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Theory-Based Formative Research on an Anti-Cyberbullying Victimization Intervention Message

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Cyberbullying is a common byproduct of the digital revolution with serious consequences to victims. Unfortunately, there is a dearth of empirically based methods to confront it. This study used social cognitive theory to design and test an intervention message aimed at persuading college students to abstain from retaliation, seek social support, save evidence, and notify authorities—important victim responses identified and recommended in previous research. Using a posttest-only control group design, this study tested the effectiveness of an intervention message in changing college students' perceived susceptibility to and perceived severity of cyberbullying as well as their self-efficacy, response efficacy, attitudes, and behavioral intentions toward each recommended response in future episodes of cyberbullying. Results indicated that the intervention message caused participants in the experimental condition to report significantly higher susceptibility, but not perceived severity, to cyberbullying than those in the control condition. The intervention message also caused expected changes in all outcomes except self-efficacy for not retaliating and in all outcomes for seeking social support, saving evidence, and notifying an authority. Implications for message design and future research supporting evidence-based anti-cyberbullying health communication campaigns are discussed.

Cyberbullying is a serious public health concern (Centers for Disease Control and Prevention, 2016). Emphasizing the communicative aspect of cyberbullying, Roberto and Eden (2010) defined it as the “deliberate and repeated misuse of communication technology by an individual or group to threaten or harm others” (p. 201). As a problem of modern life, cyberbullying has garnered significant attention. The general media initially recognized tragic cases of cyberbullying-related suicides (e.g., Alvarez, 2013; BBC News, 2014; Stelter, 2008). Scholarly work has since produced a relatively large body of data highlighting the widespread dangerous nature of the behavior (Kowalski, Giumetti, Schroeder, & Lattanner, 2014).

Although most studies have focused on minors, cyberbullying can occur from elementary school to college. Among adolescents, cyberbullying victimization rates range from 20% to 40% (Moreno, 2014; Tokunaga, 2010). Studies of college students show similar rates (Crosslin & Golman, 2014; Foody, Samara, & Carlbring, 2015; Zalaquett & Chatters, 2014). Because cyberbullying has been examined as a youth problem, its prevalence in adults is unknown (Foody et al., 2015) despite three decades of interest in workplace bullying as a serious problem (Baum, Catalano, Rand, & Rose, 2009) and despite interest in cyberstalking as a possible adult

version of cyberbullying (e.g., Spitzberg & Hoobler, 2002). Because of the dearth of data in adults, it is unclear when cyberbullying stops being a serious problem.

College students' cyberbullying victimization has been associated with depressive symptomatology (Feinstein, Bhatia, & Davila, 2014). In contrast, cyberbullying perpetration has been associated with lower self-esteem (Na, Dancy, & Park, 2015); anger and stress (Zalaquett & Chatters, 2014); and higher scores on psychological measures of depression, paranoia and anxiety (Schenk, Fremouw, & Keelan, 2013). These problems underscore the need to develop and disseminate specific behaviors that can empower victims and minimize morbidity. This study utilized social cognitive theory (SCT; Bandura, 1986) to design and test a message aimed at persuading potential victims to enact specific recommended behaviors if they are cyberbullied. To our knowledge, no investigation has incorporated these behaviors into an empirically tested, theory-based intervention message. Filling this gap contributes to health communication research, theory, and practice by helping meet calls for theory-based message design research (Harrington, 2015), elaborating on message design using SCT (Noar et al., 2015) to inform evidence-based persuasive message design (Jacobs, Jones, Gabella, Spring, & Brownson, 2012), and supporting the development of cyberbullying prevention programs (Ramirez, Palazzolo, Savage, & Deiss, 2010). Theoretical underpinnings are discussed, followed by an overview of message design and study results.

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Recommended Behaviors for Victims

Strategies for handling cyberbullying victimization are recommended in school-based prevention programs and online websites. Aboujaoude, Savage, Starcevic, and Salame (2015) reviewed school-based prevention programs, including the Social Networking Safety Promotion and Cyberbullying Prevention Program (Arizona Attorney General, 2016), Media Heroes (Wölfer et al., 2014), and Cyberbullying: A Prevention Curriculum (Limber, Kowalski, & Agatston, 2008). These programs all consistently recommend four responses to victims: Do not retaliate, seek social support, save evidence, and notify authorities. A review of webpages providing cyberbullying advice to parents, youth, school personnel, and authorities (e.g., stopbullying.gov, stopcyberbullying.org, wiredsafety.org, safeteens.com) showed a consensus on these four strategies. Thus, these behaviors were investigated herein.

Do Not Retaliate

Although some researchers consider not retaliating a passive and therefore potentially ineffective strategy (Patchin & Hinduja, 2006), others find it worthwhile, as it can stop the conflict from escalating and prevent victims from becoming bullies themselves. Research from the field of conflict management supports the latter claim (Roloff & Parks, 2002).

Seek Social Support

Seeking social support is similarly advantageous. More than 90% of adolescent cyberbullying victims do not inform adults of their victimization (Aricak et al., 2008; Dehue, Bolman, & Vollink, 2008; Juvonen & Gross, 2008; Slonje & Smith, 2008), perhaps out of embarrassment or fear that their device might be confiscated (Aboujaoude et al., 2015). But although informing an authority figure such as a parent or teacher is unlikely, victims find it easier to consult with friends (Aricak et al., 2008; Dehue et al., 2008; Slonje & Smith, 2008; Topcu, Erdur-Baker, & Capa-Aydin, 2008). This suggests a teachable behavior with potentially significant rewards, as an extensive literature documents the relational, health, and psychological benefits of such support (Burlinson & MacGeorge, 2002).

Save Evidence and Notify Authorities

Because saving evidence is typically only useful if an authority is notified, saving evidence and notifying authorities are linked behaviors. Holding on to cyberbullying evidence is a behavior that most victims report knowing how to do (Juvonen & Gross, 2008). Notifying authorities when cyberbullied, however, is more complicated, primarily because of the need to interact with an external resource, which raises fears similar to those that prevent adolescent victims from approaching parents or teachers. Once notified, law enforcement offices may investigate claims, but laws vary greatly across states and jurisdictions, as does the level of protection (Aboujaoude et al., 2015). A more convenient way to notify authorities may be by reaching out to an Internet service provider or an information technology office. These impersonal reporting strategies are distinct

from soliciting social support from friends, family, or peers that aims to buffer the psychosocial impact of a cyberbullying event. Notifying authorities establishes official documentation and may lead to a formal investigation.

SCT and Message Design

SCT describes how an individual's knowledge acquisition and behaviors are largely a function of observing others interact in social settings or in the media (Bandura, 2008). When people observe a model performing a behavior and the subsequent consequences of that behavior, they use this information to guide their own behaviors (Bandura, 1977, 1986, 2001). Observers do not learn new behaviors solely by trying them and either succeeding or failing but rather by replicating others' actions depending on whether those actions and their outcomes resulted in reward or punishment. The theory can be applied to persuasive message development through the use of storytelling and narratives that foster behavior change via peer modeling (Hinyard & Kreuter, 2007; Noar et al., 2015). In this study, SCT was used to design an intervention message that aimed to encourage certain anti-cyberbullying strategies by illustrating how one can successfully navigate an instance of being cyberbullied by adopting the recommended responses. The theory has been utilized in multiple arenas, including health promotion and disease prevention (e.g., Plotnikoff, Costigan, Karunamuni, & Lubans, 2013; Van Zundert, Nijhof, & Engels, 2009; Young, Plotnikoff, Collins, Callister, & Morgan, 2014), marketing (Phipps et al., 2013), and others that are beyond the scope of this review (for a review, see Rosenthal & Zimmerman, 2014). The effectiveness of an SCT approach can be determined by changes in perceptions of common outcome variables generally consistent across theories of behavior change (Noar & Zimmerman, 2005), including susceptibility, severity, self-efficacy, response efficacy, attitudes, and behavioral intentions.

Although there are alternative ways to organize SCT constructs (e.g., Kelder, Hoelscher, & Perry, 2016), we depended on five major theoretical components as outlined by McAlister, Perry, and Parcel (2008): (a) observational learning, (b) psychological determinants of behavior, (c) environmental determinants of behavior, (d) self-regulation, and (e) moral disengagement. Each was incorporated into an intervention message created to persuade cyberbullying victims to not retaliate, to seek social support, to save evidence, and to notify authorities. Figure 1 shows the intervention message designed using SCT components. Exemplars of SCT application are described in the text below, but because of space considerations these descriptions are not exhaustive.

Observational Learning

SCT emphasizes the capacity to learn by witnessing examples and the process of observational learning: (a) attention, (b) retention, (c) production, and (d) motivation (Bandura, 2008). In the intervention message, a cyberbullying narrative was utilized to capture readers' attention by depicting a relevant cyberbullying experience. Following recommendations for persuasive narrative construction (Green & Brock, 2000), the story

You can deal with cyberbullying!

The Daily

ASU student deals with cybe

I was a 19-year-old freshman at ASU. Making new friends has been pretty easy, but one in particular has been stressing me out! I met Chris at a party about a month ago and we became friends. At first, we texted back and forth often. But, I've become busy lately with school and work, so I haven't been keeping in touch.

Chris posted comments on my Facebook wall about how rude I am. I thought he was joking, but the situation got out of hand when Chris posted blogs and comments on my friends' profile pages filled with lies about me. I considered getting back at him, but realized that this would only make him upset and probably provoke him.

When I told my roommates about Chris's behavior, they were totally there for me! They understood that there was nothing funny about being cyberbullied and even showed me how easy it was to save evidence of Chris's cyberbullying. I ignored Chris and told my RA at my dorm about what he had been doing. Talking to my roommates made me feel supported and reporting the situation was really helpful.

My RA spoke to Chris and told him that cyberbullying was a serious offense and had real consequences. After that, Chris never cyberbullied me again. I thought people might judge me for telling my RA, but everyone I told about the situation empathized with me and said it was the best thing to do. I think Chris learned from the situation; I know I did. If I can deal with a cyberbully, you can too.

One student's story of dealing with a cyberbully:

I am a 19-year-old freshmen at ASU. Making new friends has been pretty easy, but one in particular has been stressing me out! I met Chris at a party about a month ago and we became friends. At first, we texted back and forth often. But, I've become busy lately with school and work, so I haven't been keeping in touch.

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What to do if you're cyberbullied:

Experts recommend four easy and effective steps to take if you're cyberbullied:

- 1. Stop, don't retaliate.**

Trying to get back at cyberbullies only makes things worse. Make it your goal to not retaliate against cyberbullies.
- 2. Save evidence.**

Saving messages, pictures, screen shots, or a chat history are simple ways to document cases of cyberbullying. This will make it easier for others to help you deal with cyberbullying.
- 3. Seek support.**

Telling people close to you about your experience and concerns with cyberbullying can be extremely helpful. Telling someone you've been cyberbullied will help you deal with the situation.
- 4. Report the incident.**

Telling an authority will not only help you, but all those people who might be affected by your cyberbully too. Report cyberbullying to the ASU help desk, the police department, or websites like wiredsafety.org. Bullies will quickly realize they are not invisible just because they are using technology.

Fig. 1. Intervention message designed using the social cognitive theory framework.

was designed to promote the process of observational learning of each recommended response. The intervention message was designed at a seventh-grade reading level. Scholars have had success promoting observational learning by using social norms approaches to address bullying behaviors (Perkins, Craig, & Perkins, 2011).

Psychological Determinants of Behavior

Two psychological determinants of behavior were integrated into the intervention message: outcome expectations and self-efficacy. First, outcome expectations represent beliefs about the likelihood and perceived value of various behaviors (Viswanath, 2008). Providing information about consequence is a behavioral change technique modeled after SCT (Abraham & Michie, 2008). In weighing outcome expectations, individuals typically seek to minimize costs and maximize benefits. For example, outcome expectations in the intervention message are enhanced when the protagonist experiences reduced negative consequences as a result of adopting the recommended behaviors. Second, *self-efficacy* refers to an individual's confidence in and ability to adopt a behavior (Bandura, 1997; Betz, 2013). It increases when individuals believe they possess the knowledge and skills to perform a task. Thus, the intervention message stated, "If I can deal with a cyberbully, you can too." Such motivational statements can increase confidence in one's ability to model the recommended behaviors, thereby promoting self-efficacy. A step-by-step list also followed the narrative summarizing each recommended behavior with instructions consistent with how each behavior was modeled in the narrative. Easy-to-follow directions for adopting behavioral change enhance self-efficacy (Bandura, 2001).

Environmental Determinants of Behavior

Behavioral change is likely when the environment encourages and allows the new behaviors (Bandura, 2004). Facilitation describes when new resources make recommended behaviors easier to enact. Research shows that efficacious people are more successful at finding opportunities in the environment and circumventing constraints (Kelder et al., 2016). In the intervention message, for example, the narrative described resources in one's environment that simplify the adoption of each recommended behavior. Resources to foster each recommended behavior were enhanced in the step-by-step list following the narrative.

Self-Regulation

Self-regulation is a distinct behavioral skill whereby exercise of control allows one to more successfully perform recommended behaviors (Bandura, 1997). Two factors known to bolster self-regulation (Bandura, 1986, 1991; Vohs & Baumeister, 2011) were utilized in the intervention message: goal setting and self-monitoring. Goal setting involves establishing ideal incremental and long-term outcomes and determining paths to reaching them. Self-monitoring involves the systematic observation of one's own behavior. In the intervention message, for example, verbiage called to "make it your goal" to adopt the recommended behaviors as well as described how self-monitoring

during and after adopting the set of recommended behaviors led to successful performance. Scholarship suggests the utility of tapping into self-regulation to achieve behavior change (e.g., Ramdass & Zimmerman, 2011).

Moral Disengagement

Bandura (1991) described how when people learn moral standards for their behavior, it can lead to being less violent and cruel. Bussey, Fitzpatrick, and Raman (2015) demonstrated that cyberbullying rates were positively associated with moral disengagement proneness. Such findings demonstrate the need to help victims distinguish humor (e.g., teasing) from bullying so that a cyberbully is not given moral justification via the assumption that it is humorous. In the intervention message, the narrative described that the protagonist determined that being cyberbullied was not a joke and reinforced that others would provide empathy in the situation. This served to humanize the cyberbullying episode and enhance adoption of the recommended behaviors.

Dependent Variables and Hypotheses

The effectiveness of SCT in causing behavioral change can be measured by changes in outcome variables across behavior change theories (Noar & Zimmerman, 2005), including susceptibility, severity, self-efficacy, response efficacy, attitudes, and behavioral intentions (see Witte, 1992). *Susceptibility* is the likelihood that a threat will occur. *Severity* is a perception of how bad or harmful an act, experience, or threat is evaluated. *Self-efficacy* refers to an individual's perceived ability and confidence to enact a recommended response. *Response efficacy* refers to a belief that a recommended response will be effective. *Attitudes* are general evaluations or positive versus negative feelings toward a recommended response (Kim & Hunter, 1993; O'Keefe, 2002). *Behavioral intentions* refers to an individual's likelihood of adopting a recommended response (Ajzen & Fishbein, 1980). These outcomes served as dependent variables and were used to compare the effects of the intervention message.

We hypothesized (Hypotheses 1–2) that those exposed to the intervention message would report higher perceived susceptibility to (Hypothesis 1) and higher perceived severity of (Hypothesis 2) cyberbullying than those exposed to the control message. Furthermore, we hypothesized (Hypotheses 3–6) that those exposed to the intervention message would report higher self-efficacy beliefs, higher response efficacy, more favorable attitudes, and greater intentions regarding not retaliating (Hypothesis 3), seeking social support (Hypothesis 4), saving evidence (Hypothesis 5), and notifying authorities (Hypothesis 6) than those exposed to the control message.

Method

Participants and Procedures

Participants ($N = 734$; 55.3% women) with a mean age of 20.63 ($SD = 2.43$) were recruited from a large university in the southwestern United States. Participants were White/Caucasian (79.6%), Asian/Asian American (6.0%), African American/

Black (5.1%), Native American (1.9%), Pacific Islander (1.3%), or other (13.2%).

The study was completed online with participants receiving incentive research credit. Following online study recommendations (Birnbaum, 2004), participants completed all procedures in a setting of their choice via a secure website. Participants were randomly assigned to the experimental ($n = 375$) or control ($n = 359$) condition then exposed to their respective message before completing an online survey. The experimental group was exposed to an intervention message (see Figure 1) designed as a realistic cyberbullying scenario but written in narrative form, illustrating the recommended responses with applicable reinforcing rewarding outcomes. A concise step-by-step list of the four recommended responses followed. The control group was exposed to an *attention control message* (see Figure 2) that included a simple definition of cyberbullying. Because cyberbullying is a novel concern to college students, a simple definition was all that was needed to prime the control group on the topic and generate a comparison. Attention control messages have been used in persuasion research to foster engagement with the topic using basic information (Noar, Harrington, & Aldrich, 2009; Roberto, Krieger, & Beam, 2009). They are regularly used in intervention studies (e.g., Neil & Christensen, 2009) that use SCT (e.g., Stacey, James, Chapman, Courneya, & Lubans, 2015) and are

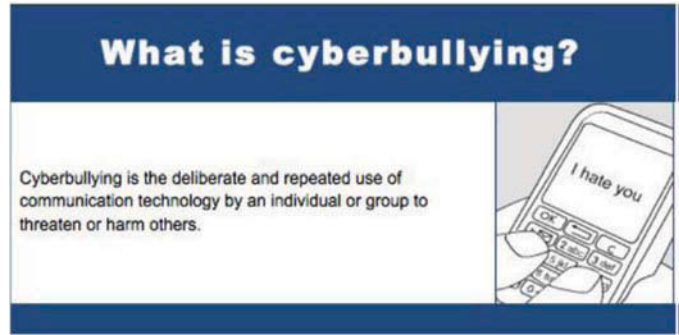


Fig. 2. Control group message: Attention control message.

recommended in evidence-based strategies (Flay et al., 2005) for public health research (Jacobs et al., 2012).

Measures

All measures, unless noted, were adapted from Witte, Cameron, McKeon, and Berkowitz's (1996) Risk Behavior Diagnosis scale and measured on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Reliability estimates for all variables were acceptable or better (see Table 1). Perceived severity

Table 1. Reliability, descriptive statistics, and MANCOVA results by condition for each set of dependent variables

Variable (multivariate result)	Reliability	Control		Experimental		Univariate results		
	α	M	SD	M	SD	$F(df)$	p	η_p^2
Overall ($\Lambda = .99$, $F(2, 672) = 3.18$, $p = .042^*$)								
Susceptibility to CB	.84	2.56	0.93	2.73	0.89	$F(1, 673) = 6.09$	.01*	.01
Severity of CB	.93	3.34	1.05	3.36	0.94	$F(1, 673) = 1.14$	.29	.00
Not retaliate ($\Lambda = .98$, $F(4, 673) = 3.01$, $p = .018^*$)								
Self-efficacy	.85	3.23	0.91	3.22	0.92	$F(1, 676) = 0.02$	.89	.00
Response efficacy	.81	3.28	0.84	3.41	0.80	$F(1, 676) = 5.36$	.021*	.01
Attitude	.88	3.71	0.90	3.84	0.88	$F(1, 676) = 8.10$	.005**	.01
Behavioral intention	.95	3.45	0.92	3.59	0.93	$F(1, 676) = 7.36$	.007**	.01
Social support ($\Lambda = .98$, $F(4, 672) = 4.11$, $p = .003^{**}$)								
Self-efficacy	.70	3.59	0.72	3.72	0.73	$F(1, 675) = 12.31$	<.001***	.01
Response efficacy	.78	3.26	0.84	3.42	0.70	$F(1, 675) = 8.73$	.003**	.01
Attitude	.87	3.65	0.89	3.84	0.84	$F(1, 675) = 9.27$	.002**	.01
Behavioral intention	.95	3.27	1.04	3.48	0.95	$F(1, 675) = 9.44$	.002**	.01
Save evidence ($\Lambda = .98$, $F(4, 671) = 3.50$, $p = .008^{**}$)								
Self-efficacy	.86	4.07	0.74	4.15	0.71	$F(1, 674) = 4.10$	.043*	.01
Response efficacy	.81	3.48	0.84	3.69	0.75	$F(1, 674) = 12.08$	.001**	.02
Attitude	.89	4.19	0.81	4.31	0.83	$F(1, 674) = 8.49$	.004**	.01
Behavioral intention	.94	3.77	0.94	3.93	0.91	$F(1, 674) = 5.19$	.023*	.01
Notify authority ($\Lambda = .98$, $F(4, 673) = 4.21$, $p = .002^{**}$)								
Self-efficacy	.81	3.46	0.83	3.59	0.83	$F(1, 676) = 8.78$	.003**	.01
Response efficacy	.82	3.25	0.85	3.47	0.76	$F(1, 676) = 14.24$	<.001***	.02
Attitude	.88	3.63	0.95	3.81	0.93	$F(1, 676) = 6.79$	.009**	.01
Behavioral intention	.96	3.20	1.06	3.34	1.02	$F(1, 676) = 9.45$	.002**	.01

Note. Each MANCOVA controlled for technology use, CB perpetration, and CB victimization. All means are uncorrected, using all participant responses.

MANCOVA = multivariate analysis of covariance; CB = cyberbullying.

* $p < .05$. ** $p < .01$. *** $p < .001$.

was measured with a 3-item scale that assessed participants' perceived seriousness of cyberbullying (e.g., "I believe cyberbullying is severe"). Perceived susceptibility was measured with a 3-item scale that assessed participants' perceived likelihood of experiencing cyberbullying (e.g., "I am at risk of being cyberbullied"). Self-efficacy, response efficacy, attitudes, and behavioral intentions were measured regarding each of the four behavioral recommendations (not retaliating, seeking social support, saving evidence, and notifying an authority). Self-efficacy measured participants' confidence in their ability to adopt each of the recommended responses with three items (e.g., "I would be able to [insert strategy] if I am cyberbullied"). Response efficacy measured participants' perceived likelihood of success when enacting each of the recommended responses with three items (e.g., "[Insert strategy] works to prevent cyberbullying"). Attitudes were measured using 4-item semantic differential scales developed (Himmelfarb, 1993) and used in persuasion research (Roberto et al., 2009), including items that asked participants to choose between opposite adjectives: bad/good, useless/useful, harmful/helpful, and detrimental/beneficial. Higher scores indicated more positive attitudes. Behavioral intention for each recommended response was measured with four items (e.g., "The next time I am cyberbullied I intend to [insert strategy]"). Behavioral intention is highly correlated with actual behavior (Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Downs & Hausenblas, 2005), making it suitable for self-report.

Cyberbullying Perpetration and Victimization

Single-item dichotomous measures (yes/no) asked "In the last 12 months, did you ever repeatedly use communication technology to deliberately hurt or embarrass others in an unfriendly way?" and "In the last 12 months, did anyone ever repeatedly use communication technology to deliberately hurt or embarrass you in an unfriendly way?" (see Roberto, Eden, Savage, Ramos-Salazar, & Deiss, 2014a, 2014b).

Technology Use

Access to communication technology (a personal computer and cell phone), easy access to e-mail and the Internet, and whether participants had social media accounts were measured dichotomously. These items were summed to measure technology use (Roberto et al., 2014a, 2014b).

Results

Descriptive Statistics

Approximately 21% ($n = 154$) of participants reported having been cyberbullied in the past 12 months. Cyberbullying victimization did not differ significantly across college years, $\chi^2(4) = 6.00, p = .20$. A total of 22% of freshmen, 25% of sophomores, 24% of juniors, and 17% of seniors were victims. Victimization did not differ significantly by sex, $\chi^2(2) = 0.62, p = .74$. In all, 22% of men and 20% of women reported victimization. Also, 14.6% ($n = 107$) of participants reported having been a cyberbullying perpetrator in the past 12 months. Cyberbullying perpetration did not differ significantly across college class level, $\chi^2(4) = 7.14, p = .13$. In all, 18% of freshmen, 18% of sophomores, 15% of juniors, and 10% of seniors

reported perpetrating. Perpetration did not differ significantly by sex, $\chi^2(2) = 3.84, p = .15$. A total of 16% of men and 13% of women reported perpetration. Table 1 shows descriptive data and provides raw means to compare conditions for all outcome variables.

Hypotheses

A series of multivariate analyses of covariance (MANCOVAs) were used to analyze the effect of condition (control or experimental) across sets of dependent variables while controlling for technology use (Roberto et al., 2014a), cyberbullying perpetration (no or yes), and cyberbullying victimization (no or yes). Prior to analyses, cases ($n = 18$) identified as within-cell outliers using the Mahalanobis distance ($p < .001$; Tabachnick & Fidell, 2007) were removed. Pairwise deletion was used to analyze all available data. Univariate effects were interpreted as follow-up when significant multivariate effects were present to determine support for the hypotheses. Partial eta squared was used to estimate effect size (Richardson, 2011). Table 1 presents detailed results.

For Hypotheses 1–2, perceived susceptibility and severity served as the dependent variables. Bartlett's test of sphericity indicated a significant ($p < .001$) correlation ($r = .23$). A significant multivariate main effect emerged for condition. For perceived susceptibility, results revealed a significant univariate main effect for condition. In support of Hypothesis 1, participants in the experimental condition reported significantly higher susceptibility to cyberbullying than those in the control condition. For perceived severity, no significant univariate effects emerged. Thus, Hypothesis 2 was not supported.

For Hypotheses 3–6, self-efficacy, response efficacy, attitude, and behavioral intention served as the dependent variables in separate analyses for each recommended response: not retaliating (Hypothesis 3), seeking social support (Hypothesis 4), saving evidence (Hypothesis 5), and notifying authorities (Hypothesis 6). Bartlett's test of sphericity was significant ($p < .001$) in all analyses, indicating significant average correlations between the dependent variables in each analysis ($r^2 = .50-.55$). A significant multivariate main effect emerged for condition in each MANCOVA. Hypothesis 3 was partially supported, as univariate results indicated that the intervention message caused expected changes in all outcomes for not retaliating except self-efficacy. Hypotheses 4–6 were supported, as univariate results in each MANCOVA demonstrated that the intervention message caused expected changes in all outcomes for seeking social support, saving evidence, and notifying an authority. Univariate effect sizes for all results were small ($\eta_p^2 = .01-.02$).

Post Hoc Analysis

Four stepwise regression models examined the relationships between perceived susceptibility, perceived severity, self-efficacy, and response efficacy with behavioral intention for each recommended behavior in Step 2 while controlling for experimental condition, sex (0 = male, 1 = female), technology use, and cyberbullying perpetration and victimization (0 = no, 1 = yes) in Step 1. All Step 2 predictors were significantly correlated with intention. Results are presented in Table 2. All models were significant, with large explained proportions of variance (final $R^2 = .43-.47$). In all models,

Table 2. Step 2 results of stepwise regressions: Predicting behavioral intention by sets of predictors

Model and predictors (R^2 / adjusted R^2 ; ΔR^2)	B ($SE\ B$)	β	p	sr^2
Not retaliating (.46/.45***; $\Delta R^2 = .34$ ***)			<.001	
Intercept	.21 (.26)			
Condition	.13 (.05)	.07*	.01	.01
Victimization	.09 (.07)	.04	.19	.00
Perpetration	-.24 (.08)	-.10**	.002	.01
Technology use	-.01 (.05)	-.01	.80	.00
Sex	.34 (.05)	.19***	<.001	.03
Susceptibility	.00 (.03)	.00	.91	.00
Severity	.19 (.03)	.21***	<.001	.03
Self-efficacy	.27 (.03)	.27***	<.001	.06
Response efficacy	.38 (.04)	.34***	<.001	.14
Seeking social support (.47/ .46***; $\Delta R^2 = .38$ ***)			<.001	
Intercept	-.71 (.27)			
Condition	.07 (.05)	.04	.17	.01
Victimization	.07 (.07)	.03	.38	.00
Perpetration	-.08 (.08)	-.03	.33	.00
Technology use	-.01 (.05)	.02	.40	.00
Sex	.23 (.05)	.12***	<.001	.01
Susceptibility	.01 (.03)	.01	.75	.00
Severity	.27 (.03)	.27***	<.001	.06
Self-efficacy	.35 (.05)	.26***	<.001	.05
Response efficacy	.39 (.04)	.31***	<.001	.07
Saving evidence (.43/.42***; $\Delta R^2 = .35$ ***)			<.001	
Intercept	-.16 (.27)			
Condition	.06 (.05)	.04	.24	.00
Victimization	.02 (.07)	.01	.78	.00
Perpetration	-.14 (.08)	-.06	.08	.00
Technology use	.01 (.05)	.01	.90	.00
Sex	.21 (.05)	.12***	<.001	.01
Susceptibility	.04 (.03)	.04	.722	.00
Severity	.17 (.03)	.19***	<.001	.03
Self-efficacy	.41 (.04)	.32***	<.001	.08
Response efficacy	.35 (.04)	.30***	<.001	.07
Notifying an authority (.46/ .46***; $\Delta R^2 = .40$ ***)			<.001	
Intercept	-.19 (.28)			
Condition	.05 (.06)	.02	.42	.00
Victimization	.11 (.08)	.04	.17	.00
Perpetration	-.07 (.09)	-.03	.41	.00
Technology use	-.03 (.05)	-.02	.54	.00
Sex	.21 (.06)	.11***	<.001	.01
Susceptibility	-.10 (.03)	-.09**	.003	.01
Severity	.26 (.03)	.26***	<.001	.05
Self-efficacy	.37 (.04)	.30***	<.001	.06
Response efficacy	.40 (.04)	.31***	<.001	.07

Note. Final model (Step 2) results are reported here. Δ refers to R^2 change from control variables in Step 1 (condition, victimization, perpetration, technology use, and sex) to variables of interest added in Step 2 (susceptibility, severity, self-efficacy, and response efficacy).

* $p < .05$. ** $p < .01$. *** $p < .001$.

significant R^2 changes indicated that the addition of perceived susceptibility, perceived severity, self-efficacy, and response efficacy in Step 2 explained 34%–40% of variance beyond the controls. Perceived severity, self-efficacy, and response efficacy were significant predictors of behavioral intention toward each recommended behavior. With one exception, susceptibility was not a significant predictor. Effect sizes using part correlations squared indicated that perceived severity, self-efficacy, and response efficacy each explained 3%–14% of unique variance. Consistent results emerged when the same analyses were conducted with attitude toward each recommended behavior as the criterion variable.

Discussion

An anti-cyberbullying intervention message was designed using SCT, and the experimental group exposed to the intervention message was expected to have higher perceived susceptibility and severity regarding cyberbullying. In addition, the experimental group was expected to have superior self-efficacy; superior response efficacy; as well as more positive attitudes about, and intentions to act on, the following recommendations: avoid retaliation, seek social support, save evidence, and notify authorities. Results show the persuasiveness of the intervention message in reaching the majority of these goals and offer insight into message design.

Cyberbullying is a prevalent and serious problem among college students. Current data on the association between age and victimization do not indicate when cyberbullying ends, which makes it important to explore cyberbullying in young adults. Perpetration (15%) and victimization (21%) frequencies within our sample were comparable to those in other college samples (Foody et al., 2015). Furthermore, no differences in perpetration and victimization were seen across class levels, suggesting that cyberbullying is not a holdover phenomenon from childhood and high school that tapers off during college.

Findings for perceived susceptibility and severity to cyberbullying warrant attention, as they may play a complex role in future persuasive message design. As expected, the experimental group conveyed higher perceived susceptibility than the control group. In line with SCT, reading a story about a college student's cyberbullying experience strengthened participants' perception that it could happen to them. As Bandura (1977) suggested in his discussion of *knowledge*, learning about a particular health issue initiates a cognitive process whereby individuals exposed to persuasive messaging contemplate their likelihood of encountering the issue personally. However, with one exception, post hoc analyses showed that perceived susceptibility was not a significant predictor of intention or attitude, which suggests that message designers might consider it less in future anti-cyberbullying persuasive appeals. The experimental group did not report a higher perception of the severity of cyberbullying than the control group, which represents a limitation of the present study, but post hoc analysis showed that severity was a significant and strong predictor of attitude and intention. These results are consistent with Roberto and colleagues (2014a), who found that only severity but not susceptibility emerged as predictors of attitude and intention. The manipulation of severity in the experimental message may have

been inadequate. Research should focus on amplifying the severity of cyberbullying in future message design given its importance in predicting attitudes and intentions toward recommended responses. In addition, scholars should consider how men and women may perceive messages differently given the significant association of sex with attitudes and intentions toward recommended responses across the post hoc results.

Each recommended behavior was examined across all dependent variables. The first behavior was avoiding retaliation. Three of the dependent variables demonstrated significant differences between the experimental and control groups: Participants exposed to the experimental message understood the utility of not retaliating, had a positive attitude about not retaliating, and reported an intention to not retaliate. However, findings regarding self-efficacy indicate that they did not report an ability to restrain themselves from retaliating. This is certainly a limitation. An explanation may be that subjects do not trust that they can exhibit self-restraint in the moment when they are cyberbullied. Individuals form their self-efficacy from various sources, including their experience with a specific behavioral domain (Bandura, 1997). Therefore, previous cyberbullying experience may stand to inoculate against attitudes and intentions to adopt prosocial behaviors due to cognitive dissonance (e.g., Breen & Matusitz, 2008). Self-efficacy will be important for message designers to foster when designing anti-cyberbullying persuasive appeals, particularly any messages targeted to former perpetrators.¹ Cyberbullying perpetration predictors (e.g., Roberto et al., 2014b) could be used as a basis for creating efficacy messages. Furthermore, experts advise that some strategies *should* be enacted (seek social support, save evidence, notify authorities), whereas retaliating *should not* be enacted. This active/passive approach may be perceived as a confusing conflation of strategies (Larsen & Augustine, 2008). Thus, exploring whether self-efficacy can be improved via a message that encourages nonretaliation framed as an active strategy, such as logging off or blocking the perpetrator, is worthwhile.

The second recommended behavior was social support seeking. Given the numerous positive outcomes for sharing troubles with close others (Burlison & MacGeorge, 2002), there is a need to encourage this behavior in instances of cyberbullying. As intended, the experimental message was effective at causing changes in all social support dependent variables. The experimental group felt stronger self-efficacy, stronger response efficacy, more positive attitudes, and a greater intention to seek social support if cyberbullied. These findings suggest that using an SCT approach works well to promote social support and might be considered within the context of emerging intervention research that aims to correct social norms (Perkins et al., 2011).

The third recommended behavior involved saving evidence. As hypothesized, the experimental message was effective at causing

changes in all social support dependent variables. Although significant differences emerged between groups, research suggests that young adults may already know how to save evidence (Juvonen & Gross, 2008). Initial data exploration using *t* tests revealed a ceiling effect for self-efficacy (there was little room for the experimental group to demonstrate an increase beyond the control group); differences only emerged when we accounted for technology use as a covariate. Saving evidence is likely a strategy that college students are accustomed to; improving self-efficacy toward this may be less important. Future evaluation work should continue to account for technology-related covariates.

Notifying an authority was the final recommended behavior. All dependent variables were impacted in an expected manner regarding this strategy. Those in the experimental group reported more confidence in their ability to notify authorities and thought that this would be an effective strategy to help them. They had more positive attitudes and were more likely to notify an authority if cyberbullied. In addition to illustrating how to notify an authority, we included a reporting tool from the website wiredsafety.org (Wired Safety, 2009). However, the website no longer takes reports. Future interventions will benefit from determining and promoting easy online reporting mechanisms. Message designers will find that cyberbullying.org/report (Cyberbullying Research Center, 2016) includes an updated resource list for notifying authorities.

These findings support the effectiveness of an SCT model to persuade college students to adopt recommended behavioral responses to cyberbullying and have theoretical implications. The narrative and presentation of recommended strategies in the intervention message were developed utilizing all components of SCT's underpinnings (Bandura, 1977, 1986). This extends previous SCT research by demonstrating specifically how SCT can be applied to adult-level cyberbullying interventions. Lent and Brown (2006) argued that SCT is topic specific in that it requires a high level of tailoring to fit a particular domain and it is difficult to look at SCT as a one-size-fits-all theory; thus, every new context of SCT application furthers the theory's explanatory power. This study provides a starting place for message development; future studies should examine which parts of SCT-based messages are more or less effective than others.

Strengths, Limitations, and Future Directions

This study contributes to the literature on cyberbullying in several ways. Most cyberbullying research has been conducted within the fields of psychology, education, and criminal justice. Yet communication is inherent to cyberbullying because messages that harm, threaten, taunt, harass, or embarrass the victim are defining characteristics. The communication discipline is particularly well suited to help respond to this problem by developing anti-cyberbullying messages that could be incorporated into formal interventions and campaigns (see also Ramirez, Eastin, Chakroff, & Cicchirillo, 2008; Roberto et al., 2014a). The use of a theoretically driven message to affect participants' perceptions, attitudes, and intentions represents other strengths. This study is among the first to test a theoretically driven persuasive anti-cyberbullying message. Although future researchers should elucidate how best to affect self-efficacy for

¹In addition, in an earlier version of this article, cyberbullying perpetration and victimization were included as predictors in $2 \times 2 \times 2$ MANCOVAs rather than covariates. Results showed that no interaction effects were significant; significant main effects indicated that those who reported cyberbullying perpetration displayed less self-efficacy, less favorable attitudes, and less intention to enact all of the recommended strategies (with the exception of attitudes toward not retaliating). Readers interested in these findings for message targeting implications may contact the first author.

avoiding retaliation, SCT was generally successful for designing a convincing message about implementing anti-cyberbullying strategies. Future studies could revise this message, test it in other populations, devise other messages varying in SCT constructs, or draw on other communication theories (Ramirez et al., 2010).

The posttest-only control group design and random assignment constrain major threats to internal validity (Shadish, Cook, & Campbell, 2001), but limitations warrant discussion. First, using one experimental group rather than multiple conditions restricts conclusions. Future studies including additional message conditions (e.g., strong, moderate, weak, control) could speak to how robust an intervention must be to change outcomes. This could clarify specific components of SCT causing changes in outcome variables. Although other studies have examined select constructs from SCT (Viswanath, 2008), we filled a gap in the literature by applying the complete theory in message design and formative evaluation. Second, the use of a single message among one age group could be remedied, although the college-age population is understudied and experiences cyberbullying. Although testing multiple messages in a particular domain has much heuristic and theoretical value, the purpose here was to examine a specific message crafted to reflect SCT's full explanatory power. Still, future research should examine how message variations impact outcomes across ages. Third, this study was limited to behavioral recommendations to address future victimization. Scholars should advance persuasive messaging that aids perpetration prevention too. Fourth, this was not a long-term study of actual behavior, and although the pattern of effects contributes to this area of research, effect sizes were small. Kirk (1996) argued that the practical significance of small effects is valuable, and Allen (1991) argued that small effect sizes can be important when there might be a cumulative effect over time in intervention/campaign contexts. The ultimate efficacy test of this or any intervention message is a prospective long-term randomized study, something the field lacks.

Conclusion

Cyberbullying is a serious problem that may worsen as digital tools connect people more intimately, exposing them along the way to all manner of aggression and intrusion. Sadly, few proven interventions exist. This study supports continued applied research to help those who confront cyberbullying victimization. SCT, which has been proven effective in other health contexts, provided the theoretical framework for designing the anti-cyberbullying message, but other theoretical perspectives that examine long-term efficacy deserve inquiry too. Such investigations can over time lead to data-driven, theory-based, effective persuasive message design and interventions.

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