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An evaluation of a college campus emergency preparedness intervention

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ABSTRACT

Given the range of emergencies that beset postsecondary institutions, university administrators must take a multimodal approach to prepare campus stakeholders for safety threats. One such strategy is emergency preparedness communication. In the present investigation, we tested the efficacy of a professionally produced video using the federally-endorsed slogan, *Run-Hide-Fight*®. Undergraduate students participated in a quasi-experiment with a pretest-posttest-delayed posttest control group design. Using the theory of planned behavior as our guiding framework, we found that video exposure increased attitudes, perceived norms, perceived behavioral control, intentions, as well as knowledge of recommended behavioral responses. Favorable attitudes and injunctive norms positively predicted intentions at the initial and delayed posttests. Importantly, the video's effects on most of the outcomes lingered two weeks after video exposure.

1. Introduction

In April 2007, one individual shot and killed 32 people at the Virginia Polytechnic Institute and State University and wounded 17 others in two separate attacks (Hauser and O'Connor, 2007). At the time, it was the deadliest shooting incident by a single gunman in US history. In April 2011, a tornado struck the University of Alabama (Brown, 2011), leaving a path of destruction 80 miles long and killing 64 people. In May 2012, a relatively benign hazardous material release at the University of Illinois at Urbana-Champaign caused one person to receive minor injuries after a shelf collapsed in a laboratory storage area (The Daily Illini, 2012). Such events demonstrate the importance of emergency response training at every level in higher education institutions.

Although responsibility for these tragic events by no means lies with the students, faculty, and staff put at risk, informing individuals about appropriate responses to emergencies may minimize harm and casualties in the event of a campus crisis. It is therefore critical to develop effective means of communication that best equip campus stakeholders with the knowledge necessary to respond appropriately to campus threats before emergency situations arise (Egnoto, Svetieva, Vishwanath, and Ortega, 2013; Sattler, Kirsch, Shipley, Cocke, and Stegmeier, 2014). Many post-secondary institutions have taken this responsibility seriously, drawing on the City of Houston's (2012) *Run-Hide-Fight*® motto and accompanying video to describe simple, yet useful, response strategies aimed at increasing individual safety (e.g., Butler University, Butler University Public Safety, 2017; California State Long Beach, Office of Emergency Management, n.d.). As such, in the current study, we tested the effectiveness of an emergency planning video designed to inform undergraduate students about appropriate behavioral responses to safety threats on college and university campuses. To guide our evaluation, we utilized the theory of planned behavior (Ajzen, 1985), which outlines the psychological determinants of enacting a behavior—in this context, responding appropriately to a campus threat.

2. Background

With more than 20 million students (National Center for Education Statistics, 2015a) and 1.5 million faculty members (NCES, 2015b) populating American colleges and universities, maintaining a safe environment at institutions of higher education is paramount. Hazards that affect these institutions include active shooter incidents, acts of terrorism, biological threats, and extreme weather. Public health emergency preparedness refers to "the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities" (Nelson, Lurie, Wasserman, and Zakowski, 2007, p. S9). Rather than focusing on a particular public health or safety threat, we follow this definition and take a preventative, all-hazards approach to campus emergencies given the range of possible threats that beset postsecondary institutions.

A handful of social scientific theories have emerged in the emergency preparedness literature as guiding frameworks for intervention design and evaluation, but public health research on emergency preparedness has been largely atheoretical. In their review of public health studies that centered on the role of public communication in

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emergency preparedness contexts, Savoia, Lin, and Viswanath (2013) identified only 4 of 70 empirical articles as theoretically driven. Because theory is instrumental in developing, implementing, and assessing health promotion efforts (Fishbein and Cappella, 2006), in the current investigation, we employed one of the most prevalent behavioral change frameworks, the theory of planned behavior (Ajzen, 1985).

3. Theory of planned behavior

The TPB is a theory of behavioral prediction that provides an account for why individuals perform (or do not perform) particular behaviors. It is considered part of the reasoned action framework, which includes its predecessor, the theory of reasoned action (Fishbein & Ajzen, 1975), and its latest iteration, the integrative model of behavioral prediction (Fishbein, 2000; Fishbein and Ajzen, 2010). According to the TPB, the most proximal predictor of behavior is *behavioral intention*. That is, an individual must plan to engage in the behavior before taking action; the greater one's intent to enact a behavior, the more likely one is to actually enact it. Fishbein and Ajzen (2010) hypothesized that behavioral intention is predicted by three determinants: attitude toward the behavior, perceived norms, and perceived behavioral control—all of which are a function of beliefs.

Attitudes are evaluative perceptions about a specific behavior (e.g., good or bad; Ajzen, 2001). According to the theory, an individual will only have high intentions to the extent that s/he (a) perceives that behavioral performance will engender a particular outcome and (b) evaluates that outcome positively. To explicate the *perceived norm* construct, scholars (Lapinski and Rimal, 2005; Rimal and Real, 2005) have conceptualized perceived norms as a composite of descriptive and injunctive norms—a theoretical distinction that has been empirically supported (Park and Smith, 2007). Specifically, *descriptive norms* include beliefs about the prevalence of a behavior among one's referent others (Lapinski and Rimal, 2005). *Injunctive norms*, on the other hand, indicate whether one feels pressured by referent others to execute the behavior (Lapinski and Rimal, 2005). The third predictor of intention, *perceived behavioral control* (PBC), indicates "the perceived ease or difficulty of performing the behavior" (Ajzen, 2002, p. 665). Given that items measuring PBC often load onto two factors (Yzer, 2012a), current reasoned action theorizing bifurcates the construct into autonomy and capacity (Fishbein and Ajzen, 2010). *Autonomy* refers to the perception that it is the individual's choice to perform a specific behavior, whereas *capacity* refers to the belief that one has the ability to enact the behavior. From a predictive standpoint, then, distinguishing the dimensions of PBC is theoretically advantageous (Yzer, 2012a, 2012b).

Researchers evaluating disaster and emergency preparedness interventions have measured attitudes (e.g., Adame and Miller, 2015; Miller, Adame, and Moore, 2013), normative perceptions (e.g., Paek, Hilyard, Freimuth, Barge, and Mindlin, 2010; Thompson and Schlehofer, 2014), and self-efficacy (e.g., Paek et al., 2010; Sattler et al., 2014; Sattler, Larpenteur, and Shipley, 2011; Thompson and Schlehofer, 2014) separately as antecedents of preparedness. However, to our knowledge, no study has explicitly drawn on the theory of planned behavior to predict intentions to respond appropriately to an emergency following exposure to an emergency preparedness message.

4. Method

4.1. Recruitment and procedure

Participants ($N = 419$) were undergraduates enrolled in two large communication lectures at a large Midwestern university and were offered extra credit for their participation. The majority of participants were female (64.1%) with a mean age of 20.23 ($SD = 1.45$). With respect to race, the majority of participants were Caucasians (51.2%), followed by Asian Americans (23.2%), African-Americans (11.6%), Latinos (6.9%), and approximately 7.1% identified as having a different racial ethnicity. Students in one lecture served as the treatment group ($n = 220$) and watched the emergency planning video; students attending the other lecture served as the no-exposure control group ($n = 199$). After signing an informed consent document, participants in both groups completed a pretest survey. Participants in the treatment group proceeded to watch the emergency preparedness video in lecture and then immediately completed an initial posttest. Participants in the control group did not watch the video or complete this initial posttest. Two weeks later, participants in both lectures completed a delayed posttest in their respective classes. Thus, we collected three waves of data from students in the treatment group and two waves of data from those in the control group. We requested that students enrolled in both courses not complete any of the surveys in the control lecture. Because the classes met at different times during the week, it was not possible to administer each stage of the study concurrently to the control and treatment groups, so we instead administered phases of the experiment to the two lectures within a few days of one another. All stages of the experiment occurred while the participants were in class, which is consistent with the goal of the intervention video to have it shown in class.

4.2. Stimulus

The emergency planning video was developed by a professional production company in collaboration with the University's Division of Public Safety office. The main message from the emergency planning video was *Run-Hide-Fight*®—a slogan that the Department of Homeland Security has strongly advocated (US Department of Homeland Security, n.d.) and the FBI has endorsed (Federal Bureau of Investigation, n.d.). There is no conceivable emergency (e.g., winter storm, active shooter) where an individual would not take one of these three actions to protect her or himself during an emergency.

The video ran 2 min and 11 s and was narrated primarily by one of the university's campus safety lieutenants. The video opened by informing viewers that they have three options in case of a campus emergency, which—when taken—can improve one's chances of survival. The three actions were described and visually reinforced in the video. For *run*, the lieutenant encouraged viewers to find exits before an emergency happens, assist others in need (if safe to do so), and stay out of the building until emergency personnel indicate that the area is safe. For *hide*, the video informed students of appropriate ways to stay in place in case of (a) severe weather and (b) active threats. The former involves moving to the lowest level of the building, staying away from windows, and seeking shelter if one is outside. The latter involves locking all doors, barricading entrances, turning off lights, staying out of sight, and silencing mobile devices until the threat has passed. For *fight* (the worst-case scenario in which an armed intruder attempts to break into a locked space), individuals can wield everyday objects as weapons (e.g., chairs, fire extinguishers) to halt an attacker's advance until the police can intervene. The video concluded by stressing that it is each person's responsibility to prepare for and respond appropriately to an emergency threat on campus.

4.3. Measures

Unless otherwise noted, all items were measured on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*).

4.3.1. Attitude

Attitude towards emergency response preparedness was measured with three items (e.g., "Overall, my attitude toward knowing how to respond to an emergency on campus is good"). The average of these items formed a reliable scale at pretest ($\alpha = .92$), initial posttest ($\alpha = .97$), and delayed posttest ($\alpha = .96$).

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