.16, 95% CI [-.35, -.03]; and a message with no mention of time, x3, point estimate = -.13, 95% CI [-.28, -.01], relative to those who viewed an immediate message [i.e., 0-24 hours since last seen]) and uncertainty (a message with no mention of time, x3, point estimate = -.09, 95% CI [-.23, -.01], relative to those who viewed an immediate missing person message [i.e., 0-24 hours since last seen]). Additionally, there was a relative indirect effect of empathy on sharing intention through self-efficacy (point estimate = .07, 95% CI [.01, .13]) and emotional turmoil (point estimate = .21, 95% CI [.13, .30]). Lastly, there was a relative indirect effect of respect on sharing intention through self-efficacy (point estimate = .02, 95% CI [.0001, .05]), uncertainty (point estimate = .02, 95% CI [.001, .05]), and emotional turmoil (point estimate = -.05, 95% CI [-.10, -.02]). No other indirect effects were detected. Model summaries can be found in Tables 6 and 7.

Summary

This chapter explained findings from study one and two which addressed the two research questions and three hypotheses outlined in this dissertation. Study one's qualitative coding analysis (RQ1) indicated that all CERC message characteristics were present in the sample of 600 law enforcement messages with varying frequencies (e.g., source credibility most frequent and accuracy least frequent within the sample). Timeliness, empathy, and respect were selected to be experimentally tested in study two as these characteristics were shown to predict engagement (RQ2). Study two's parallel mediation analyses indicated that timeliness is positively related to self-efficacy (x1, x3) and uncertainty (x3), empathy is positively related to self-efficacy, knowledge of risks and resources, and emotional turmoil, and respect is positively related to self-efficacy and uncertainty as well as negatively related to emotional turmoil (H1). Additionally, self-efficacy, uncertainty, and emotional turmoil are positively related to behavioral intention whereas only self-efficacy and emotional turmoil can predict actual behavior (H2). Finally, an indirect relationship exists between timeliness (x1, x3) and behavioral intention through self-efficacy and uncertainty; empathy and behavioral intention through self-efficacy and emotional turmoil; as well as respect and behavioral intention through self-efficacy, uncertainty, and emotional turmoil (H3).

Chapter IV: Discussion

The purpose of this dissertation was two-fold. The first purpose was to identify strategies law enforcement use to crowdsource missing person information that align with message characteristics in the CERC model (Reynolds & Seeger, 2005). The second purpose was to experimentally test CERC model message characteristics that facilitate prosocial sharing of missing person posts on social media. Study one identified the extent to which law enforcement currently use CERC model message characteristics in missing person posts on social media (RQ1) and whether these message characteristics yielded differences in the level of engagement with the posts (i.e., likes, shares, comments; RQ2). Additionally, study one results informed the creation of missing person messages experimentally examined in study two. Using a posttest-only online-based experiment in study two, messages were tested to identify the effects of one message characteristic (i.e., timeliness) and two psychological states (i.e., empathy, respect) on self-efficacy, knowledge of risks and resources, uncertainty, and emotional turmoil (H1) and in turn behavioral intention and actual behavior (H2), and any indirect relationships present between independent variables on behavioral intention (H3). The findings from study one and two are discussed below followed by their practical and theoretical implications. This section ends with limitations of this dissertation as well as suggestions for future research in the missing person context.

Review of Findings

Presence of CERC Model Characteristics in Law Enforcement Missing Person Messages

RQ1 investigated the extent that CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) are currently being utilized in law enforcement's missing person messages on social media. Descriptive statistics indicated

that all six CERC message characteristics were present with varying frequencies in the sample of messages from the X (Twitter) accounts of law enforcement agencies located in states with the highest rate of NamUs missing person reports (NIJ, 2023) serving a population of at least 300,000 people (Bureau of Justice Statistics, 2016). The most prevalent message characteristics (in descending order) were source credibility, action-orientation, timeliness, and respect (present in 50% or more of the sample). The least prevalent message characteristics (in descending order following respect) were state empathy and accuracy (present in less than 50% of sample). Of the four timeliness message characteristics present, the most to least prevalent were immediate messages (i.e., between 0-24 hours after the missing person was last seen), messages with no mention of time, delayed messages (i.e., posted 49+ hours after the missing person was last seen), and recent messages (i.e., posted between 25-48 hours after the missing person was last seen).

The high frequency of source credibility and action-orientation found in current missing person messaging is consistent with past crisis communication and policing literature. According to the CERC model manual (CDC, 2018), during the initial stage of a crisis (i.e., when a crisis is beginning to unfold; Reynolds & Seeger, 2005), practitioners are urged to communicate empathy, action, and source credibility. Therefore, law enforcement agencies frequently communicating source credibility and action-orientation in their missing person messages over other CERC model message characteristics indicates that law enforcement practitioners also prioritize these message elements when initially communicating a crisis. Given that alarm and concern often surround the initial stage of a crisis (Meadows et al., 2019), information and action recommendations that individuals can trust are important to reduce negative experiences. Although prior policing literature has not identified source credibility as a common characteristic

in missing person messages, Solymosi et al. (2021) found that useful information (e.g., location where last seen) was a common feature used when posting about missing persons. Given that source credibility is comprised of elements of competence (i.e., perception of expertise; McCroskey & Teven, 1999), a source communicating useful information would likely aid in building source credibility and is therefore consistent with the findings of RQ1. The relatively high frequency of action-orientation was also consistent with prior missing person literature. For example, phrases requesting a specific action like "please call," "please RT [retweet]" were reported to commonly be included in message templates (Solymosi et al., 2021, p. 19).

One potential reason that both source credibility and action-orientation were so prevalent in missing person messages is because of the function of crowdsourcing itself in this context. Crowdsourced criminology refers to "the ways in which online communities and other sources of media provide ordinary citizens opportunities to participate in crowdsourced investigations" (Gray & Benning, 2019, p. 1). Given that the goal of missing persons messages is to get helpful information from the community to locate individuals (Triplett, 2021), law enforcement must provide credible information about the missing person and how to relay any helpful information to law enforcement (i.e., action-orientation) for community members to get involved in the investigations. Therefore, it is unsurprising these two message characteristics emerged as common occurrences in current law enforcement missing person messages.

Cumulatively, timeliness also emerged as a frequent message characteristic. Of the four timeliness message variations, immediate messages (i.e., between 0-24 hours after the missing person was last seen) and messages with no mention of time were most prevalent. Although age of a missing person post has been used to control for exposure time of posts in analyses of engagement in prior studies (Solymosi et al., 2021), the timing of a missing person post

compared to when an individual was last seen has not been investigated. Therefore, few comparisons with prior literature can be made. However, the frequent occurrence of immediate messages found in study one is consistent with law enforcement training material that urges officers to act quickly after receiving a missing person report given that the first few hours in these cases are crucial to finding the individual alive (MCPB, 2021). Timeliness is especially important in this particular context given that, for a majority of missing person cases, the outcome has already occurred before law enforcement's involvement (e.g., found safe, natural death, suicide; Tarling & Burrows, 2004). On the other hand, messages with no mention of time emerging as a frequently utilized characteristic may be simply because law enforcement often lacks information about the circumstances surrounding a missing person's disappearance, which is a common challenge law enforcement face in these types of cases (MCPB, 2021). Overall, based on the results from study one, it appears that when law enforcement agencies are aware of when a missing person was last seen, agencies share the information with the public in a timely manner as opposed to after 24 hours or not mentioning when the individual was last seen at all.

One characteristic that was not expected to emerge as a common characteristic was respect. A reason for respect's prevalence could be that this message characteristic was often combined with action-orientation. As mentioned above, Solymosi et al. (2021) reported that the phrases "please call," "please RT [retweet]" are commonly included in missing person message templates. Given that respect is a perception that communicates to another that their feelings and behaviors are valued (Hendrick & Hendrick, 2006; Jackson et al., 2001), polite language such as "please" is one example of respect in the CERC message characteristic study one codebook (Appendix B). Although the codebook also highlighted that respectful messages will use emotionally neutral language that is not patronizing and affirms the value of the audience's

feelings and beliefs, polite language was commonly linked with whichever action-oriented recommendation was present in the extracted message. Given that crowdsourced criminology relies on individuals participating in investigations (e.g., sharing on social media, reporting information; Gray & Benning, 2019), making the public feel that their contributions are valued by using polite language is an important tactic currently used by law enforcement.

Accuracy was among the least prevalent message characteristics found in the extracted posts. Although accuracy is identified in the CERC model as an impactful message characteristic when communicating across the lifespan of a crisis (CDC, 2018), it is deemed most important in the maintenance stage (i.e., continual unfolding of a crisis; Reynolds & Seeger, 2005) when misunderstandings and rumors may spread. In study one, posts were coded as accurate if the message expressed that the information in the post was confirmed (e.g., by family, law enforcement; Appendix B). Therefore, one reason for the low prevalence of accuracy is that law enforcement may not want to reveal where information about a missing person case came from if the missing person case becomes a criminal investigation (Chakraborty, 2019). Given the unknown circumstances surrounding a missing person's disappearance (e.g., whether foul play is involved), law enforcement must be cautious about what information they disclose to the public (MCPB, 2021). Although law enforcement may have family-confirmed information, agencies might not share certain information or who confirmed it as disclosure may lead to blaming specific parties (e.g., custody disputes; Flaherty, 2008) or unnecessary panic (Fox & Savage, 2009). Thus, the CERC model may need to be altered for law enforcement crises as information may be more guarded than in other crises. For example, during a natural disaster (e.g., tornado, earthquake), it is unlikely that information about the onset of a crisis be concealed as it occurred naturally, which may not be true of missing person cases given the legalities attached to the crisis

itself. Further discussion of potential expansions to the CERC model can be found in Theoretical Implications section below.

State empathy was also found to be less prevalent than other message characteristics in the extracted law enforcement posts. In the missing person context, empathy is directed towards someone else experiencing a crisis instead of the individual reading the message. Given that state empathy is comprised of affective, cognitive, and associative components (Shen, 2019), the CERC model codebook in study one outlined that the use of empathy in missing person messages acknowledges the emotions of the missing person and/or their loved ones, takes on the perspective of the missing person and/or their loved ones, and identifies with the missing person and/or their loved ones' experience (Appendix B). However, the CDC's CERC manual (2018) recommends that empathetic messages should acknowledge how the crisis event impacts individuals actually experiencing a crisis. Therefore, it is unsurprising that empathy (as initially described in the CERC model; Reynolds & Seeger, 2005) was not commonly utilized by law enforcement in this other-oriented crisis. Although not a popular characteristic with most law enforcement agencies examined, particular agencies repeatedly used empathetic language in their missing person post templates (e.g., "The missing juvenile's family is concerned for his well-being"; Los Angeles County Sheriff's Department, 2023a). Therefore, empathy is a divisive messaging tactic as it is not often utilized, but when it is, agencies integrate it heavily into their missing person messaging strategy (e.g., Los Angeles County Sheriff's Department, 2023a).

CERC Model Message Characteristics and Predicting Levels of Engagement

RQ2 investigated the extent to which the CERC model message characteristics utilized in law enforcement's missing person posts on social media predict engagement with the posts (i.e., retweets, replies, likes). Multiple regression analyses indicated that messages posted between 25-

48 hours and 49+ hours after the individual was last seen, compared to messages with no mention of time, positively predicted the *number of retweets*, whereas empathy and respect negatively predicted the *number of retweets*. Additionally, respect negatively predicted the *number of replies* and empathy negatively predicted the *number of likes*. The covariate of number of accounts following the law enforcement agency positively predicted the *number of replies* and *likes*. No other message characteristics or covariates significantly predicted retweets, replies, or likes.

Messages posted between 25-48 hours and 49+ hours after the individual was reported missing, compared to no mention of time, significantly positively predicted the number of retweets. Interestingly, timely messages (i.e., 0-24 hours after the individual was reported missing) were not significantly related to engagement. One reason for timely messages' unexpected performance could be that community members are accustomed to seeing posts about the resolution of missing person cases shortly after law enforcement's initial posting, as the majority of missing persons return or are located (FBI, 2023). Therefore, members of the community may not feel compelled to get involved immediately in hopes that the missing person will return quickly. Therefore, when community members recognize that the missing person has been missing for longer than 24 hours, individuals may perceive an increased urgency of the crisis and decide to share. Therefore, urgency should be further explored in relation to timeliness in the missing person context.

Additionally, posts indicating an individual has been missing for less than 24 hours may not be associated with engagement due to the bystander effect. The bystander effect is a phenomenon when individuals are less likely to help when other individuals are present (Darley & Latane´, 1968; Latane´ & Darley, 1968, 1970; Latane´ & Nida, 1981). Thus, if social media

users recognize that a missing person has been missing less than 24 hours, they may not feel responsibility to help because it was posted to a wide network online. However, when days pass and there is still no resolution (or a low amount retweets), it is then that individuals may feel some responsibility to help. Supporting this idea, a meta-analysis found that the bystander effect was more prevalent for non-dangerous emergencies – which may be how individuals perceive missing person crises due to the unknown circumstances of missing persons – compared to dangerous incidents (Fischer et al., 2011). Additionally, no significant difference was found between bystanders that were known to the victim compared to strangers (Fischer et al., 2011). Given that missing persons featured in posts are most likely strangers to the community member viewing the information, the bystander effect is a plausible explanation as to why messages posted after 24 hours of the individual's disappearance are positively related to retweets. Given the mixed results of the presence of the bystander effect on social media (see You & Lee, 2019), future research should apply the phenomenon to missing person social media messages to confirm these suppositions.

Empathy negatively predicting the number of retweets and likes also has certain implications. This result was surprising based on the CERC model's (Reynolds & Seeger, 2005) predictions and literature on empathy stating that the human inclination to connect with others through emotion influences the spread of content (Berger, 2013). Empathy's negative relationship with retweets and likes is also inconsistent with literature on missing person messages on social media. For example, Solymosi et al. (2021) found that for non-White missing men and women, emotional posts led to greater shares than rational posts. There are several possible reasons for the negative relationship between empathy and retweets/likes. One reason is the volume of empathy-inducing missing person posts to which individuals are exposed.

Although some agencies had few missing person posts, large agencies located in Los Angeles (e.g., Los Angeles County Sheriff's Department) and Tennessee (e.g., Memphis Police Department) posted missing person posts regularly, even up to several in one day (e.g., Los Angeles County Sheriff's Department, 2023b; Los Angeles County Sheriff's Department, 2023c). The frequency of some agencies' posting and the fact that over 600,000 individuals are reported missing every year in the United States (FBI, 2022), may lead to some individuals experiencing fatigue from the frequent emotionally overwhelming messages (i.e., compassion fatigue; Kinnick et al., 1996). Prior literature supports this supposition as Kuchenbecker (2023) found that missing person message fatigue led to psychological reactance which sparked freedom restoration in the form of not sharing posts.

How participants processed empathy in the extracted missing person messages could have also played a role in the negative relationship between empathy and engagement. Although the CERC model (CDC, 2018) states that empathy appeals, or acknowledging how affected individuals are feeling, should engender positive perceptions (e.g., trust and rapport), prior literature states that empathy can also manifest as a negative emotion (Shen, 2019). Specifically, Shen (2019) stated that depending on the narrative of an empathy appeal and what its characters experience, individuals reading a message can experience positive or negative emotions. This is impactful in the missing person context because positive and negative emotions spread differently. For example, content that triggers high-arousal emotions (e.g., awe) was found to spread more than low-arousal emotions (e.g., sadness; Berger & Milkman, 2012). Given the disheartening nature of many missing person posts (e.g., loved one's fear of missing person's well-being; observed in study one), participants may have felt negative emotions (e.g., sadness),

instead of positive emotions (e.g., hope, care) as proposed in the CERC model (CDC, 2018) and therefore refrained from sharing.

The negative relationship between empathy and engagement could also be explained by where empathy is directed in messages. The CDC's CERC manual (2018) argued that empathetic messages should acknowledge those who may be affected by a crisis event. For example, those who live in areas prone to extreme weather receiving information to keep themselves safe (Rice & Spence, 2016). However, in the missing person context, empathy is directed towards someone else experiencing a crisis, which may inhibit perceptions of message relevance among members of the community not directly affected. In fact, prior crisis communication frameworks have found that internalization (i.e., relevance) is an important factor in motivating individuals to engage in protective behavior (e.g., Sellnow & Sellnow, 2014; Sellnow et al., 2019). Even though RQ1 results revealed a low rate of empathy being used in current messaging, missing person crises alone are emotional, yet irrelevant events to many. Thus, these nuances in empathy messaging warrant further exploration in the missing person context.

Respect also negatively predicted the number of retweets and replies. The CERC model manual (CDC, 2018) recommends that spokespersons communicate respect in crisis messages to build rapport. Thus, the negative relationship between respect and retweets/replies is unexpected. However, the CERC model manual (CDC, 2018) also states that respect is particularly important when individuals feel vulnerable as the message characteristic builds cooperation and rapport. Thus, similar to the unexpected negative relationship between empathy and engagement, respect's performance in this study may also be explained by the other-oriented context of missing persons. Given that individuals may not perceive a missing person crisis to be relevant and impactful to them, the CERC model's respect message characteristic may not apply perfectly

to the missing person context. In fact, individuals may perceive law enforcement's respectful messages as patronizing if overly respectful. However, study two addresses this supposition as negative attitudes toward law enforcement were measured in conjunction with the respectful experimental stimulus.

The only significant covariate that emerged in this analysis was the number of accounts following the law enforcement agency, which significantly predicted the number of replies and likes. Thus, having a larger social media following increases the likelihood for some engagement (i.e., likes, replies) given the greater exposure a post has. However, the number of followers did not significantly predict retweets. The number of followers may not predict sharing as this form of engagement requires individuals to repost information on their feed, which may require self-presentation considerations from users and therefore become a barrier to sharing (Bregman & Haythornthwaite, 2001; Treem et al., 2020). With followers ranging from 805,335 (New York Police Department as of 11/25/2023) to 6,386 (Kern County Sherriff's Department as of 10/29/2023), retweets – an important tool for crowdsourcing – not being significantly related to the number of followers is good news for law enforcement agencies with a smaller following who still wish to use crowdsourcing to gather information about missing persons.

Relationship between CERC Model Message Characteristics and Audience Outcomes

A revised H1 predicted that CERC model message characteristics (i.e., timeliness) and psychological states (i.e., empathy, respect) are positively related to (a) self-efficacy and (b) knowledge of risks and resources, and negatively related to (c) uncertainty and (d) emotional turmoil. Results of the experimental investigation in study two indicated that timeliness is positively related to self-efficacy (x1, x3) and uncertainty (x3); empathy is positively related to

self-efficacy, knowledge of risks and resources, and emotional turmoil; and respect is positively related to self-efficacy and uncertainty, as well as negatively related to emotional turmoil.

A parallel multiple mediation analysis indicated that timeliness is positively related to self-efficacy and uncertainty. Specifically, a recent missing person message (25-48 hours since last seen) and a missing person message with no mention of time, relative to those who viewed an immediate missing person message, was negatively related to self-efficacy. This finding is consistent with the CERC model (Reynolds & Seeger, 2005) which indicates a timely message is imperative during the initial stage of a crisis to give relevant publics time to engage in recommended actions that will result in favorable outcomes. Therefore, a missing person message that stated the individual was last seen 0-24 hours prior to posting may have induced participants' confidence in their ability to help in time (Witte, 1992). Participants who viewed a recent missing person message (i.e., 25-48 hours) or a missing person message with no mention of time may not have felt confident that their actions could benefit the missing person given the that too much time may have passed since their disappearance. With popular true and fictional crime shows stressing the importance of quick and efficient investigations (e.g., *48 Hours*; Klug, 2024), participants may have realized that time is imperative in missing persons investigations, which boosted their own confidence to help when cases were new. Participants' knowledge of efficient procedures in law enforcement investigations is substantiated by the number of participants interested in news and information about crime ($M = 4.48$ out of 7). Therefore, facilitating self-efficacy through timely messages is a viable tactic for law enforcement looking to boost confidence in community members ability to help a missing person, especially if the audience is interested in true crime.

Although originally hypothesized that timeliness would be negatively related to uncertainty, findings revealed a positive relationship. In other words, contrary to the CERC model (Reynolds & Seeger, 2005), a timely message resulted in an increase in uncertainty. One reason for this unexpected finding could be how individuals process the temporal distance of a missing person event. Construal level theory (Trope & Liberman, 2003) states that when individuals perceive an event to be nearby, they think more concretely about this event (i.e., low-level construal). Therefore, when a timely message states that a missing person was last seen 0-24 hours ago, participants may have processed the event more concretely compared to participants who viewed a message with no mention of time, which may have been perceived as more abstract and distant. Therefore, timely messages may prompt viewers to concretely assess what they know about the missing person, potentially leading to viewers' increased uncertainty of the missing person's safety and whereabouts. However, messages with no mention of time may prompt viewers to abstractly assess what they know about the missing person, which leads to less concrete conclusions. Future research should confirm missing person messages' connection to construal level theory (Trope & Liberman, 2003).

Although timeliness was linked to self-efficacy and uncertainty, it was not significantly related to knowledge of risks and resources or emotional turmoil. Given that some law enforcement agencies regularly post – some up to several times per day – when a member of their community is missing (e.g., Los Angeles County Sheriff's Department, Memphis Police Department; findings from study one), many individuals are constantly being exposed to information about missing persons. Therefore, simply giving the time of the last known sighting of the missing individual may not be enough to convince individuals that they learned something new from the message compared to other missing person messages they have seen. Similarly,

because individuals may be accustomed to missing person posts and update posts informing the community a missing individual was located, participants may not have experienced a significant increase or decrease in emotional turmoil because viewers of these messages are used to seeing these cases resolve quickly (Tarling & Burrows, 2004). Thus, to understand timeliness's effect on knowledge of risks and resources as well as emotional turmoil (e.g., urgency, message fatigue), these audience outcomes should be further investigated in the missing person context to draw additional conclusions.

The findings from this study's experimental manipulation of empathy also require a thoughtful analysis. First, the failure of study two's empathy message manipulation to be perceived as high and low hold important implications. Although the pilot study yielded significant differences in empathy between the empathetic message ($M = 3.27$) and control message ($M = 2.64$), similar results did not emerge in the full study (empathy condition, $M = 3.16$; control condition, $M = 3.02$). Although unfortunate, this speaks to the difficulty researchers have experienced creating empathy conditions in the missing person context (Kuchenbecker, 2023). One reason may be due to missing persons often being presented in a negative light on social media through the use of stigmatized visuals (e.g., custody photos, Solymosi et al., 2021) and language (e.g., "missing runaway," Volusia Sheriff, 2023, para. 1) which may create or reinforce negative perceptions about missing individuals. For example, one participant from the full study stated in the open-ended response, "Don't make it [missing person's photo] look like a mugshot." The negative connotation some missing person posts hold may potentially lead to assumptions that missing persons are responsible for their own disappearance and therefore interfering with participants' ability to identify with the missing person's experience (e.g., Shen, 2010a).

Inducing empathy towards a missing individual may be an enduring challenge for researchers and law enforcement who face the public's preconceived notions about missing persons. Difficulty inducing empathy due to preexisting assumptions is also substantiated by the low overall mean of aroused empathy in the pilot (M = 2.91 out of 7) and full study (M = 3.16 out of 7) as well as several negative open-ended responses from the full study (e.g., "The guy was 42. It was unclear if he was missing due to his mental state, or if he simply vanished for no apparent reason"). When researchers are able to successfully manipulate empathy message conditions, the means themselves are low and mean differences are minimal (high empathy conditions, M = 2.18 out of 5; low empathy conditions, M = 1.77 out of 5; Shen, 2010a). Therefore, future research should explore both visual (e.g., downcast countenances) and language elements (e.g., including the reason for disappearance if available, neutral language) that can be used to induce high and low levels of empathy in the missing person context and beyond.

Given that aroused empathy (vs. empathy as a message characteristic) was used to investigate the missing person context's application to the CERC model, there are limitations to the conclusions that can be drawn about the empathetic communication process (O'Keefe, 2003). For example, message element recommendations that arouse empathy cannot be made. However, the CERC model's (Reynolds & Seeger, 2005) proposition that empathy positively influences self-efficacy and knowledge of risks and resources, as well as negatively influences uncertainty and emotional turmoil, can be explored and discussed. In fact, a parallel multiple mediation analysis indicated that empathy (as a psychological state) is positively related to self-efficacy, knowledge of risks and resources, and emotional turmoil.

Consistent with prior literature (e.g., Shen, 2010a), empathy was associated with beneficial outcomes in the missing person context, such that increased arousal of empathy was related to increased self-efficacy. One reason for this finding could be the associative element of empathy (i.e., identification with another's experience; Shen, 2019). Several open-ended responses in the full study results pointed to participants being motivated by the emotional nature of the missing person event (e.g., "It's a sad situation") and identified with the missing person and their loved ones (e.g., "Fortunately, I have never had the traumatic issue of having to find a missing person that was near and dear to my family"). Therefore, identification with another's experience through emotion may urge individuals to take greater care in understanding what actions to take to help a missing person (Frisby et al., 2013). This idea is substantiated by Berger's (2013) supposition that due to the human inclination to connect with others through emotion, content showcasing emotion can be a powerful motivator. Therefore, empathy arousal should continue to be explored if facilitating self-efficacy is a goal of law enforcement while communicating about missing persons.

Similarly, increased arousal of empathy was related to an increase in knowledge of risks and resources. As discussed above, many individuals are constantly being exposed to information about missing persons on social media, some more than once a day (e.g., Los Angeles County Sheriff's Department, Memphis Police Department; findings from study one). However, only 23% (n = 138) of the missing person messages coded in study one contained elements of state empathy. Therefore, empathetic arousal in study two may have convinced individuals that they learned something new compared to other missing person messages they have seen as current missing person messages are unlikely to arouse empathy. Although this finding supports Miller et al.'s (2021) supposition that empathy is positively associated with

knowledge of risks and resources, future research should confirm these findings by testing empathetic message variations to provide specific recommendations to message designers interested in increasing knowledge through empathy.

Contrary to the CERC model (Reynolds & Seeger, 2005) and Miller et al.'s (2021) revised propositions, increased empathy arousal was related to an increase in emotional turmoil. According to the CERC model (Reynolds & Seeger, 2005), individuals who are experiencing a crisis themselves are likely to experience emotional turmoil (i.e., emotional distress, Salazar-Fernández et al., 2021; general distress, Barberis et al., 2023; negative emotional state, Lovibond & Lovibond, 1995). Therefore, a message featuring empathy (i.e., acknowledging how the crisis event impacted individuals; CDC, 2018) would theoretically reduce emotional turmoil. However, likely due to how a missing person crisis affects others (vs. the self), empathy arousal performed contrary to what was expected in this study. Instead of reducing the emotional turmoil currently experienced, arousing empathy in the missing person context *induced* individuals' emotional turmoil. Given that relevance is an important factor in crisis communication (e.g., internalization, Sellnow & Sellnow, 2014), the emotional turmoil resulting from a crisis involving a missing person – which is likely relatively low in relevance to the participant reading the message – is promising news for message designers who want to further explore empathy as a tool to make missing person crises more relevant to the public.

Although empathy arousal was associated with increased self-efficacy, knowledge of risks and resources, and emotional turmoil, it was not related to uncertainty. One reason for this unexpected finding is the prevalence of participants' interest in news and information about crime (M = 4.48 out of 7). Frequent exposure to crime or missing person messages outside of the study may have led participants to inherently perceive a missing person to be someone who is

experiencing distress (e.g., Lazarus, 1991). Therefore, it may be that no significant relationship between empathy arousal and uncertainty emerged given participants' certainty that a missing person would likely be someone in need of help. However, future research investigating individuals' perceptions of missing persons would need to be conducted to confirm this supposition.

This study's experimental manipulation of respect also justifies a thorough interpretation. To start, the experimental manipulation of respect's failure to be perceived as high and low also holds important implications. Although the pilot study yielded promising group differences between the respect message ($M = 4.59$) and control message ($M = 4.45$) and modifications were made based on these pilot results to bolster perceptions of respect (i.e., emphasizing value and affirmation), significant group differences did not emerge in the full study (respect condition, $M = 4.82$; control condition, $M = 4.61$). Given that respect is not commonly manipulated in crisis communication literature, this study used political communication experiments (e.g., Mölders et al., 2017) to guide the manipulation of respect. Therefore, substantial adaptations were made to fit the context of this study. For example, whereas Mölders et al. (2017) used a respectful and disrespectful condition, this study used a respectful and absence of respect condition, which was deemed more realistic than manipulating a law enforcement's missing person message to be disrespectful (e.g., emotionally charged language that is patronizing, demeans the value of the audience's feelings and beliefs, and uses controlling language; Mölders et al., 2017). However, the respectful and absence of respect messages used in the current study lacked enough variation to draw meaningful conclusions. Therefore, future research should explore language elements that are disrespectful yet realistic (e.g., "Only contact us if you are certain you have seen the missing person as there have been false reports from the community") to provide a true

comparison group and enough variation to induce high and low levels of respect in the missing person context.

There are limitations to the conclusions which can be drawn about respectful communication due to aroused respect (vs. respect as a message characteristic) being used to investigate the missing person context (O'Keefe, 2003). For example, the findings from the experimental manipulations in this study are not sufficient to make message element recommendations that arouse respect, but respect arousal itself can be evaluated by comparing its performance to the CERC model's (Reynolds & Seeger, 2005) propositions. Specifically, the CERC model (Reynolds & Seeger, 2005) proposes that respect is positively related to self-efficacy and knowledge of risks and resources as well as negatively related to uncertainty and emotional turmoil. However, in the missing person context, respect arousal (as a psychological state) is positively related to self-efficacy and uncertainty as well as negatively related to emotional turmoil.

Respect was found to lead to beneficial outcomes in the missing person context which is consistent with prior literature (e.g., Williams & Herman, 2011). Specifically, increased respect arousal is associated with an increase in self-efficacy. Given that respect is conceptualized as an attitude that communicates to another that their feelings and behaviors are valued (Jackson et al., 2001), arousing respect is consistent with a boost an individual's confidence in their ability to carry out a recommended behavior (Witte, 1992). This finding is also congruent with the original CERC model (Reynolds & Seeger, 2005) and revised propositions (Miller et al., 2021). For example, the CDC manual (2018) states that "respectful communication promotes cooperation and rapport" (p. 3). In fact, if an individual perceives respect from a member of their group, the receiver's motivation to act in favor of group goals increases (De Cremer, 2002). Therefore,

respect's positive impact on the confidence in one's ability to help a missing person in their community provides evidence that respect should be further studied by message designers hoping to increase self-efficacy.

Contrary to the CERC model (Reynolds & Seeger, 2005) and Miller et al.'s (2021) revised propositions, increased respect arousal was shown to relate to increased uncertainty. One reason for this unexpected finding could be due to members of the community feeling valued by law enforcement thereby motivating individuals to process the information in the post and realize the uncertainty of the missing person's situation (e.g., their safety). When individuals perceive respect, they feel affirmed and that their contributions matter (Jackson et al., 2001; see Williams & Herman, 2011). Therefore, individuals who feel respected may become more involved in understanding the circumstances of the missing person's disappearance because they feel like they play a valuable role in helping a member of their community. According to the elaboration likelihood model (ELM; Petty & Cacioppo, 1986), when an individual is motivated or involved in an issue, they will put in the cognitive work to process a message. In the missing person context, the motivation and involvement participant's may have felt from the arousal of respect could have urged them to process the missing person message and realize the limited amount of information available about the missing person which in turn increased uncertainty. However, future inquiry should confirm the ELM's (Petty & Cacioppo, 1986) role in respect arousal's association with uncertainty.

On the other hand, respect arousal's association with emotional turmoil was consistent with the CERC model (Reynolds & Seeger, 2005) and Miller et al.'s (2021) revised propositions. Specifically, increased respect arousal was associated with a decrease in emotional turmoil. According to Tyler (1990), respect and politeness shown to an individual in a legal dispute may

enhance the perception of fair treatment. Although not the same context, a missing person who is at the center of a law enforcement investigation being communicated about on social media in a polite and respectful manner may urge community members to trust law enforcement to treat the investigation as any other important case (i.e., fair treatment; Tyler, 1990). This trust may therefore be a contributing factor as to why arousing respect reduces depression, anxiety, and stress symptoms experienced by participants (i.e., emotional turmoil). Participants may have trusted law enforcement to successfully resolve the case, leading to reduced anxiety about the safety or the missing person. Further, existing literature suggests that public incivility of politicians negatively impacts political trust (Mutz & Reeves, 2005), providing additional evidence that trust may contribute to why high (vs. low) arousal of respect increases (vs. decreases) emotional turmoil. Future inquiries should investigate mechanisms influencing the negative association between respect arousal and emotional turmoil (e.g., perception of justice, trust).

Although respect arousal was related to self-efficacy, uncertainty, and emotional turmoil, it was not significantly related to knowledge of risks and resources. Given that arousing respect is about affirming, being polite, and communicating with respect towards the receiver of a message and/or about persons in the message, it may not inherently add more information that individuals could learn from. However, future research investigating the utility of respect in law enforcement communication can investigate if arousing respect (or a respectful message) elicits other types of learning (e.g., affective, or an individual's perception of content's value; Krathwohl et al., 1964).

Several covariates included in the parallel multiple mediation analyses were significant contributors to the relationships discussed above. First, interest in news and information about

crime was found as a significant covariate influencing the relationship between timeliness, empathy, and respect on self-efficacy such that greater interest in news and information about crime was related to greater self-efficacy for all independent variables. Given that many crime shows, articles, and podcasts end with information on how to act in the event a member of the public has any information about a case (e.g., *48 Hours*, Klug, 2024; *The Deck*; Flowers, 2023), individuals who consume crime information or news would likely be aware of common call to actions (e.g., call tip line), therefore increasing their confidence in how to act should they be in a situation to help in a missing person case.

In addition to empathy and respect being tested as main variables, respect and empathy arousal were also found as significant contributors to audience outcomes when investigated as covariates. Respect arousal was a significant contributor to the relationship between empathy and all audience outcomes (i.e., self-efficacy, uncertainty, emotional turmoil) except knowledge of risks and resources. On the other hand, empathy arousal significantly contributed to the relationship between respect and self-efficacy, knowledge of risks and resources, and emotional turmoil, but not uncertainty. Respect and empathy arousals' influence as covariates are consistent with respect and empathy arousals' influence as independent variables on the audience outcomes. Specifically, greater respect arousal – both as a covariate and independent variable – increased self-efficacy and uncertainty and decreased emotional turmoil, whereas increasing empathy arousal (i.e., as both a covariate and independent variable) increased self-efficacy, knowledge of risks and resources, and emotional turmoil. The performances of respect and empathy arousal as covariates predicting its counterparts (i.e., respect on empathy, empathy on respect) are expected given that the two variables were related ($r = .40$, $p < .001$). The relationship between empathy and respect is conceptually consistent as both respect and empathy

involve showing care to an individual, either by identifying with another's distress (empathy; Shen, 2019) or affirming someone's value (respect; Jackson, 2001). Therefore, the same explanations from their performance as independent variables can be given for why each emerged as a significant contributor in their counterparts' models.

Negative attitudes toward law enforcement did not emerge as a significant contributor in any of the parallel mediation models. Given that prior missing person literature indicates that greater negative attitudes toward law enforcement are associated with greater perceived freedom threat toward sharing missing person posts (Kuchenbecker, 2023), a lack of association between negative attitudes towards law enforcement and audience outcomes is beneficial for law enforcement agencies who struggle with negative perceptions. Although law enforcement should not completely discount how they are perceived in their community, agencies can focus on message elements that facilitate favorable outcomes (e.g., increase self-efficacy, knowledge) instead of on how to overcome negative attitudes.

Relationship between CERC Model Audience Outcomes and Behavioral Intention

H2 predicted that (a) self-efficacy and (b) knowledge of risks and resources are positively related to and (c) uncertainty and (d) emotional turmoil are negatively related to sharing a missing person post (i.e., behavioral intention and actual behavior). Study two's experimental investigation indicated that self-efficacy, uncertainty, and emotional turmoil were positively related to behavioral intention whereas only self-efficacy and emotional turmoil can positively predict actual behavior. Additionally, knowledge of risks and resources was not related to behavioral intention and did not predict actual behavior.

Consistent with the CERC model (Reynolds & Seeger, 2005) and Miller et al.'s (2021) revised propositions, increased self-efficacy was associated with an increase in sharing intention

for all models (i.e., timeliness, empathy arousal, respect arousal). Additionally, self-efficacy was positively related to actual sharing behavior. Confidence in an individuals' ability to carry out a recommended behavior (i.e., self-efficacy; Witte, 1992) has been shown to be an important factor in encouraging individuals to follow recommended protective behaviors in the health and crisis domain (e.g., Avery & Park, 2016; Heath et al., 2009). For example, Avery and Park (2016) found that in the contexts of a public health emergency (i.e., whopping cough), a natural disaster (i.e., tornado), and a food-borne illness (i.e., mad cow), self-efficacy positively predicted intention to comply with recommended protective behaviors (e.g., take cover). The beneficial role of self-efficacy in facilitating behavioral intentions and actual behavior in the context of sharing missing person messages further solidifies the variable's established place in crisis communication literature. Although study two messages consistently used sharing as the recommended action individuals should take during a crisis involving a missing person, future research should explore the extent that self-efficacy will influence more time-consuming or effortful recommended actions in the missing person context (e.g., joining a search party).

Opposite of the hypothesized relationship, emotional turmoil was negatively related to the intention to share a missing person post. In other words, emotional turmoil resulted in a significant increase in sharing intention for all models (i.e., timeliness, empathy arousal, respect arousal). Additionally, emotional turmoil was positively related to actual sharing behavior. According to Sellnow and Seeger (2021), during an initial crisis event, emotional turmoil should be reduced so affected individuals can more clearly process the crisis in general, its consequences, and how to act in response. However, the CERC model (Reynolds & Seeger, 2005) was developed to effectively communicate about risks and crises to relevant publics. Therefore, a missing person in the community may not be a relevant crisis for a member of that

community as it likely does not directly affect them. As suggested by study two findings and prior literature on the importance of relevance in inducing action (e.g., Sellnow & Sellnow, 2014), instead of reducing existing emotional turmoil, emotional turmoil (e.g., manageable level of anxiety) should be induced to increase action and potentially relevance in the missing person context. In fact, the CERC model (CDC, 2018) also states that individuals' anxiety should be calmed enough to restore order during a crisis, but that anxiety can also prompt action if reduced to the appropriate level based on the severity of the crisis event. Future research should investigate whether relevance contributes to the flipped relationship between emotional turmoil and behavior in the missing person context.

Similar to emotional turmoil, uncertainty is positively related to the intention to share a missing person post which is opposite of the hypothesized relationship. Specifically, increased uncertainty resulted in a significant increase in sharing intention. The mystique of a missing person in the community may be a reason for this flipped relationship. Existing literature on message spreadability suggests that individuals share information that they believe would be of practical value to their network (Berger, 2013). For example, an individual's perception that a message is worthy was found to induce them to share a WhatsApp message (Bakare et al., 2022). Given that the sample in study two elicited a mean above the midpoint for interest in news and information about crime (M = 4.48 out of 7), it is likely that participants believed that a missing person case would be of interest to their own networks who may also be interested in news and information about crime. Increased uncertainty of the missing person case may have encouraged intention to share not only based on practical value to their networks, but missing persons often make an interesting story (Berger, 2013), as cases are often the center of television shows and podcasts (e.g., *The Deck*, Flowers, 2023). However, the rationale of practical value and

storytelling influencing the relationship between uncertainty and sharing intention needs to be confirmed as uncertainty did not predict actual behavior.

The disconnect between behavioral intention and actual behavior illustrated by the results surrounding uncertainty demonstrates the dangers of relying on behavioral intention measurements to access actual behavioral outcomes (e.g., Sheeran & Webb, 2016). There are several reasons why the gap between intention and behavior exists. For example, Papies (2017) argued that regardless of our conscious intentions, situational cues embedded in our cognition (e.g., habits, goals) have greater power over how we intend to behave. Therefore, although participants may have been lured to share the uncertain missing person message based on their interest in crime, they did not actually share based on the lack of knowledge of the event (i.e., component of uncertainty; Brashers, 2001), which may prohibit complete practical value for their own networks. In other words, because individuals were uncertain of the details surrounding the missing person, they felt that posting would violate their goal of providing value or a compelling story to their networks (Berger, 2013; Papies, 2017). This is substantiated by one participant's open-ended response from study two: "The only reason I didn't respond "yes" to posting the missing post on my twitter account is because there was no real information about where the man lives or went missing from and it only would have generated questions I could not answer." Given the gap between intention and actual behavior found in this study, uncertainty (or uncertainty discrepancy; awareness of the amount of uncertainty individuals' desire versus how much they actually have; Afifi & Weiner, 2004) would be an excellent case study to explore further to aid in understanding why the intention-behavior gap exists and how to alleviate this issue.

Contrary to the CERC model (Reynolds & Seeger, 2005) and Miller et al.'s (2021) revised propositions, knowledge of risks and resources was not related to the intention to share or actual sharing of a missing person post. As discussed previously, some law enforcement agencies regularly post when a member of their community is missing (e.g., Los Angeles County Sheriff's Department, Memphis Police Department; findings from study one). Participants from study two may be part of the population that are consistently being exposed to information about missing persons and are therefore knowledgeable about these crises. In fact, in the open-ended response from study two, participants alluded to their repeated exposure to missing person messages (e.g., "they always get shared a lot…."). Due to the formulaic nature of missing person posts (e.g., name of missing person, area last seen, call to action; findings from study one), there may have been little opportunity for learning as items on the knowledge of risk and resources scale asked participants to compare the message they viewed with other messages they have seen. This is substantiated by a mean around the midpoint for participants' knowledge of risks and resources (M = 3.97 out of 7). Thus, knowledge of risks and resources in the missing person context does not appear to be an influential factor in encouraging sharing, but further investigations should confirm this.

Interest in news and information about crime as well as respect were significant covariates in the relationships discussed above. Specifically, in the timeliness, empathy arousal, and respect arousal models, increased interest in news and information about crime was related to increased sharing intentions. As discussed above, individuals spread information that they believe would be of practical value to their network (Berger, 2013). Therefore, it is theoretically consistent with content contagiousness (Berger, 2013) in that participants who are more interested in news and information about crime would likely believe that this missing person case

would be of interest to their own networks who may also be interested in news and information about crime which may therefore result in sharing intention.

Respect arousal and empathy arousal as covariates perform differently than in prior findings of their influence. First, respect arousal was a significant covariate in the empathy arousal model in that greater respect arousal was associated with greater sharing intention. Given that respect should arouse a feeling of value and affirmation in individuals (Williams & Herman, 2011), participants would be encouraged to share the missing person post to make their network also feel valued and affirmed and therefore trigger unexpected emotion during regular social media use (Berger, 2013). On the other hand, empathy arousal was not a significant covariate in the timeliness or respect arousal models. Even though empathy and respect arousal were significantly related, respect arousal was measured as a primarily self-oriented state (Shen, 2010a) whereas empathy arousal was measured as a primarily other-oriented state (Williams & Herman, 2011). Therefore, this suggests that when individuals are deciding to share a missing person message or not, they prioritize how sharing will make them feel compared to how it will affect the ones in distress. This is consistent with the individualistic leaning ideology of the United States (e.g.., prioritizing individual goals over group goals; Hofstede, 1980, 2001). However, future research should investigate cultural orientation's effect on message processing and sharing intention of missing person messages.

Negative attitude towards law enforcement was not a significant covariate in either the timeliness, empathy arousal, or respect arousal models. As discussed above, negative attitude towards law enforcement not influencing sharing intention is great news for law enforcement, especially considering prior missing person literature found that increased negative attitudes participants had toward law enforcement was associated with increased perceived freedom threat

(Kuchenbecker, 2023). Although law enforcement should still consider their perception and reputation in the community, agencies can focus on message elements that will arouse individuals to experience favorable outcomes (e.g., increase self-efficacy, knowledge).

Indirect Relationships of CERC Model Characteristics on Behavioral Intention

H3 predicted an indirect relationship between message characteristics (i.e., timeliness, empathy, respect) and intention to share a missing person post through (a) self-efficacy, (b) knowledge of risks and resources, (c) uncertainty, and (d) emotional turmoil. Results revealed an indirect relationship between timeliness (x1, x3) and behavioral intention through self-efficacy and uncertainty; between empathy and behavioral intention through self-efficacy and emotional turmoil; and between respect and behavioral intention through self-efficacy, uncertainty, and emotional turmoil. Given that the relationships between timeliness, empathy arousal, respect arousal, audience outcomes (i.e., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil), and behavioral intention are detailed in the above sections, the discussion of the indirect relationships will focus on the consistency of these findings with the CERC model propositions (Miller et al., 2021).

First, as expected, the use of timeliness in missing person messages was positively related to sharing intention through self-efficacy, emphasizing the importance of distributing information about a crisis quickly. In the missing person context, timely communication seems to boost individuals' confidence that their actions (i.e., sharing a missing person message on social media) can help in a situation involving a missing person. However, contrary to the CERC model propositions (Miller et al., 2021), timely messages were positively related to sharing intention through uncertainty. Uncertainty's unexpected role in the missing person context showcases that other-oriented crises (e.g., missing persons) may be perceived differently by

individuals than if they themselves were affected in a crisis. Specifically, uncertainty of the situation may prompt more urgency to share (although potentially not actual sharing).

Empathy arousal also provided mixed support for the recently revised CERC model propositions (Miller et al., 2021). As anticipated, there was a relative positive indirect effect of empathy arousal on sharing intention through self-efficacy emphasizing the power of expressing other's distress in encouraging others to share about an other-oriented crisis. However, unexpectedly, there was a relative positive indirect effect of empathy arousal on sharing intention through emotional turmoil. Although not consistent with the CERC model (Reynolds & Seeger, 2005), based on content contagiousness, emotional arousal has been shown to increase spreadability (Berger, 2013). Thus, based on emotional turmoil being other-oriented (i.e., toward a missing person and their loved ones), the CERC model may not be representative of all crisis events and is in need of more delineation, as discussed further in Theoretical Implication section below.

Respect arousal's indirect relationship with sharing intention through audience outcomes also requires some further discussion. The indirect effect of respect arousal on sharing intention through self-efficacy and emotional turmoil is consistent with the CERC model propositions (Miller et al., 2021), reinforcing that inducing feelings of value and affirmation are important for boosting individuals' confidence, prosocial anxiety, and ultimately sharing intentions. Surprisingly, however, there was a positive indirect effect of respect arousal on sharing intention through uncertainty, indicating that individuals who feel respected may become more motivated to get answers to unknowns surrounding a missing person case because they feel like they play a valuable role in helping a member of their community. Future research should investigate any

additional mechanisms (e.g., issue involvement) that could explain this indirect relationship that deviates from the CERC model.

Lastly, the *negative* effect of empathy and respect on engagement in study one and *positive* effect of empathy and respect on behavioral intention in study two could be due to the behavioral intention and actual behavior gap (e.g., Sheeran & Webb, 2016). As illustrated in study two, behavioral intention does not always correlate with actual behavior. Therefore, individuals may behave differently when being asked questions about sharing a missing person post versus simply being faced with the decision naturally. For example, an individual may self-report on a survey that they intend to share a post about a distressed missing person because it is socially acceptable, but may not actually share a post about a distressed missing person while naturally scrolling through X (Twitter). Although realism was carefully considered at each point of experimental development, qualitative interviewing may overcome any social desirability experienced by participants.

Theoretical Implications

Theoretically, this dissertation is one of the first to experimentally test the recently clarified CERC model (Reynolds & Seeger, 2005) relationships outlined by Miller et al. (2021) and expands the utility of the CERC model in several ways. The first extension in scope conditions of the CERC model is investigating how an other-oriented crisis affects the crisis communication process. The CERC model was developed to effectively communicate risks and crises to relevant publics. However, a missing person may not be a relevant crisis for a member of a community as it likely does not directly affect them which may lead to non-sharing, making it necessary to understand the connection between other-oriented crises and sharing behavior. The results of the current study suggest that some message characteristics (and psychological

states) impact audience outcomes in an other-oriented crisis as the CERC model proposes (Miller et al., 2021; Reynolds & Seeger, 2005). In particular, self-efficacy remained a positive influence on prosocial sharing of missing persons posts likely due to the variable being relevant to the participant themselves (i.e., their own confidence) versus the variable being directed towards someone else (e.g., the missing person). Therefore, the relevance of self-efficacy may have made the message connect more with individuals and prompted sharing. On the other hand, uncertainty and emotional turmoil performed in opposition to the CERC model propositions (Miller et al., 2021; Reynolds & Seeger, 2005). One potential reason for the opposition is because the high arousal emotions expressed about a community member (e.g., uncertainty and anxiety from the missing person's unknown condition; Berger, 2013) trigger a desire to help within community members, making the crisis more relevant and shareable. Thus, when a crisis affects a member of someone's community rather than the individual being asked to act, several adjustments to communication via the CERC model must be made.

As suggested by study two's findings and prior literature on the importance of relevance on inducing action (e.g., Sellnow & Sellnow, 2014), when the crisis is other-oriented, elements of relevance (e.g., internalization, community attachment) should be added to the existing CERC model framework. First, internalization should be added as a message characteristic alongside timeliness, accuracy, source credibility, empathy, action-orientation, and respect. Internalization focuses on facilitating perceptions that the content of a message is valuable and relevant (e.g., Johansson et al., 2021), which is especially important in an other-oriented crisis. A message inducing internalization may inform an individual of the relevant circumstances surrounding the crisis (e.g., severity of consequences; Sellnow et al., 2017). In the missing person context, a relevant message may include the exact location where the missing person was last seen or that

the missing person is a member of the community. Internalization is an important factor that motivates individuals to engage in protective behavior (e.g., Sellnow & Sellnow, 2014; Sellnow et al., 2019) and therefore should be tested as an addition to the existing CERC model message characteristics when involving an other-oriented crisis.

Another way to incorporate relevance into the CERC model for an other-oriented crisis includes assessing community attachment as an audience outcome. Community attachment is described as "how close individuals feel to the people in their neighborhoods" (Hindman, 1997, p. 1). Adding community attachment to the current host of audience characteristics (i.e., self-efficacy, knowledge of risks and resources, uncertainty, emotional turmoil) may fill the gap needed to boost relevance of a missing person crisis in the community. Factors like length of residency impact community attachment (e.g., Kasarda & Janowitz, 1974; Stinner et al., 1990), the extent of feeling 'at home' in a community and sadness from the thought of moving away have been used to measure community engagement (e.g., Hoffman & Eveland Jr., 2010). Therefore, message characteristics that arouse emotion (e.g., empathy), value of community members (e.g., respect), and relevance to the well-being of the neighborhood (e.g., internalization) would likely positively influence community engagement. Given that community attachment has been positively linked to behavior (e.g., community-based activities; Kyle, 2010), the inclusion of community attachment as an audience outcome justifies further investigation alongside internalization as a message characteristic. With the addition of relevance in the form of internalization (i.e., message characteristic) and community engagement (i.e., audience outcome), the CERC model (Reynolds & Seeger, 2005) should fit other-oriented crises like a missing person in a community.

Practical Implications

In addition to theoretical implications, this dissertation offers practical implications for law enforcement who are trying to promote missing person information in their communities. Missing persons communication is a small percentage of what law enforcement is responsible for on a daily basis (Captain of Services Daniel Barnes, 2023). Therefore, recommendations presented to law enforcement when communicating about missing persons must be minimal, realistic, and easily integrated into social media templates that are already being used. Therefore, the practical implications below were crafted with law enforcement's strict procedures and resource constraints in mind.

First, law enforcement should use the current results as a reminder to consider the context of a situation before following prescriptive crisis communication guidelines. Since its development in 2002, the CERC model manual has been revised three times and has been used to train upward of 100,000 workers in the public health sector (Sellnow & Seeger, 2021). Although widely used by the government, the results of this dissertation suggest that CERC model recommendations (Reynolds & Seeger, 2005; CDC, 2018) do not fit all crisis contexts seamlessly. In particular, the missing person context explored here is an other-oriented crisis which functions differently than what the CERC model proposed (Miller et al., 2021). Therefore, when crafting templates for missing person communication, law enforcement should take heed in not only including established communication recommendations, but considering the context of the situation before posting.

Additionally, results indicate that law enforcement should induce self-efficacy and emotional turmoil, as these were the only two audience outcomes that predicted actual sharing behavior in study two. Study two results suggest that law enforcement can evoke self-efficacy

and emotional turmoil by using timely messages and arousing empathy and respect in their communication with the public. Posting quickly and specifying that the missing person was last seen less than 24 hours ago will boost individual's confidence in their ability to help a missing person (i.e., self-efficacy) and anxiety towards the missing person's condition (i.e., emotional turmoil), which in turn may lead to social media sharing behavior that will help law enforcement solve cases. Inducing self-efficacy and emotional turmoil is also consistent with content contagiousness literature, which states that content evoking high-arousal emotions (e.g., confidence, anxiety) are more spreadable than low-arousal emotions like sadness (Berger, 2013; Berger & Milkman, 2012). Although other CERC model message characteristics (i.e., accuracy, source credibility, action-orientation) may positively affect audience outcomes, results of this dissertation suggest that self-efficacy and emotional turmoil evoked through timeliness, empathy, and respect should be prioritized when crafting missing person message templates for social media.

Limitations

Although the findings of this dissertation provide meaningful implications for both theory and practice, several limitations are present. First, given that the manipulations for empathy and respect were not perceived as intended, the data analysis approach for these two independent variables shifted. The initial purpose of study two was to experimentally test the impact of timely, empathetic, and respectful message features on audience outcomes (i.e., self-efficacy, knowledge, uncertainty, and emotional turmoil) as well as the subsequent impact of these audience outcomes on protective behavior (e.g., sharing missing person posts). However, following their unsuccessful manipulation, empathy and respect were investigated as psychological states of the two variables (i.e., continuous measurements of empathy and respect;

O'Keefe, 2003) and how those states impact the outcomes of interest. Although it is not uncommon for researchers to adapt to their failed manipulations (e.g., Richard et al., 2017), conclusions about the language used to evoke empathy and respect in these messages cannot be made, limiting the practical value of message recommendations for law enforcement.

Another limitation is the homogeneity of the study two sample. Although the sample in study two's full study was varied in terms of age, gender, education, and political background, the sample was not ethnically diverse as participants were mostly White (79.05%). Given that a disproportionate number of missing individuals are Black (FBI, 2023; United States Census Bureau, 2021) and the missing person appearing in the experimental stimuli was Black, a post hoc analysis of ethnicity's influence on the hypothesized relationships was conducted to ensure validity of the results. Although participant ethnicity did not significantly contribute to any relationships in study two's analyses, having representative samples comprised of the community members being studied can better capture relevant experiences which can lead to more precise implications that can be meaningfully applied back into that community (Afifi & Cornejo, 2020).

Finally, although all participants in study two's full study were required to have an account on X (Twitter), most participants (75.6%) did not follow a law enforcement account on X (Twitter), which may have impacted the external validity of the results. Given that individuals following law enforcement accounts would be more likely to view missing person messages, these individuals may also be more likely to experience message fatigue (So et al., 2017) or compassion fatigue (Kinnick et al., 1996) from these types of messages. Therefore, based on one of the goals of this dissertation being to create impactful missing person messages that reduce the need for repeated exposure (which otherwise risks experiences of fatigue), soliciting participation from individuals who regularly view missing persons messages may alter certain

results. For example, greater amounts of uncertainty and emotional turmoil may be needed for followers of law enforcement accounts to induce sharing as followers may be accustomed to seeing the uncertainty and anxiety surrounding missing persons cases and may not be moved to action as easily compared to non-followers. Further comparison between followers and non-followers of law enforcement accounts is needed to confirm these suppositions. Ultimately, the results of this dissertation are still useful because even though followers are most likely to see the missing person messages disseminated by law enforcement accounts, law enforcement often still crowdsource with followers and non-followers (e.g., AMBER alerts).

Future Directions

To address the limitations above and further explore the missing person crisis communication process, future directions are proposed. Specifically, empathy and respect should be further explored and defined, replication in various communities should be conducted, and other crisis frameworks should be tested in the missing person context.

Given the difficulty of manipulating empathy and respect in the missing person context (e.g., Kuchenbecker, 2023), further investigation on how to induce these psychological states through message characteristics is merited. For example, law enforcement re-sharing a post written by a loved one of the missing person could potentially elicit greater empathy. Other elements that may impact empathy and respect should also be explored (e.g., recognizing the missing person, those who follow law enforcement vs. don't follow law enforcement). Additionally, other message characteristics which are easier for law enforcement to elicit should be explored to facilitate the easy replication of engagement. For example, in study one, source credibility was the most frequent message characteristic found within the sample of existing law enforcement missing person posts (92.8% of messages included source credibility). However, the

presence of source credibility was not a significant predictor of engagement (i.e., retweets, likes, replies). Although not a significant predictor, given the frequent use of source credibility, this characteristic should be explored experimentally using current law enforcement's social media account followers as the population of interest. These findings will provide further recommendations to law enforcement on altering or maintaining their current use of source credibility (or comparable message characteristics) in missing person message templates.

Additionally, in the missing person context, understanding the perceptions of individuals from communities where missing person crises occur at a frequency disproportionally higher than other communities can benefit law enforcement's communication efforts. For example, there is a disproportionate amount of Black missing individuals (31%; FBI, 2023) compared to the total amount of Black individuals in the United States (13.6%; United States Census Bureau, 2021). Additionally, missing indigenous individuals are an increasing concern in the United States (Office of Public Affairs, 2022). Thus, future research should replicate the studies in this dissertation with a sample more representative of the missing person featured in the post being investigated. Although no differences in sharing emerged after including ethnicity as a covariate, future studies can explore culturally relevant messaging to further boost the likelihood of sharing in certain communities.

Lastly, other crisis communication theories should be explored in the missing person context. Communication scholars are in a unique position to aid law enforcement and families of the missing by applying the field's crisis communication scholarship to create stronger tactics to engage the public in crowdsourcing efforts to locate missing individuals. In addition to the CERC model examined in this dissertation, the concept of spreadability (Jenkins et al., 2013) as well as the STEPPS framework (Berger, 2013) explain how messages spread across networks

and could provide insight into which missing person message characteristics resonate with which audiences. Specifically, the STEPPS framework poses six principles of content contagiousness (i.e., social currency, triggers, emotions, public, practical value, and stories), or why ideas and messages spread which could be beneficial in promoting missing person messages. Given that the findings of the empathetic arousal manipulation in study two suggest that emotions can be influential in facilitating missing person message sharing, other STEPPS elements should be investigated. For example, given the spreadability of content when it is framed as a story (Berger, 2013), narrative missing person messages injected with emotion should be explored.

Another framework that can aid in message creation for missing persons is the IDEA model (Sellnow & Sellnow, 2014). The IDEA model was founded in the experiential learning theory (Dewey, 1938) and presents risk and crisis practitioners with a blueprint on crafting effective crisis and risk messages. The IDEA model's element of internalization (i.e., relevance, value in message; Sellnow & Sellnow, 2014) may be especially impactful as the public may not see the immediate relevance or value of helping a stranger in their community who has not been able to be located. This experiential learning framework may also aid in further understanding the role of knowledge of risk and resources in prompting message sharing behavior. By applying additional crisis communication literature (i.e., spreadability, STEPPS, IDEA model), communication scholars can assist law enforcement in their crowdsourcing efforts by suggesting how to craft persuasive missing person messages that are more likely to spread, ultimately leading to more missing individuals being located and returned to their loved ones.

Conclusion

Missing person communication presents a unique challenge to law enforcement given individuals' hesitation in sharing missing person information on social media (Kuchenbecker,

2023; Solymosi et al., 2021). Therefore, this two-part dissertation utilized Reynolds and Seeger's (2005) CERC model to recommend message characteristics to emphasize or minimize when communicating to the public about missing persons to encourage sharing behavior. Even though the CERC model has been widely successful in practice for communication during risk and crisis events (e.g., Nour et al., 2017; Rice & Spence, 2016), law enforcement should consider the context of a crisis before using prescriptive crisis communication models. Specifically, in the missing person context, law enforcement should evoke self-efficacy and emotional turmoil by using timely messages and arousing empathy and respect in their communication with the public to induce sharing behavior. The results from this dissertation also indicated that when a crisis is other-oriented (i.e., affects a member of someone's community rather than the individual being asked to act), several adjustments to communication via the CERC model may need to be made (e.g., relevance through internalization [message characteristic] and community engagement [audience outcome]). Therefore, being one of the first to experimentally test the recently proposed CERC model (Reynolds & Seeger, 2005) relationships outlined by Miller et al. (2021), this dissertation illustrates the continued work that must be done to understand how the CERC model functions in a variety of contexts.

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Appendix A

Tables and figures containing additional information

Table 1

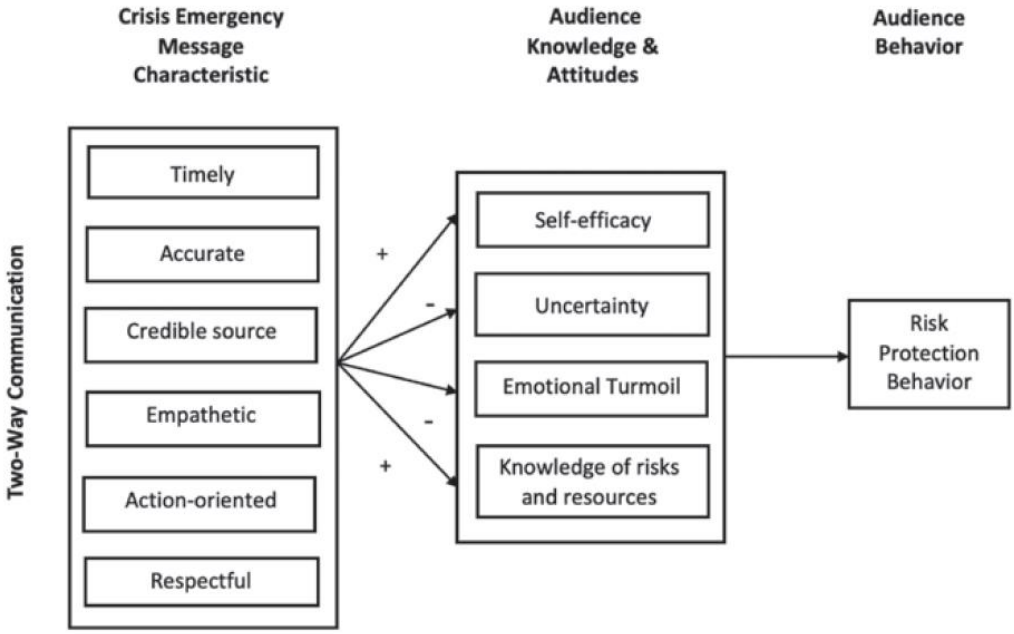
DOJ Recommended Guidelines for AMBER Alert Issuance

There is reasonable belief by law enforcement an abduction has occurred.
The abduction is of a child age 17 or younger.
The law enforcement agency believes the child is in imminent danger of serious bodily injury or death.
There is enough descriptive information about the victim and abduction for law enforcement to issue an AMBER Alert to assist in the recovery of the child.
The child's name and other critical data elements, including the Child Abduction flag, have been entered into the National Crime Information Center (NCIC) database.

Note. Guidelines obtained from National Center for Missing & Exploited Children (2021).

Figure 1

Graphical Representation of CERC Model Principles



Note. Proposed by Miller et al. (2021).

Figure 2

Parallel Multiple Mediation Conceptual Model

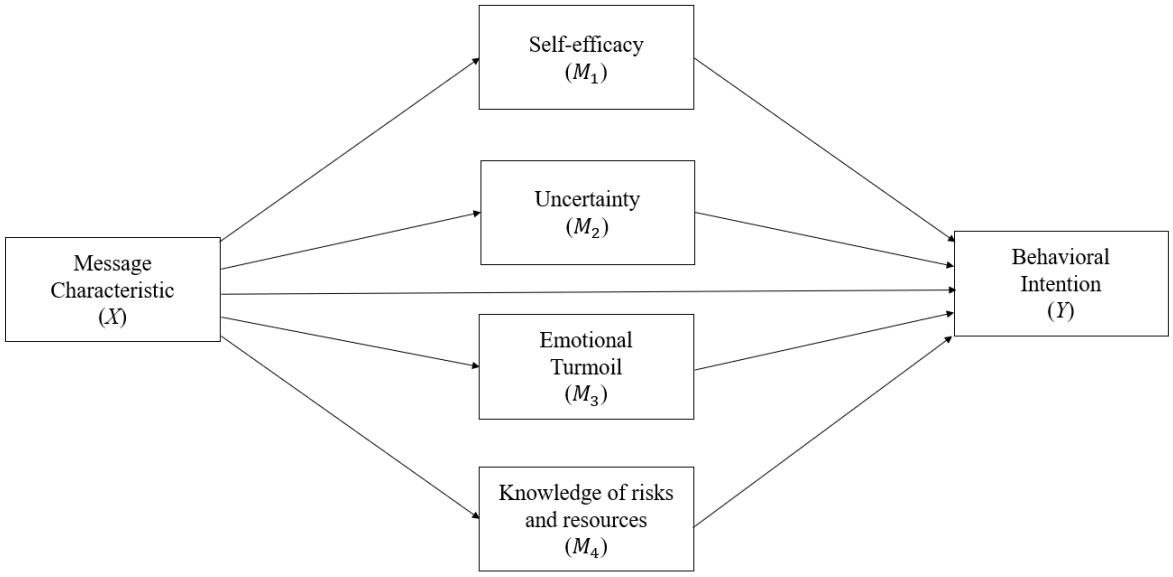


Table 2

Law Enforcement X (Twitter) Accounts Scraped

States with Highest Rate of NamUs Missing Person Reports	Agencies Serving a Population of at Least 300,000 People and Active on X (Twitter)
California	Los Angeles County Sheriff's Dept.
	San Diego Police Dept.
	Alameda County Sheriff's Office
	Bakersfield Police Dept.
	Los Angeles Police Dept.
	San Diego County Sheriff's Dept
	Sacramento Police Dept.
	Santa Ana Police Dept.
	San Francisco Police Dept.
	Kern County Sheriff's Dept.
	Oakland Police Dept.
	Orange County Sheriff's Dept.
	Stockton Police Dept.
	Ventura County Sheriff's Office
	Riverside Police Dept.
	Sacramento County Sheriff's Office
	San Jose Police Dept.
	Santa Clara County Sheriff's Office
	Anaheim Police Dept.
Texas	Fort Worth Police Dept.
	Houston Police Dept.
	Dallas Police Dept.
	Harris county Sheriff's Office
	Austin Police Dept.
	El Paso County Sheriff's Office
	El Paso Police Dept.
	Montgomery County Sheriff's Office
	Corpus Christi Police Dept.
	San Antonio Police Dept.
	Travis County Sheriff's Office
Florida	Orange County Sheriff's Office
	Miami Police Dept.
	Hillsborough County Sheriff's Office
	Palm Beach County Sheriff's Office

	Broward County Sheriff's Office
	Jacksonville Sheriff's Office
	Pinellas County Police Dept.
	Manatee County Sheriff's Office
	Tampa Police Dept.
	Volusia County Sheriff's Office
	Virginia Beach Police Dept.
	Lee County Sheriff's Office
	Osceola County Sheriff's Office
	Collier County Sheriff's Office
	Seminole County Sheriff's Office
Arizona	Phoenix Police Dept.
	Pima County Sheriff's Dept.
	Mesa Police Dept.
	Tucson Police Dept.
New York	New York Police Dept.
Washington	Seattle Police Dept.
	Pierce County Sheriff's Dept.
Oklahoma	Oklahoma City Police Dept.
	Tulsa Police Dept.
Tennessee	Memphis Police Dept.
	Metropolitan Nashville Police Dept.
	Shelby County Sheriff's Office
Michigan	Detroit Police Dept.

Note. Agencies identified using NIJ (2023) missing person statistics and the 2016 Law Enforcement Management and Administrative Statistics (LEMAS) survey (Bureau of Justice Statistics, 2016; utilized by Dong & Wu, 2022).

Table 3

Pilot Test Participant Demographics

Characteristics	M (*SD*)	Min	Max	*n*	%
Age of Participant	50.50 (*17.01*)	20	88		
Gender					
Female				118	60.5
Male				74	37.9
Prefer not to answer				1	<1.0
Ethnicity[a]					
Asian/Asian American				11	5.6
Black/African American				26	13.3
Hispanic/Latino/Latina				12	6.2
Indigenous				2	1.0
Other				5	2.6
Pacific Islander				1	<1.0
White				135	69.2
Education					
Some high school				8	4.1
High school graduate/GED				58	29.7
Some college				66	33.8
2-year degree				16	8.2
4-year degree				31	15.9
Master's degree				8	4.1
Professional degree				5	2.6
Doctorate				2	1.0
Income					
Less than $10,000				19	9.7
$10,000 - $29,999				64	32.8
$30,000 - $49,999				49	25.2
$50,000 - $69,999				30	15.4
$70,000 - $99,999				18	9.3
$100,000 - $149,999				8	4.1
More than $150,000				3	1.5
Prefer not to answer				2	1.0
Employment					
Full-time				68	34.9
Part-time				25	12.8
Student				5	2.6
Unemployed				24	12.3
Retired				60	30.8
Other				12	6.2
Political affiliation					
Democrat				64	32.8
Independent				50	25.6
No affiliation				15	7.7
Other				1	<1.0
Republican				63	32.3
Follow law enforcement social media accounts?					
Yes				22	11.3
No				171	87.7
Know a friend/family member who has gone					
Yes				22	11.3
No				172	88.2
Recognize missing person in the post(s)?					

Yes	9	4.6
No	185	94.9

Note. $N = 195$; [a]Participants were allowed to select all that apply.

Figure 3

Revised Respect Condition Used in Full Study

Table 4

Full Study Participant Demographics

Characteristics	M (*SD*)	Min	Max	*n*	%
Age of Participant	55.35 (*15.80*)	18	85		
Gender					
Female				218	57.8
Male				158	41.9
Did not answer				1	<1.0
Ethnicity[a]					
Asian/Asian American				13	3.4
Black/African American				53	14.1
Hispanic/Latino/Latina				20	5.3
Indigenous				10	2.7
Middle Eastern				2	<1.0
Other				2	2.1
Pacific Islander				2	<1.0
White				298	79.0
Education					
Some high school				12	3.2
High school graduate/GED				71	18.8
Some college				93	24.7
2-year degree				46	12.2
4-year degree				100	26.5
Master's degree				41	10.9
Professional degree				6	1.6
Doctorate				7	1.9
Income					
Less than $10,000				23	6.1
$10,000 - $29,999				101	26.9
$30,000 - $49,999				80	21.3
$50,000 - $69,999				52	13.8
$70,000 - $99,999				51	13.6
$100,000 - $149,999				40	10.6
More than $150,000				21	5.6
Prefer not to answer				8	2.1
Employment					
Full-time				98	26.0
Part-time				49	13.0
Student				8	2.1
Unemployed				36	9.5
Retired				158	41.9
Other				19	1.9
Prefer not to answer				7	5.0
Political affiliation					
Democrat				130	34.5
Independent				88	23.3
No affiliation				15	4.0
Other				3	<1.0
Republican				139	36.9
Follow law enforcement social media accounts?					
Yes				91	24.1
No				285	75.6

Know a friend/family member who has gone missing?		
Yes	37	9.8
No	339	89.9
Recognize missing person in the post(s)?		
Yes	18	4.8
No	357	94.7

Note. $N = 377$; [a]Participants were allowed to select all that apply.

Table 5

Zero-Order Correlation Matrix

	1	2	3	4	5	6	7	8	9
1. Active X Use									
2. Passive X Use	.39***								
3. State Empathy	.41***	.15**							
4. Respect	.25***	.15**	.40***						
5. Self-efficacy	.39***	.24***	.53***	.32***					
6. Knowledge	.41***	.22***	.60***	.23***	.52***				
7. Uncertainty	.29***	.14**	.37***	.30***	.57***	.39***			
8. Emotional Turmoil	.33***	.15**	.63***	.17***	.42***	.62***	.37***		
9. Negative LE	.03	.02	-.05	-.09	-.04	-.01	-.08	-.04	
10. Interest in crime	.39***	.09	.47***	.30***	.47***	.40***	.44***	.54***	.03

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$; 1) active X (Twitter) use, 2) passive X (Twitter) use, 3) continuous state empathy measurement, 4) continuous respect measurement, 5) self-efficacy, 6) knowledge of risk and resources, 7) uncertainty, 8) emotional turmoil, 9) negative attitude toward law enforcement, and 10) interest in information and news about crime.

Table 6

Path Coefficients for Timeliness Serial Mediation

Model		Coeff	SE	*t*	*p*	LLCI	ULCI
Self-efficacy	M_1						
$F(5, 247) = 6.48$, $p < .001$, $R^2 = .12$							
Constant		2.94	.42	7.02	<.001	2.11	3.76
x1		-.77	.28	-2.78	.006	-1.31	-.22
x2		-.39	.28	-1.40	.162	-.94	.16
x3		-.58	.28	-2.11	.036	-1.13	-.04
Interest in crime info		.34	.07	5.03	<.001	.21	.48
Negative LE attitude		-.002	.07	-.03	.973	-.14	.13
Uncertainty	M_2						
$F(6, 246) = 21.08$, $p < .001$, $R^2 = .34$							
Constant		3.62	.28	12.82	<.001	3.06	4.17
x1		-.02	.17	-.12	.906	-.36	.32
x2		-.05	.17	-.26	.792	-.38	.29
x3		-.44	.17	-2.57	.011	-.78	-.10
Self-efficacy		.37	.04	9.55	<.001	.30	.45
Interest in crime info		.06	.04	1.31	.193	-.03	.14
Negative LE attitude		-.05	.04	-1.17	.244	-.13	.03
Emotional turmoil	M_3						
$F(7, 245) = 11.97$, $p < .001$, $R^2 = .25$							
Constant		.90	.51	1.77	.078	-.10	1.90
x1		.04	.24	.17	.866	-.43	.51
x2		-.26	.24	-1.09	.275	-.73	.21
x3		-.16	.24	-.64	.521	-.63	.32
Self-efficacy		.28	.06	4.43	<.001	.16	.41
Uncertainty		.19	.09	2.08	.038	.01	.36
Interest in crime info		.22	.22	3.54	.001	.10	.34
Negative LE attitude		.05	.05	.87	.384	-.07	.17
Knowledge of risks and resources	M_4						
$F(8, 244) = 31.34$, $p < .001$, $R^2 = .51$							
Constant		1.52	.28	5.51	<.001	.98	2.06
x1		.14	.13	1.09	.276	-.11	.40
x2		-.09	.13	-.69	.493	-.34	.17
x3		-.07	.13	-.55	.586	-.33	.19
Self-efficacy		.17	.04	4.83	<.001	.10	.24
Uncertainty		.07	.05	1.36	.174	-.03	.16
Emotional turmoil		.30	.03	8.70	<.001	.23	.37
Interest in crime info		.06	.03	1.68	.094	-.01	.12
Negative LE attitude		-.02	.03	-.52	.603	-.08	.05
Behavioral intention	Y						
$F(9, 243) = 19.88$, $p < .001$, $R^2 = .42$							

Constant	.87	.52	1.66	.099	-.16	1.90
x1	-.26	.23	-1.11	.269	-.72	.20
x2	-.16	.23	-.70	.482	-.62	.29
x3	-.10	.24	-.42	.674	-.56	.36
Self-efficacy	.21	.07	3.19	.002	.08	.35
Uncertainty	.21	.09	2.42	.017	.04	.38
Emotional turmoil	.44	.07	6.25	<.001	.30	.58
Knowledge of risks and resources	-.06	.11	-.54	.590	-.29	.16
Interest in crime info	.14	.06	2.23	.027	.02	.26
Negative LE attitude	-.03	.06	-.53	.596	-.14	.08

Serial Mediation			Boot CI	
Timeliness	Coeff	Boot SE	LLCI	ULCI
Condition – Self-efficacy – Intention				
Relative indirect effect for x1	-.16	.08	-.35	-.03
Relative indirect effect for x2	-.08	.07	-.24	.03
Relative indirect effect for x3	-.13	.07	-.28	-.01
Condition – Uncertainty – Intention				
Relative indirect effect for x1	-.004	.04	-.08	.08
Relative indirect effect for x2	-.01	.04	-.09	.06
Relative indirect effect for x3	-.09	.06	-.23	-.01
Condition – Emotional turmoil – Intention				
Relative indirect effect for x1	.02	.10	-.18	.21
Relative indirect effect for x2	-.12	.11	-.35	.08
Relative indirect effect for x3	-.09	.10	-.26	.12
Condition – Knowledge of risks & resources – Intention				
Relative indirect effect for x1	-.01	.02	-.06	.03
Relative indirect effect for x2	.01	.02	-.03	.06
Relative indirect effect for x3	.004	.02	-.03	.05

Note. Path coefficients are unstandardized. Indicator coding for timeliness conditions (x1, x2, x3) reflect comparison with reference group (timely missing person message condition [0-24 hours]): x1 = recent missing person message (25-48 hours); x2 = delayed missing person message (49+ hours); x3 = no mention of time. Bootstrap CIs that do not include zero indicate mediation. LE = law enforcement.

Table 7

Path Coefficients for Empathy (X_1) and Respect (X_2) Serial Mediation

Model		Coeff	SE	*t*	*p*	LLCI	ULCI
Self-efficacy	M_1						
$F(4, 372) = 42.26$, $p < .001$, $R^2 = .31$							
Constant		1.50	.33	4.59	<.001	.86	2.15
Empathy	X_1	.41	.05	8.78	<.001	.32	.50
Respect	X_2	.11	.05	2.25	.001	.01	.21
Interest in crime info		.18	.05	3.38	.001	.08	.28
Negative LE attitude		.01	.05	.27	.784	-.08	.10
Uncertainty	M_2						
$F(6, 246) = 21.08$, $p < .001$, $R^2 = .34$							
Constant		3.28	.23	14.11	<.001	2.82	3.73
Empathy	X_1	.04	.04	1.20	.231	-.03	.11
Respect	X_2	.08	.03	2.39	.017	.01	.15
Self-efficacy		.35	.04	9.72	<.001	.28	.42
Interest in crime info		.01	.04	.25	.802	-.06	.08
Negative LE attitude		-.03	.03	-.90	.369	-.09	.03
Emotional turmoil	M_3						
$F(6, 370) = 48.89$, $p < .001$, $R^2 = .44$							
Constant		1.52	.34	4.45	<.001	.85	2.19
Empathy	X_1	.50	.04	11.86	<.001	.41	.58
Respect	X_2	-.13	.04	-3.14	.002	-.21	-.05
Self-efficacy		.04	.05	.89	.375	-.05	.14
Uncertainty		.20	.06	3.20	.002	.08	.32
Interest in crime info		.08	.04	1.87	.063	-.005	.17
Negative LE attitude		.00	.04	-.01	1.00	-.07	.07
Knowledge of risks and resources	M_4						
$F(7, 369) = 54.20$, $p < .001$, $R^2 = .51$							
Constant		1.55	.23	6.78	<.001	.85	2.19
Empathy	X_1	.14	.03	4.46	<.001	.08	.21
Respect	X_2	-.02	.03	-.62	.534	-.07	.04
Self-efficacy		.13	.03	4.20	<.001	.07	.19
Uncertainty		.04	.04	1.09	.275	-.04	.12
Emotional Turmoil		.24	.03	7.14	<.001	.18	.31
Interest in crime info		.05	.03	1.71	.089	-.01	.11
Negative LE attitude		.02	.04	.94	.347	-.07	.04
Behavioral intention	Y						
$F(8, 368) = 31.96$, $p < .001$, $R^2 = .41$							
Constant		.17	.45	.37	.713	-.72	1.06
Empathy	X_1	.06	.06	.90	.370	-.07	.18
Respect	X_2	.12	.05	2.39	.018	.02	.22

Self-efficacy	.16	.06	2.78	.006	.05	.28
Uncertainty	.25	.08	3.25	.001	.10	.40
Emotional Turmoil	.43	.07	6.37	<.001	.30	.56
Knowledge of risks and resources	-.10	.10	-1.06	.290	-.29	.09
Interest in crime info	.13	.05	2.37	.018	.02	.23
Negative LE attitude	-.01	.05	-.23	.820	-.10	.08

Serial Mediation Relative Indirect Effect			Boot CI	
Empathy (X_1)	Coeff	Boot SE	LLCI	ULCI
Empathy – Self-efficacy – Intention	.07	.03	.01	.13
Empathy – Uncertainty – Intention	.01	.01	-.01	.04
Empathy – Emotional turmoil – Intention	.21	.04	.13	.30
Empathy – Knowledge of risks & resources – Intention	-.01	.02	-.05	.02
Respect (X_2)				
Respect – Self-efficacy – Intention	.02	.01	.0001	.05
Respect – Uncertainty – Intention	.02	.01	.001	.05
Respect – Emotional turmoil – Intention	-.05	.02	-.10	-.02
Respect – Knowledge of risks & resources – Intention	.002	.005	-.01	.01

Note. Path coefficients are unstandardized. Bootstrap CIs that do not include zero indicate mediation. LE = law enforcement.

Appendix B

CERC model message characteristic codebook

RQ1: To what extent are CERC model message characteristics (i.e., timeliness, accuracy, source credibility, empathy, action-orientation, and respect) currently being utilized in law enforcement's missing person messages on social media?		
Category	**Definition**	**Examples**
1. Timeliness	This message characteristic stems from how quickly a crisis message is posted following the date that the missing person was last seen. *An immediate message* will be posted between 0-24 hours (less than 1 day) after the missing person was last seen. (Code = 1) *A recent* message will be posted between 25-48 hours (1-2 days) after the missing person was last seen. (Code = 2) *A delayed message* will be posted 49+ hours (3+ days) after the missing person was last seen. (Code = 3) If there is no mention to time (Code = 0)	*Immediate message:* 0-24 hours (less than 1 day) since last seen. "Missing person was last seen October 10, 2023" Post dated October 11, 2023. *Recent message*: 25-48 hours (1-2 days) since last seen. "Missing person was last seen October 10, 2023" Post dated October 12, 2023. *Delayed message:* 49+ hours (3+ days) since last seen. "Missing person was last seen October 10, 2023" Post dated October 13, 2023.
2. Accurate	This message characteristic stems from whether the information in the message is perceived as correct in describing what is known, unknown, and what is being done to know more about the crisis.	*Accurate message*: "The information in this message has been fact-checked" "is accurate" "confirmed by family" "family reports" "According to her family" "Last had contact with family"

		An accurate message will specifically refer to the information being confirmed or will specifically refer to where the information came from (e.g., by family, law enforcement). (Code = 1) *A message lacking accuracy* will **not** make mention to information being confirmed or fact checked by any entity. An alert being labeled (e.g., Silver, Amber) is not enough to establish accuracy. (Code = 0)	*Message lacking accuracy*: "The information in this message has not been fact-checked" "may not be accurate" "information unknown" "Silver alert was issued"
3.	Source credibility	Credibility is the perception of believability and is comprised of competence (i.e., perception of expertise), trustworthiness (i.e., having moral character), and care (i.e., perception of goodwill). *A message with source credibility* will showcase the source is an expert and possess knowledge of the event (e.g., last seen wearing) or procedures (e.g., his phone last tracked…), express the uncertainty of the missing person's safety and law enforcement's desire and enthusiasm to resolve the case, **and/or** will acknowledge social media users' hesitations with reporting sightings or sharing missing person posts. (Code = 1) *A message lacking source credibility* will **not** showcase the source is an expert and possess knowledge of the event or procedures, will **not** express the uncertainty of the missing person's safety and law enforcement's desire and enthusiasm to resolve the case, or acknowledge social media users' hesitations with reporting sightings or sharing missing person posts. Simply listing the name of the police department or name of alert is not enough to establish source credibility. (Code = 0)	*A message with source credibility:* "Note from Police Chief Greg" "His phone last tracked in the Morton and Randle areas" "We're checking several locations now" "We are committed to locating the individual" "Last seen wearing…" "Last seen on 2nd street" "Report any information" "Missing person scams are real concerns" *A message lacking source credibility:* "The Dallas Police Department is asking" "Silver alert issued" "We don't handle these cases often" "We hope to wrap this up soon" "Don't report an incorrect sighting" "We don't know what he was wearing last"

4.	State Empathy	This message characteristic communicates the specific distress experienced by a missing person or their family. *An empathetic message* will specifically recognize and experience the emotions of others, take on the perspective of another, and identify with another's experience. An empathetic message will often use emotional language (e.g., suffers, concerned) beyond pure facts of a case (e.g., Savorn's family reports he has medical conditions which cause him to be disoriented) (Code = 1) *A message lacking empathy* will **not** recognize and experience the emotions of others, take on the perspective of another, and identify with another's experience. A message lacking empathy may also vaguely recognize potential harm, without specifically addressing the emotions/perspective/experiences of others (e.g., at risk). (Code = 0)	*An empathetic message:* "His mother, Martha, is heartbroken" "Uriah has autism and his family is concerned for his welfare." "Sandra suffers from" *A message lacking empathy:* "Irresponsible lifestyle contributed to disappearance" "Missing at risk" "He may be in need of assistance" No affect shown
5.	Action-Orientation	This message characteristic stresses that there are certain actions individuals should engage in to help a missing person and their family. *An action-oriented message* will include a specific call to action. (Code = 1) *A message lacking action-orientation* will **not** include a specific call to action. (Code = 0)	*Action-oriented message:* "please share" "report sighting" "call 555-555-5555" "report tip/information" "call police" *Message lacking action-orientation:* "please help" No action asked
6.	Respect	This message characteristic stems from the idea that individuals want to be treated in a way that makes them feel good about themselves. Respectful	*A message with respect:* "We respect the members of this community and

	messages communicate to another that their feelings and behaviors are valued. *A respectful message* will use emotionally neutral language that is not patronizing, affirms the value of the audience's feelings and beliefs, and uses polite language (e.g., please). A respectful message might specifically ask for the community's help (e.g., we are asking for help) which showcases law enforcement valuing the actions of the community. (Code = 1) *A message lacking respect* will **not** use emotionally charged language that is patronizing, demeans the value of the audience's feelings and beliefs, and uses controlling language. (Code = 0)	graciously request your help." "WE NEED YOUR EYES!!" "we are asking for your help" "please help" *A message lacking respect:* "We do not believe the members of the community will make much of a difference" "Only contact us if you are certain" No respect shown

Appendix C

Pilot study survey recruitment script

To Whom It May Concern:

This is a study conducted by a student researcher at Chapman University in the School of Communication.

We are conducting a research study on how individuals respond to missing person messages. This study consists of an online questionnaire. You will be asked to respond to statements regarding missing person messages.

Participation will take 10 minutes in total to complete without distraction.

Your participation in this survey is voluntary. Your responses will be kept confidential and you can stop participation at any point without penalties. Remember that you should be 18 years or older to participate in this. If you agree to participate, you can withdraw from the study at any time and there will be no penalty. As with any study involving collection of data, there is the possibility of breach of confidentiality of data. Other risks in this research include possible emotional discomfort because the survey is about missing persons.

Upon completion of the study, you will receive compensation in the amount that you have agreed to with the platform through which you entered this survey.

If you have questions about this research project, you may email Cailin Kuchenbecker at kuchenbecker@chapman.edu or Dr. Hannah Ball at hball@chapman.edu.

If you have questions about your rights as a research participant, or to discuss other study-related concerns or complaints with someone who is not part of the research team, please call the CU Institutional Review Board (IRB) at (714) 628-2833.

Thank you for your consideration.

Cordially,

Hannah Ball, Ph.D.
Chapman University

Cailin Kuchenbecker
Chapman University

Appendix D

Pilot study stimuli

Condition 1: Timely (Immediate)

Condition 2: Timely (Recent)

Condition 3: Timely (Delayed)

Condition 4: Empathy

Condition 5: Respect

Condition 6: Control

Appendix E

Pilot study survey format

[Informed consent]

1. Informed Consent to Participate in Research
   We are asking you to take part in a research study being done by student researcher Cailin Kuchenbecker at Chapman University.

   Being in this study is optional, but if you choose to be in the study, you will complete one online survey. This will help us learn more about missing person messages posted on social media. You are being asked to be in this study because you are at least 18 years old. The study will take about 10 minutes to complete.

   Research designs sometimes require that the full intent of a study not be explained prior to participation. Although we have described the general nature of the tasks that you will be asked to perform, the full intent of the study will not be explained to you until after the completion of the study. At that time, we will provide you with a full debriefing which will include an explanation of the purpose of the study and other relevant background information pertaining to the study. You will also be given an opportunity to ask any questions you might have about the study and the procedures used in the study.

   You can skip questions that you do not want to answer or stop the survey at any time. The data will be stored electronically through a secure server and will only be seen by the research team during the study. Information from this study may be published in scientific journals or presented at scientific meetings but the data will be reported as group or summarized data. We will make every effort to keep your study data confidential and not share your personal information with anyone outside the research team, however, we cannot guarantee confidentiality.

   Questions? Please contact Cailin Kuchenbecker at kuchenbecker@chapman.edu or Dr. Hannah Ball at hball@chapman.edu. If you have questions or concerns about your rights as a research participant, call the Chapman University Institutional Review Board at (714) 628-2833.
   - o Yes, I agree to participate
   - o No, I do not agree to participate

[Eligibility]

1. Are you at least 18 years old?
   - o Yes
   - o No

You will now be shown **TWO** X (Twitter) posts from your local police department. You will be asked a set of questions after seeing each post. Please read each post carefully as you will not be able to return to the posts later. [Randomly assign to two conditions]

Please read this post from your local police department and answer the corresponding questions. You will be shown two posts in total. You must complete the first set of questions to move on to the next post.

[Perceived Message Realism] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree or disagree with the following statements.

1. It's possible that I would see a missing person message like this in real life.
2. This is a realistic missing person message that a person might see.

[Manipulation Check Items for Message Characteristics]
[Timeliness]

1. How long after the individual went missing did the police department post about the missing person?
    - 0-24 hours since the missing person was last seen (less than 1 day)
    - 25-48 hours after the missing person was last seen (1-2 days)
    - 49+ hours after the missing person was last seen (3+ days)
    - Not mentioned in post

Please indicate the extent to which you agree or disagree with the following statements. Strongly Disagree – Strongly Agree

1. The information in this post was timely compared to when the individual was *reported* missing.

[State empathy] Not at all – Completely
Please think about the missing person and the missing person's loved ones in the post you just viewed and indicate your impressions of the missing person and their loved ones.
Affective

1. I experienced the same emotions as the loved ones when reading the message.
2. I can feel the loved one's emotions.
3. I experienced the same emotions as the missing person when reading the message.
4. I can feel the missing person's emotions.

Cognitive

5. I can see the loved one's point-of-view.
6. I can understand what the loved ones are going through in the message.
7. I can see the missing person's point-of-view.
8. I can understand what the missing person is going through in the message.

Associative

9. I can relate to what the loved ones are going through in the message.
10. I can identify with the loved ones in the message.
11. I can relate to what the missing person is going through in the message.
12. I can identify with the missing person in the message.

[Respect] Not at all – Completely

Please indicate how well the following adjective represents the X (Twitter) missing person post you just viewed. The missing person message was…

1. Polite
2. Affirming
3. Respectful
4. Patronizing (reverse coded)

[Control Variables]
[Attitude Toward Law Enforcement]
Please indicate your general beliefs about law enforcement. There are no right or wrong answers. Police officers are…

1. Beneficial-harmful
2. Good-bad
3. Right-wrong
4. Fair-unfair
5. Positive-negative
6. Wise-foolish

[Interest in News and Information About Crime] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree or disagree with the following statements.

1. I am interested in news and information about crime.
2. I look forward to reading or watching news and information about crime because I enjoy it a lot.
3. I read or watch a lot of news and information about crime.
4. When I am reading or watching news and information about crime, I am fully focused and forget everything around me.

[Demographics]

1. What is your current age? _____

2. What is your gender identity?
    - Female
    - Male
    - Non-binary/third gender
    - I prefer to self-describe _____
    - I prefer not to answer

3. What is your ethnicity?
    - Black/African American
    - Asian/Asian American
    - White/Caucasian
    - Hispanic/Latino/Latina
    - Indigenous
    - Middle Eastern

- Pacific Islander
- White
- Other _____

4. What is the highest level of education you have completed?
    - Some high school
    - High school graduate/GED
    - Some college
    - 2-year degree
    - 4-year degree
    - Master's degree
    - Professional degree
    - Doctorate

5. What is your annual income?
    - Less than $10,000
    - $10,000 - $19,999
    - $20,000 - $29,000
    - $30,000 - $39,000
    - $40,000 - $49,000
    - $50,000 - $59,000
    - $60,000 - $69,000
    - $70,000 - $79,000
    - $80,000 - $89,000
    - $90,000 - $99,999
    - $100,000 - $149,999
    - More than $150,000
    - Prefer not to answer

6. What is your current employment status?
    - Full-time
    - Part-time
    - Student
    - Unemployed
    - Retired
    - Prefer not to say
    - Other _____

7. What is your political affiliation?
    - Republican
    - Democrat
    - Independent
    - No affiliation
    - Other_____

8. Do you currently follow any law enforcement X (Twitter) accounts?

- Yes
- No

9. Do you recognize the missing person(s) in the posts you viewed?
    - Yes
    - No

10. Has a friend or family member of yours gone missing?
    - Yes
    - No

11. Is there anything else about your experience with missing persons posts on social media that you would like to share? _____

12. Is there anything in this survey you found confusing? _____

[Debrief]
Thank you for your participation in this research study. For this study, it was important that we provide you with incorrect information about some aspects of the study. Now that your participation is completed, we will describe the incorrect information to you, why it was important, answer any of your questions, and let you decide whether you would like to have your data included in this study.

What you should know about this study

The purpose of this study is to learn more about how individuals decide to share law enforcement posts on X (Twitter) about missing persons. The missing person posts you viewed were fictitious and were created using made-up names and information. Fake names and information were used in order to protect the identities of the real missing individuals whose photos were featured in this study.

If you have questions

The main researchers conducting this study are Dr. Hannah Ball and student researcher Cailin Kuchenbecker at Chapman University in the School of Communication. Please ask any questions you have now in the box below. If you have questions later, you may contact student researcher Cailin Kuchenbecker at kuchenbecker@chapman.edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) at 714-628-2833 or irb@chapman.edu.

Right to withdraw data
You may choose to withdraw the data you provided prior to debriefing, without penalty or loss of benefits to which you are otherwise entitled. Please select below if you do, or do not, give permission to have your data included in the study.

____I give permission for the data collected from or about me to be included in the study.

____I DO NOT give permission for the data collected from or about me to be included in the study.

By clicking forward in this survey, you acknowledge that you have been debriefed.

Appendix F

Full study survey recruitment script

To Whom It May Concern:

This is a study conducted by a student researcher at Chapman University in the School of Communication.

We are conducting a research study on how individuals respond to missing person messages. This study consists of an online questionnaire. You will be asked to respond to statements regarding missing person messages.

Participation will take 14 minutes in total to complete without distraction.

Your participation in this survey is voluntary. Your responses will be kept confidential and you can stop participation at any point without penalties. Remember that you should be 18 years or older to participate in this study as well as be a user of X (Twitter). If you agree to participate, you can withdraw from the study at any time and there will be no penalty. As with any study involving collection of data, there is the possibility of breach of confidentiality of data. Other risks in this research include possible emotional discomfort because the survey is about missing persons.

Upon completion of the study, you will receive compensation in the amount that you have agreed to with the platform through which you entered this survey.

If you have questions about this research project, you may email Cailin Kuchenbecker at kuchenbecker@chapman.edu or Dr. Hannah Ball at hball@chapman.edu.

If you have questions about your rights as a research participant, or to discuss other study-related concerns or complaints with someone who is not part of the research team, please call the CU Institutional Review Board (IRB) at (714) 628-2833.

Thank you for your consideration.

Cordially,

Hannah Ball, Ph.D.
Chapman University

Cailin Kuchenbecker
Chapman University

Appendix G

Full study survey format

[Informed consent]

2. Informed Consent to Participate in Research
   We are asking you to take part in a research study being done by student researcher Cailin Kuchenbecker at Chapman University.

   Being in this study is optional, but if you choose to be in the study, you will complete one online survey. This will help us learn more about missing person messages posted on social media. You are being asked to be in this study because you are at least 18 years old and have reported using X (Twitter). The study will take about 14 minutes to complete.

   Research designs sometimes require that the full intent of a study not be explained prior to participation. Although we have described the general nature of the tasks that you will be asked to perform, the full intent of the study will not be explained to you until after the completion of the study. At that time, we will provide you with a full debriefing which will include an explanation of the purpose of the study and other relevant background information pertaining to the study. You will also be given an opportunity to ask any questions you might have about the study and the procedures used in the study.

   You can skip questions that you do not want to answer or stop the survey at any time. The data will be stored electronically through a secure server and will only be seen by the research team during the study. Information from this study may be published in scientific journals or presented at scientific meetings but the data will be reported as group or summarized data. We will make every effort to keep your study data confidential and not share your personal information with anyone outside the research team, however, we cannot guarantee confidentiality.

   Questions? Please contact Cailin Kuchenbecker at kuchenbecker@chapman.edu or Dr. Hannah Ball at hball@chapman.edu. If you have questions or concerns about your rights as a research participant, call the Chapman University Institutional Review Board at (714) 628-2833.
   - o Yes, I agree to participate
   - o No, I do not agree to participate

[Eligibility]

2. Are you at least 18 years old?
   - o Yes
   - o No

3. Please select which social media accounts you have. (Select all that apply.)
   - o Facebook
   - o Tik Tok

- Snapchat
- YouTube
- X (Twitter)
- LinkedIn

4. Please indicate how often you scroll through your X (Twitter) feed.
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always

5. Please indicate how often you post to your X (Twitter) feed.
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always

You will now be shown a X (Twitter) post from your local police department. Please read the post carefully, as you will be asked questions that refer to this message. You will not be able to return to the message. You can move on from this page in 30 seconds. [Randomly assign to a condition]

[Perceived Message Realism] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree or disagree with the following statements.

1. It's possible that I would see a missing person message like this in real life.
2. This is a realistic missing person message that a person might see.

[Manipulation Check Items for Message Characteristics]
[Timeliness]

1. How long after the missing person went missing did the police department post about the missing person?
    - 0-24 hours since the missing person was last seen (less than 1 day)
    - 25-48 hours after the missing person was last seen (1-2 days)
    - 49+ hours after the missing person was last seen (3 or more days)

Please indicate the extent to which you agree or disagree with the following statements. Strongly Disagree – Strongly Agree

1. The information in this post was timely compared to when the individual was *reported* missing.

[State empathy] Not at all – Completely

Please think about the missing person and the missing person's loved ones in the post you just viewed and indicate your impressions of the missing person and their loved ones.

Affective

13. I experienced the same emotions as the loved ones when reading the message.
14. I can feel the loved one's emotions.
15. I experienced the same emotions as the missing person when reading the message.
16. I can feel the missing person's emotions.

Cognitive

17. I can see the loved one's point-of-view.
18. I can understand what the loved ones are going through in the message.
19. I can see the missing person's point-of-view.
20. I can understand what the missing person is going through in the message.

Associative

21. I can relate to what the loved ones are going through in the message.
22. I can identify with the loved ones in the message.
23. I can relate to what the missing person is going through in the message.
24. I can identify with the missing person in the message.

[Respect] Not at all – Very

Please indicate how well the following adjective represents the X (Twitter) missing person post you just viewed. The missing person message was…

5. Polite
6. Affirming
7. Respectful
8. Patronizing (reverse coded)

[Post-test Audience Knowledge and Attitudes]

[Self-Efficacy] Completely Uncertain – Completely Certain

Please indicate your degree of uncertainty when thinking about how to help when a member of the community is missing.

1. I am certain I can master the skills to help this missing person.
2. I am certain I can figure out how to take action to help this missing person.
3. I believe I can do things to help this missing person.
4. I know I can take action to help this missing person.
5. I am certain I have the ability to take necessary action for this missing person.
6. I know that I have the ability to do things to help this missing person.
7. What I do with the knowledge I have about helping the missing person will keep them safe.

[Uncertainty] Completely Uncertain – Completely Certain

Please indicate your degree of certainty when thinking about:

1. The danger the missing person is in.

2. Where the missing person was last seen.
3. When the missing person was reported missing.
4. What the missing person looks like.
5. How I can act to help the missing person in my community.
6. How I can share information about the missing person.
7. How to act if I see the missing person.
8. How to act if I get information on the missing person's location.

[Emotional Turmoil] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree with each of the following statements. There are no right or wrong answers.
Depression

1. I felt downhearted and blue after reading the message.
2. I felt sad and depressed after reading the message.

Anxiety

3. I was worried about the missing person in the message.
4. I felt scared for the missing person when reading message.

Stress

5. I felt that I was using a lot of nervous energy when reading the message.
6. I found myself getting impatient when reading the message.

[Knowledge of Risks and Resources] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree with each of the following statements. There are no right or wrong answers.

1. I have learned a great deal from this message about how to help when a member of the community goes missing.
2. I have learned more about how to help when a member of the community goes missing from other messages.
3. My knowledge about how to help when a member of the community goes missing has increased since before reading the message.
4. I can clearly recall information about how to help when a member of the community goes missing from the message.
5. I would be unable to use the information from the message to help when a member of the community goes missing.
6. I have learned nothing from the message about how to help when a member of the community goes missing.
7. After reading this message, I can see clear changes in my understanding of how to help when a member of the community goes missing.
8. I am unable to recall what I have learned from the message about how to help when a member of the community goes missing.
9. I have learned information that I can apply.
10. I do not understand this missing person message.

[Prosocial Sharing Behavioral Intention] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree or disagree with the following statements.

1. I intend to share a missing person post to my X (Twitter) feed in the near future.
2. Sharing a missing person post on my X (Twitter) feed is something I plan to do soon.
3. I would be willing to share a missing person post to my X (Twitter) feed.

[Actual Prosocial Sharing Behavior] Strongly Disagree – Strongly Agree

1. At the end of the survey, would you like to be directed to X (Twitter) so you can share the missing person post you viewed on your X (Twitter) feed?
    - Yes
    - No

[Control Variables]
[Attitude Toward Law Enforcement]
Please indicate your general beliefs about law enforcement. There are no right or wrong answers.
Police officers are…

1. Beneficial-harmful
2. Good-bad
3. Right-wrong
4. Fair-unfair
5. Positive-negative
6. Wise-foolish

[Interest in News and Information About Crime] Strongly Disagree – Strongly Agree
Please indicate the extent to which you agree or disagree with the following statements.

1. I am interested in news and information about crime.
2. I look forward to reading or watching news and information about crime because I enjoy it a lot.
3. I read or watch a lot of news and information about crime.
4. When I am reading or watching news and information about crime, I am fully focused and forget everything around me.

[Demographics]

13. What is your current age? _____

14. What is your gender identity?
    - Female
    - Male
    - Non-binary/third gender
    - I prefer to self-describe _____
    - I prefer not to answer

15. What is your ethnicity?
    - Black/African American
    - Asian/Asian American
    - White/Caucasian

- Hispanic/Latino/Latina
- Native American
- Pacific Islander
- Middle Eastern
- Other _____

16. What is the highest level of education you have completed?
    - Some high school
    - High school graduate/GED
    - Some college
    - 2-year degree
    - 4-year degree
    - Master's degree
    - Professional degree
    - Doctorate

17. What is your annual income?
    - Less than $10,000
    - $10,000 - $19,999
    - $20,000 - $29,000
    - $30,000 - $39,000
    - $40,000 - $49,000
    - $50,000 - $59,000
    - $60,000 - $69,000
    - $70,000 - $79,000
    - $80,000 - $89,000
    - $90,000 - $99,999
    - $100,000 - $149,999
    - More than $150,000

18. What is your current employment status?
    - Full-time
    - Part-time
    - Student
    - Unemployed
    - Retired
    - Prefer not to say
    - Other _____

19. What is your political affiliation?
    - Republican
    - Democrat
    - Independent
    - No affiliation
    - Other_____

20. [X (Twitter) Usage] How frequently do you perform the following activities when you are on X (Twitter)? [Note: Choosing "Very Frequently" means that about 100% of the time that you log on to X (Twitter), you perform that activity].
    Active Usage
        1. Posting status updates
        2. Posting photos
        3. Chatting or interacting with others
        4. Liking others' statuses/posts, pictures, etc.
        5. Sharing others' statuses/posts, pictures, etc.
    Passive Usage
        6. Browsing others' statuses/posts passively (without liking or commenting on anything)
        7. Browsing others' pictures or videos passively (without liking or commenting on anything)

21. Do you currently follow any law enforcement X (Twitter) accounts?
    - Yes
    - No

22. Do you recognize the missing person(s) in the posts you viewed?
    - Yes
    - No

23. Has a friend or family member of yours gone missing?
    - Yes
    - No

24. Is there anything else about your experience with missing persons posts on social media that you would like to share? _____

[Debrief]
Thank you for your participation in this research study. For this study, it was important that we provide you with incorrect information about some aspects of the study. Now that your participation is completed, we will describe the incorrect information to you, why it was important, answer any of your questions, and let you decide whether you would like to have your data included in this study.

What you should know about this study

The purpose of this study is to learn more about how individuals decide to share law enforcement posts on X (Twitter) about missing persons. The missing person posts you viewed were fictitious and were created using made-up names and information. Fake names and information were used in order to protect the identities of the real missing individuals whose photos were featured in this study.

If you have questions

The main researchers conducting this study are Dr. Hannah Ball and student researcher Cailin Kuchenbecker at Chapman University in the School of Communication. Please ask any questions you have now in the box below. If you have questions later, you may contact student researcher Cailin Kuchenbecker at kuchenbecker@chapman.edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) at 714-628-2833 or irb@chapman.edu.

Right to withdraw data

You may choose to withdraw the data you provided prior to debriefing, without penalty or loss of benefits to which you are otherwise entitled. Please select below if you do, or do not, give permission to have your data included in the study.

____I give permission for the data collected from or about me to be included in the study.

____I DO NOT give permission for the data collected from or about me to be included in the study.

By clicking forward in this survey, you acknowledge that you have been debriefed.