Cyberbullying Bystander Intervention: The Number of Offenders and Retweeting Predict Likelihood of Helping a Cyberbullying Victim

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Cyberbullying happens while bystanders are watching. To understand cyberbystanders' experience, the present experiment investigates how repetitive aspects of online communication influence bystanders' perceptions and intentions to halt cyberbullying. We consider the role repetition plays in identifying cyberbullying, and outline two of its mechanisms—power imbalance and intention. Participants (N = 133) were exposed to messages on Twitter that either contained retweets or original offenses from one or several offenders. Although cyberbystanders were generally unwilling to intervene, seeing several offenders increased their likelihood of engaging in the Bystander Intervention Model's (BIM) stages. Further, re-sharing moderated the effect of number of offenders suggesting cyberbystanders may be less willing to intervene when they read re-shared rather than original content. Implications for cyberbystander interventions are discussed.

Keywords: Cyberbullying, Cyberbystanders, Bystander Intervention Model (BIM), Retweeting, Social Media, Repetition.

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As social media have become deeply enmeshed in people's everyday lives, concern about the proliferation and effects of cyberbullying as a public health issue is growing (National Academies of Sciences, Engineering, and Medicine, 2016). The exact prevalence of cyberbullying is difficult to determine, but estimates suggest that between 20% and 40% of Internet users may have been cyberbullying victims (Aboujaoude, Savage, Starcevic, & Salame, 2015). Cyberbullying is detrimental to the well-being of the victim (Tokunaga, 2010) and is associated with mental and physical health problems (Kowalski & Limber, 2013).

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Most cyberbullying research focuses on the experience of either the victim or perpetrator (Bauman & Bellmore, 2015). As is true in offline bullying, however, online bystanders (called "cyberbystanders") represent third-party participants who may be uniquely poised to detect and intervene in cyberbullying. Indeed, since it is common for one person to be targeted for bullying on a social networking site (SNS) in the presence of many onlookers, there are often more cyberbystanders than there are victims, with over 70% of Internet users having witnessed cyberbullying (Duggan, 2014). Thus, there is a need to understand how cyberbystanders perceive and detect cyberbullying on SNSs and how their understanding of cyberbullying influences their willingness to step in and help.

One of the difficulties with detecting cyberbullying is identifying what exactly constitutes bullying online (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Offline bullying is based on three criteria—intention to harm, repetition, and power imbalance—but transferring these criteria to digital media presents challenges (Corcoran, McGuckin, & Prentice, 2015). Conceptualizing repetition is especially complicated online (Smith, del Barrio, & Tokunaga, 2013). For instance, unlike in-person bullying situations, a single online post may be replicated, repeated, spread, and observed by a large number of people, which is why some researchers define even a single message (e.g., tweet, Facebook post) as cyberbullying (Brody & Vangelisti, 2016; Patchin & Hinduja, 2015). Moreover, a single offender or multiple offenders can generate unique offenses or repeat (e.g., retweet) an original post, meaning that one hurtful message is passed around multiple times. This variety of potential repetitive actions complicates our ability to identify cyberbullying, especially for cyberbystanders who have the opportunity to intervene.

The present study addresses this problem by examining the effects of different types of repetition—single vs. multiple offenders and original vs. retweeted content—on cyberbystanders' perceptions of cyberbullying and intentions to intervene. In particular, we argue that the number of offenders exacerbates perception of power imbalance, and (re)sharing content affects perceived intent to harm because of the generative vs. derivative nature of original and retweeted messages, respectively (Starbird, Palen, Hughes, & Vieweg, 2010). Drawing on the Bystander Intervention Model (BIM) (Latané & Darley, 1970), we test the effects of the above factors on how cyberbystanders perceive hurt, appraise cyberbullying, accept responsibility, and intend to intervene in cyberbullying.

Bystander intervention

Although many people may witness an emergency, a relatively small number of bystanders step in and help (Darley & Latané, 1968). Bystanders are less likely to help as the number of other witnesses to the event increases, known as the bystander effect (Latané & Darley, 1970), which has been documented in both emergency (Darley & Latané, 1968) and non-emergency (e.g., Latané & Dabbs, 1975) situations. The bystander effect has been applied to cyberbullying on SNSs (Brody & Vangelisti, 2016; Obermaier, Fawzi, & Koch, 2014). One study found that people were most likely to intervene during cyberbullying on Facebook if the number of bystanders was small (Brody & Vangelisti, 2016). Other studies, however, have found no linear relationship between the number of bystanders and willingness to intervene in cyberbullying, but instead show that smaller numbers of onlookers (2) lead to cyberbystander apathy in comparison to medium (24) or larger numbers (5,025) (Obermaier et al., 2014).

BIM (Latané & Darley, 1970) builds on bystander effect research by explicating five steps that bystanders engage in their decision-making to intervene: (a) notice the event, (b) appraise it as an emergency, (c) take responsibility for helping out, (d) select an appropriate intervention action, and (e) implement the intervention method. Recent research has built on this model and its use in offline settings (e.g., Darley & Latané, 1968), by applying it to online situations. For example, cyberbystanders were found to be more likely to intervene if they recognized that cyberbullying was happening (Dillon & Bushman, 2015). Similarly, intention to intervene increases with the perceived severity of the cyberbullying incident (Bastiaensens et al., 2014). Accepting personal responsibility mediates the relationship between the

number of bystanders witnessing cyberbullying and intervention (DiFranzo, Taylor, Kazerooni, Wherry, & Bazarova, 2018; Obermaier, et al., 2014). Furthermore, cyberbystander intervention is more likely to take indirect forms (e.g., flagging content to a moderator) than direct forms (e.g., telling the bully to stop) (Dillon & Bushman, 2015), as indirect intervention requires less effort, resources, and power compared to direct confrontation (Darley & Latané, 1968; Latané and Darley, 1970).

The present study builds upon previous research by attempting to understand how cyberbystanders appraise cyberbullying based on specific factors of repetition present on SNSs, specifically Twitter. Because appraisal is a precursor to taking responsibility and intervention (Latané & Darley, 1970), we next focus on how cyberbystanders appraise instances of cyberbullying by unpacking the nature of cyberbullying and mechanics of repetition online.

Identifying and appraising cyberbullying

Although repetition is central to defining bullying (Patchin & Hinduja, 2015), bystanders tend to label an aggressive situation as bullying based on the aggressor's intent to harm and the existing power imbalance between the aggressor and victim (Cuadrado-Gordillo, 2012). That is, the extent to which a bully willfully aggresses against a victim (intent to harm; Patchin & Hinduja, 2015) as well as the victim's inability to defend him or herself from said aggressor (power imbalance; Langos, 2012) influences a bystander's ability to identify a bullying situation.

Due to constant changes in information and communication technologies (ICT) (Giumetti & Kowalski, 2016), which can shape how aggressive acts are enacted, perceived, and reacted to online, cyberbystanders may have difficulties identifying cyberbullying. For example, one hurtful online message may be seen as cyberbullying because it can exist online in perpetuity (Whittaker & Kowalski, 2015). Intentionality may be difficult to establish online when ICT lack non-verbal cues which can help cyberbystanders understand when a user is communicating with another in a fun vs. harmful manner (Mehari, Farrell, & Le, 2014). The power imbalance between victims and bullies may be altered by online anonymity, depending on how aggressors and victims utilize anonymous platforms (Smith, del Barrio, & Tokunaga, 2013). Additionally, it can be difficult for cyberbystanders to distinguish between cyberbullying and other forms of online aggression, like harrassment (Wolak, Mitchell, & Finkelhor, 2007).

Thus, although similar criteria are applied to define cyberbullying and offline bullying (Smith et al., 2008), cyberbullying may unfold differently, and it is unclear whether cyberbystanders apply the same criteria to characterize bullying online as they do offline. To understand the experience of cyberbystanders when they encounter an act of online aggression, the present study investigates how the number of offenders interplays with the sharing and re-sharing afforded by technology (i.e., tweeting vs. retweeting) to influence cyberbystanders' perceptions, appraisals, and intention to intervene in cyberbullying.

Cyberbullying in numbers

Research on bystander behavior has primarily investigated the impact of audience size or composition on likelihood of intervention. However, the fact that multiple people can cyberbully one person suggests that it is also important to assess how the number of cyberbullies influences cyberbystander behavior. While the bystander effect considers only audience size (Smith et al., 2008), cyberbullying not only encompasses repeated posting of messages by one aggressor, but often "(…) involve[s] a collection of non-repeated utterances from a mob of individuals" (Stroud, 2016, p. 266). Just as it matters whether a cyberbystander is alone or surrounded by several witnesses, it should matter as much or even more whether he or she must confront one or multiple cyberbullies and/or bullying messages.

Cases of victims being cyberbullied by groups of known or anonymous individuals are common (Vandebosch & Van Cleemput, 2008), in part because bullies' "(…) need for power and recognition (…) is satisfied by the recruitment of others in the victimization of an individual" (Dooley, Pyżalski, & Cross,

2009, p. 186). Hence, a power imbalance emerges as more cyberbullies attempt to harm another individual, in turn increasing the number of cyberbullying attacks. Traditionally, power imbalance has been conceptualized as bullies having "(…) some perceived or real advantage(s) over their victim in terms of physical attributes (e.g., strength, height), social status (e.g., popularity), established hierarchical status (e.g., more senior individuals bullying their subordinates), and/or other perceived attribute that provides a sense of power to the bully" (Barlett, Prot, Anderson, & Gentile, 2017, p. 22). In online contexts, researchers often struggle to identify power imbalances in the traditional sense of face-to-face bullying (Slonje, Smith, & Frisén, 2013). Users' familiarity with online platforms along with the relative anonymity afforded by certain SNSs seem to muddle previous notions of power imbalance tied to physical strength or social integration (Barlett et al., 2017; Slonje et al., 2013; Vandebosch & Van Cleemput, 2008).

Consequently, power imbalance may take other forms online (Barlett et al., 2017). We propose that the number of aggressors that can easily join in on a cyberbullying act may contribute to perceived power imbalance. That is, the more cyberbullies involved, the more pronounced the power imbalance is between a victim and his or her bullies because the act of aggression is repeated. Following this rationale, we anticipate that the number of cyberbullies will influence cyberbystanders' perceptions and intentions to intervene. Witnessing more offenders involved in cyberbullying should lead to higher perceptions of hurt towards the victim (H1a) and appraising the situation as cyberbullying (H2a) compared to a situation with only one offender due to the "power in numbers." Often, the lack of ambiguity in a given situation increases likelihood of behaving appropriately when an ethical dilemma arises (Jones, 1991). Considering that a victim's inability to defend him or herself against a bully is often perceived as unfair (Smith & Brain, 2000), a victim's inability to defend against a large group of bullies could lead to a heightened sense of unfairness in cyberbystanders, which may, in turn, spur a desire to intervene on behalf of the victim. In this case, the BIM would predict that cyberbystanders should feel more personally responsible (H3a) and more willing to intervene directly (H4a) or indirectly (H5a) when seeing hurtful messages from multiple versus only one offender.

Cyberbullying through re-sharing

Although cyberbullying occurs on different platforms, it is especially rampant on SNSs (Duggan, 2014; Whittaker & Kowalski, 2015), prompting research efforts around popular SNSs, such as Facebook and Twitter (Brody & Vangelisti, 2016; Obermaier et al., 2014). The present study focuses on Twitter, a microblogging SNS that limits posts (i.e., tweets) to 280 characters in length. It allows users to engage in "light" conversations ranging from daily personal activities to global current events (Java, Song, Finin & Tseng, 2007). Twitter is an important platform for studying cyberbullying because it has been involved in controversy over the ease with which people can harass others on the platform, to the point that the company updated their site rules to be stricter on hate speech and harassment (Twitter, 2016).

Twitter has several features that impact the ways users socialize on the platform, such as retweeting, @mentions, and trending topics. These features may also structure cyberbystanders' experiences within the Twitter interface. There is reason to anticipate that the feature of re-sharing—retweeting—will significantly impact cyberbullying. As Kwak, Lee, Park, and Moon (2010) note, retweeting is a "(…) mechanism [which] empowers users to spread information of their choice beyond the reach of the original tweet's followers" (p. 591). The ease with which someone may retweet a previous post affords users the ability to participate in a conversation without actively contributing, quickly diffusing a message across networks (boyd, Golder, & Lotan, 2010; Recuero, Araújo, & Zago, 2011). With the click of the retweet button, Twitter users can rapidly increase the audience size of any given tweet. Moreover, if a tweet is retweeted multiple times, then the topic of said tweet (usually demarcated with a hashtag followed by a keyword) may become a trending topic broadcast to the entire social network (boyd et al., 2010).

When applied to cyberbullying, re-sharing of an aggressive message may amplify one cyberbullying act to extreme proportions. The same feature that allows for group solidarity to emerge around political

protests (Starbird & Palen, 2012) may inadvertently encourage the virality of hurtful posts, as people tend to imitate and trust information validated by others online (Lee & Sundar, 2013). Whether the motivation to retweet is one of information sharing (Kwak et al., 2010), validation (boyd et al., 2010), or collective action (Starbird & Palen, 2012), retweeting allows for messages, even hurtful ones, to spread far and wide.

Cyberbystanders' interpretations of the act of re-sharing an original message, versus writing a personalized message, must also be considered. Starbird et al. (2010) argue for a distinction between *generative* and *derivative* tweets. In particular, generative tweets are those that a user originally crafts, while derivative tweets are retweeted from another user. Because of its derivative, diffuse nature, retweeted content could be seen as less intentionally harmful within a cyberbullying context than original content. Put differently, retweeting a cyberbullying message takes less effort than generating an original aggressive message, signaling less-intentional action in the former than in the latter form of tweeting. As previously discussed, bystander intervention research suggests other contextual factors, such as the number of other cyberbystanders involved and perceptions of personal responsibility, may push or pull people into action. Research also suggests that cyberbystanders may weigh the perceived hurtfulness of a re-shared message in deciding whether to act (Bastiaensens et al., 2014).

Regarding the communicative form of repetition (retweeting an offense multiple times vs. tweeting multiple independent offenses), we predict that retweets are perceived as less hurtful than original messages (H1b) because the derivative act of re-sharing could imply less intention to harm compared to composing independent offenses. Following the BIM, cyberbystanders who see retweets as less hurtful than original offenses would be less likely to appraise the situation as cyberbullying (H2b), feel less personally responsible (H3b), and consequently be less likely to intervene directly (H4b) or indirectly (H5b). Furthermore, the effect of tweeting vs. retweeting is likely to be exacerbated when independent offenses originate from several individuals vs. a single individual. Specifically, cyberbystanders exposed to original messages (high intent to harm) by several offenders (high power imbalance) should be the most likely to find the messages hurtful (H1c), appraise them as cyberbullying (H2c), feel personally responsible (H3c), and ultimately express willingness to directly (H4c) or indirectly (H5c) intervene.

Method

Participants

One hundred and fifty-six undergraduate and graduate students were recruited at a large northeastern university in exchange for course credit or $5 cash. The mean age of participants was 20.8 ($SD = 2.23$) with a range from 18 to 33, and most participants were female (64.7%). The racial/ethnic identity of the sample was 24.1% Asian, 5.3% African American, 9.8% Latino/Hispanic, 2.3% Middle Eastern, 9.0% mixed-race, 48.9% white, and 1% other. All students were eligible for participation in the study regardless of their personal social media use, but 85% of the participants had their own Twitter account.

Experimental design

The experiment had a 2×2 factorial design, with re-sharing (tweet vs. retweet) manipulated as a between-subjects factor and number of offenders (1 vs. 4) as a within-subjects factor. The treatments were randomly assigned to participants, with the levels of the within-subjects factor (1 vs. 4 offenders) varying between the two experimental hashtag feeds seen by every participant, and the order of the hashtags feeds counterbalanced across participants. Each participant saw a series of four screenshots of Twitter hashtag feeds consisting of two experimental feeds and two filler feeds. Cyberbullying messages were embedded within the tweets in two fictitious hashtag feeds created for the study (i.e., experimental feeds), with each feed containing either one tweet or four tweets, which were presented as either original tweets or retweets.

Message order within each feed screenshot was counterbalanced for conditions with multiple (4) original offenses. For the single offender condition, one message was randomly selected out of the same set of four cyberbullying tweets. Though the Twitter accounts were fictitious, account information and profile pictures were blurred out, but first names of the tweeters were included. Refer to Figure 1 for examples of the experimental stimuli illustrating the multiple-message and the single-message conditions.

Piloting

To select cyberbullying messages to be used as the experimental tweets, we conducted a pre-test on Amazon Mechanical Turk. Pilot participants ($N = 131$, M for age = 31.1, $SD = 8.22$; 54% female) were asked to evaluate fifteen aggressive messages presented as tweets on several dimensions: (a) perceived cyberbullying and intention to harm the recipient on a binary scale (1 = *yes*, 0 = *no*); (b) perceived valence using a 7-point scale (1 = *this tweet was very negative*, 7 = *this tweet was very positive*); (c) perceived realism or believability using a four-item bipolar scale (e.g., *totally believable* to *totally unbelievable*), *alpha* = .95 (Kearney, Plax, Smith, & Sorensen, 1988); and (d) perceived severity using two semantic differential questions (e.g., 1 = *this tweet was not very severe* to 7 = *this tweet was very severe*), *alpha* = .93. A final eight tweets, four for each hashtag, were selected for use in the experimental stimuli based on their consistent scores across the five dimensions. A one-way ANOVA found no significant differences among the final eight messages on appraisal of cyberbullying, intention to harm, valence, realism and severity.

Procedure

The cover story presented the study as an examination of people's experiences with Twitter hashtags. Upon entering the lab, participants were given a brief overview of the functionality of Twitter to make sure that they understood how to identify different users and retweets. To instill the belief that participants would view actual tweets, they were first asked to contribute examples of hashtags from their own Twitter account, presumably for a hashtag repository being created for this study. Participants were instructed to log into a Twitter account, browse the Twitter Timeline, and then screenshot four hashtags that contained emotional content or stood out for some other reason. After they contributed examples of hashtags from their Twitter account, they were asked to evaluate hashtag screenshots, which they were told had been submitted by other participants, but were in reality the experimental stimuli and two fillers.

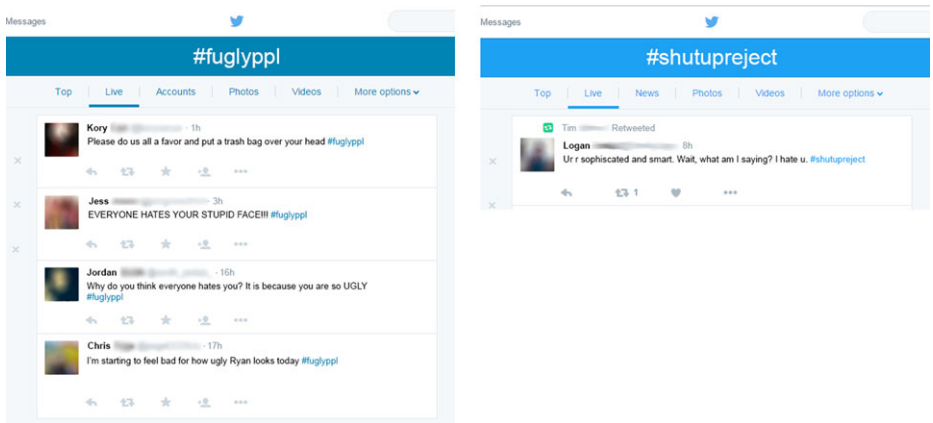

Figure 1 Sample stimuli.
Note: First screenshot is an example of the Four Offenders, Tweeting condition. The second screenshot is an example of the One Offender, Retweeting condition.

To avoid suspicion of our study's main purpose, participants were always asked to evaluate a filler screenshot before being presented an experimental screenshot. The experimental screenshots (e.g., #fuglyppl & #shutupreject) consisted of one to four tweets/retweets (depending on the condition) directly targeted at an individual. Upon completion of the evaluation, participants were probed for suspicion, asked about their own experiences with cyberbullying and their general social media use, debriefed, and compensated.

Measures

Two scales were combined to assess perceived hurt: the degree of hurt (Brody & Vangelisti, 2016) and the severity of cyberbullying (Obermaier et al., 2014), which resulted in eight items measured on a 7-point semantic differential scale (e.g., *not at all hurtful/extremely hurtful*), alpha = .92. Appraisal of cyberbullying was measured with three questions assessing the extent to which participants would consider the feed as a form of: (a) cyberbullying, (b) online aggression, or (c) online abuse (1 = *very unlikely*, 7 = *very likely*), *alpha* = .81. A 3-item measure adapted from Obermaier et al. (2014) assessed the degree to which participants would feel responsible to intervene if they encountered the incident on Twitter, measured on a 7-point Likert scale (1 = *very unlikely*, 7 = *very likely*), *alpha* = .93: e.g., "you are personally responsible to respond to this feed." The original measure of cyberbystander involvement evaluated the likelihood that participants would engage in direct and indirect intervention. *Direct intervention* consisted of two items: (a) "contact the users directly," (b) "message users in the feed," *alpha* = .88. *Indirect intervention* was measured with three items: (a) "Flag a tweet in this feed," (b) "Report a tweet to Twitter," (c) "Reporting the feed to someone else", *alpha* = .88. Both were measured on a 7-point Likert scale, with 1 = "very unlikely" and 7 = "very likely."

Covariates

Our analysis controlled for participants' age and gender, self-reported hours per day on Twitter (M = 1.14, SD = .44; 1 = *0–1 hours*, 7 = *6 or more hours*), number of tweets posted daily (M = 1.31, SD = .40; 1 = *one time or less*, 7 = *at least 25 times*), frequency of cyberbullying victimization (M = 1.32, SD = .53; 1 = *never*, 6 = *several times a week*), frequency of being a cyberbully (M = 1.20, SD = .51; 1 = *never*, 6 = *several times a week*), and frequency of cyberbystanding (M = 2.31, SD = 1.28; 1 = *never*, 6 = *several times a week*). Three types of social anxiety (La Greca & Lopez, 1998) were controlled for by using 1 = *not at all* to 5 = *all the time* Likert scales: generalized social anxiety (M = 2.24, SD = 1.03), social anxiety in new situations (M = 2.77, SD = 1.1), and fear of negative evaluations (M = 2.46, SD = .98). Empathy (M = 5.92, SD = .81; 1 = *strongly disagree*, 7 = *strongly agree*; Olweus & Endresen, 2001) was also included as a control variable.

Results

Overview

Analyses were conducted using statistical packages in R version 3.3.2 (R Core Team, 2016). Table 1 presents descriptive statistics for all dependent variables. To account for normality issues, we log-transformed positively-skewed outcome measures and square root-transformed negatively-skewed outcome measures. Each model included a random effect of participant to account for repeated responses from each participant, and all the covariates, which are only reported if they had significant effects. Effect sizes were measured with marginal R-squared describing the proportion of variance explained by the fixed factor alone and conditional R-squared for the proportion of the variance explained by both the fixed and random effects (Nakagawa & Schielzeth, 2013). The results are organized by the dependent variables: perceived hurt (H1a–c), appraisal of cyberbullying (H2a–c), accepting personal responsibility (H3a–c), and direct (H4a–c) and indirect (H5a–c) intervention intentions.

Table 1 Pearson Correlations and ICCs of Main Outcome Variables

Variable	1	2	3	4	5	*M*	*SD*	ICC (Null)	ICC (Full)
1) Perceived Hurt	-					5.25	1.23	46%	44%
2) Appraisal of Cyberbullying	.62*	-				5.90	.10	47%	45%
3) Personal Responsibility	.41*	.34*	-			2.06	1.41	59%	62%
4) Direct Intervention	.22*	.10	.56*	-		2.10	1.41	68%	71%
5) Indirect Intervention	.45*	.41*	.65*	.42*	-	3.27	2.00	70%	70%

*$p < .001$

Note: ICC values for null and full models presented.

Manipulation checks

To verify whether participants noticed the number of offenders involved and the originality of the cyberbullying content presented to them, two manipulation check questions were used asking participants to indicate whether: (a) a retweet was included, and (b) how many Twitter users were involved in the screenshot presented to them. In order not to cue participants to the manipulations, these questions were asked only for the second cyberbullying hashtag screenshot. After removing participants who failed either one manipulation check ($N = 6$ in identifying a retweet and $N = 13$ in identifying the number of offenders) or both ($N = 1$) manipulation checks, as well as those who had suspicions of the experimental stimuli ($N = 2$) or requested to exclude their data ($N = 1$), the final sample was reduced to 133 participants. A post hoc chi-square test confirmed that participants who failed either or both manipulation checks did so at random, $\chi^2_1 = .0, p > .05$. Comparisons revealed that excluded participants reported less perceived hurt from the cyberbullying tweets than those included in the final sample, $F(1, 148) = 5.40$, $p < .05$. Participants who failed the manipulation check were also less likely to appraise the tweets as cyberbullying than the final sample when there was only one bully, $F(1,133) = 5.05$, $p < .05$, or when messages were retweeted, $F(1,148) = 5.44$, $p < .05$.

Perceived hurt

The first set of analyses (H1a–c) tested the effect of the number of aggressors and type of repetition (retweet vs. original) on perceived hurt. Consistent with H1a, tweets from four aggressors ($M = 5.23$, $SE = .01$) were evaluated as more hurtful than those from one aggressor ($M = 4.96$, $SE = .01$), $F(1,116) = 4.14$, $p = .04$, $R^2_{GLMM(m)} = .11$, $R^2_{GLMM(c)} = .52$. In line with H1b, retweets ($M = 4.75$, $SE = .01$) were perceived as less hurtful than original offenses ($M = 5.45$, $SE = .01$), $F(1,118) = 10.65$, $p = .001$, $R^2_{GLMM(m)} = .17$, $R^2_{GLMM(c)} = .51$. A significant interaction emerged suggesting the effect of number of offenders on perceived hurt ratings was moderated by re-sharing, $F(1,114) = 6.22$, $p = .01$, $R^2_{GLMM(m)} = .18$, $R^2_{GLMM(c)} = .54$ (see Figure 2). Consistent with H1c, participants exposed to original offenses by four aggressors found these tweets to be more hurtful ($M = 5.76$, $SE = .01$) than participants exposed to retweets by four aggressors ($M = 4.72$, $SE = .01$), $t(168) = 4.316$, $p < .001$. No difference emerged between original offenses and retweets for messages produced by one aggressor, $p = .16$. The covariate of empathy had a positive association with perceived hurt, $\beta = .29$, $SE = .13$ $p = .03$.

Appraisal of cyberbullying

The second set of hypotheses (H2a–c) assessed the influence of the number of offenders and re-sharing on appraisal of cyberbullying. Contray to H2a and H2b, neither the number of offenders ($p = .08$) nor re-sharing ($p = .17$) impacted appraisal. A significant interaction, however, emerged between the two factors, $F(1,114) = 3.76$, $p = .05$, $R^2_{GLMM(m)} = .11$, $R^2_{GLMM(c)} = .52$ (see Figure 3). As revealed by pairwise

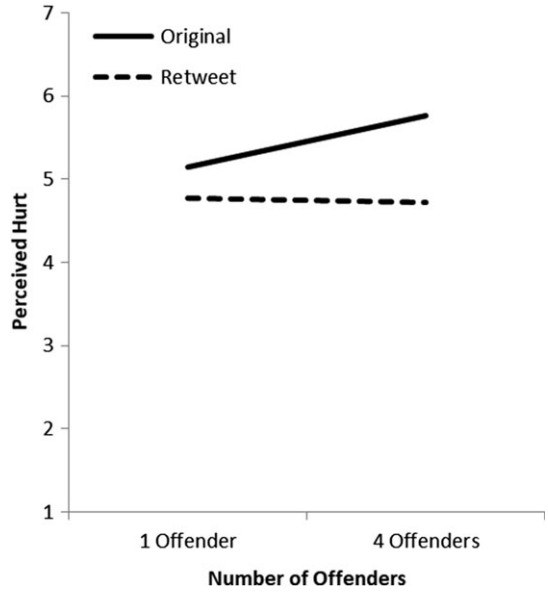

Figure 2 Interaction between number of offenders and tweet originality for perceived hurt.

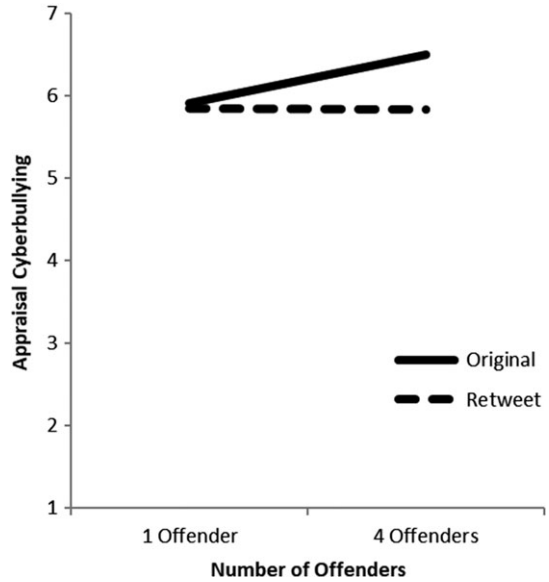

Figure 3 Interaction between number of offenders and tweet originality for appraisal of cyberbullying.

comparisons, tweets were more likely to be appraised as cyberbullying when content was originally posted by four aggressors ($M = 6.50$, $SE = .01$), than when it was retweeted by four aggressors ($M = 5.83$, $SE = .01$), $t(166) = 2.32$, $p = .02$, in line with H2c; but there was no effect of sharing in the case of one aggressor, $p = .86$. Thus, cyberbystanders are more likely to notice and recognize cyberbullying when

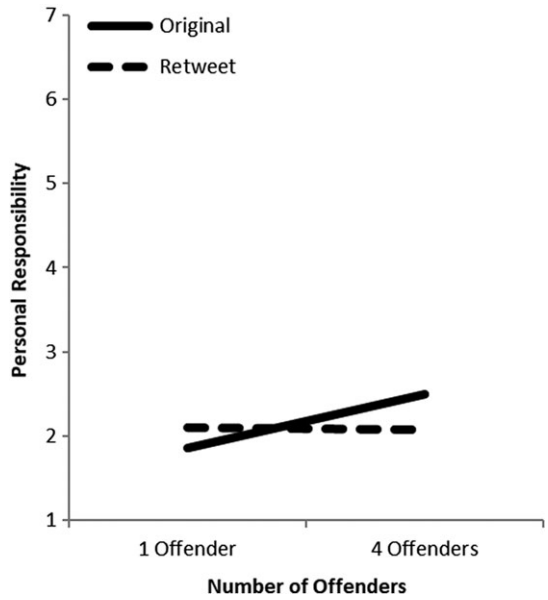

Figure 4 Interaction between number of offenders and tweet originality for personal responsibility.

there are multiple offenders tweeting original content. Additionally, the more times participants came across bullying online, the more likely they were to rate the hurtful messages as cyberbullying, $\beta = .12$, $SE = .05$, $p = .02$, indicating that previous experience with cyberbullying also mattered.

Personal responsibility

Next, we examined how the number of offenders and type of sharing influenced cyberbystanders' sense of personal responsibility. Consistent with H3a, seeing four aggressors led to higher feelings of personal responsibility than seeing one aggressor, $F(1,107) = 7.01$, $p = .01$, $R^2_{GLMM(m)} = .17$, $R^2_{GLMM(c)} = .66$. Personal responsibility ratings remained unaffected by re-sharing, $p = .75$, providing no support for H3b. However, the re-sharing manipulation moderated the influence of the number of offenders, $F(1,106) = 8.78$, $p < .01$, $R^2_{GLMM(m)} = .19$, $R^2_{GLMM(c)} = .69$ (See Figure 4): Participants felt more responsible when four offenders posted original cyberbullying tweets ($M = 2.50$, $SE = 1.21$), than when one offender posted one original cyberbullying tweet ($M = 1.86$, $SE = 1.22$), $t(112) = -3.668$, $p < .001$, in line with H3c. Consistent with the other result patterns, no differences in personal responsibility ratings were found when participants evaluated retweets by one or four aggressors, $p = .83$. Among control variables, participants who were more fearful of negative evaluation (a factor of social anxiety) were more likely to feel personally responsible, $\beta = .45$, $SE = .14$, $p < .01$. Thus, we see evidence that more offenders, combined with the original content they produce, led to stronger feelings of personal responsibility in cyberbystanders compared to other repetition forms.

Direct and indirect cyberbystander intervention

Finally, we examined the effects of the number of offenders and re-sharing on direct and indirect intervention intentions. Seeing cyberbulling involving four offenders prompted greater intention to directly intervene ($M = 1.88$, $SE = 1.20$) than seeing cyberbullying with one offender ($M = 1.65$, $SE = 1.20$), $F(1,107) = 7.63$, $p < .01$, $R^2_{GLMM(m)} = .09$, $R^2_{GLMM(c)} = .72$. Retweeting had no influence on participants'

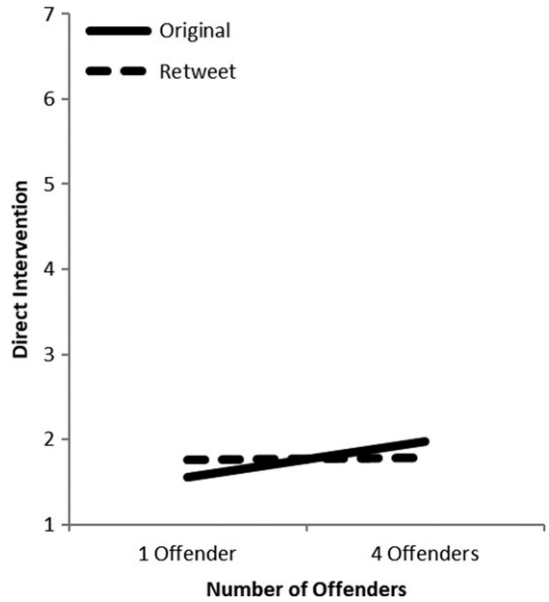

Figure 5 Interaction between number of offenders and tweet originality for direct intervention.

intentions, $p = .92$ (H4b), but a significant interaction (See Figure 5) emerged between the two factors, $F(1,106) = 6.50$, $p = .01$,$R^2_{GLMM(m)} = .10$, $R^2_{GLMM(c)} = .74$. In line with H4c, seeing original cyberbullying tweets by four offenders ($M = 1.98$, $SE = 1.22$) prompted greater intention to directly intervene than seeing original cyberbullying tweets by one offender ($M = 1.55$, $SE = 1.22$), $t(111) = -3.46$, $p < .001$, similar to the effect found with personal responsibility. For indirect intervention intentions, there were no effects for the number of offenders involved (H5a; $p = .08$) or retweeting (H5b; $p = .35$). A similar interaction pattern to that of direct intervention emerged for indirect intervention (H5c), however, this result did not reach significance ($p = .07$). Additionally, direct intervention intention was positively associated with anxiety about social evaluations, $\beta = .32$, $SE = .14$, $p = .03$, and negatively associated with anxiety about new situations, $\beta = -.18$, $SE = .08$, $p = .03$.

Discussion

The goal of this study was to determine how different forms of cyberbullying repetition influenced cyberbystander appraisal and willingness to intervene. We conceptualized two types of repetition on SNSs, re-sharing of a cyberbullying message and number of cyberbullies. By focusing on cyberbystanders' perceptions and intervention intentions, our research helps to illuminate why Internet users report witnessing cyberbullying, but mostly doing nothing about it. Rooted in the BIM, we reasoned that re-sharing and number of offenders would influence how cyberbystanders: (a) perceive hurt, (b) appraise acts of cyberbullying, (c) assume responsibility, and (d) make decisions about the way they would intervene when witnessing cyberbullying on Twitter. We find that increasing the number of aggressors on Twitter does increase the likelihood of each stage in the BIM, but only when aggressors share original messages and not when they re-share (retweet) a cyberbullying message. The following section explains how our findings contribute to understanding the role of repetition and bystander effect in cyberbullying.

The effect of group size on cyberbystander intervention

Because anyone can view, respond to, or re-share content online, the number and types of individuals involved in a cyberbullying incident can at times seem limitless (Smith et al., 2008). Yet research on cyberbystanders tends to address only audience size as predictive of bystander intervention (e.g., Brody & Vangelisti, 2016). In light of the mob-like style of some online bullying activity (Stroud, 2016), this study explored whether cyberbystanders' intentions and perceptions differed when one versus multiple offenders engaged in cyberbullying. Addressing the number of offenders is important for cyberbullying research, because as a form of repetition it remains understudied. Specifically, we reasoned that the more people involved in the cyberbullying, the greater the power imbalance between the perpetrator(s) and the victim.

Our results indicate that increasing the number of people engaging in cyberbullying increased perceptions of hurt and appraisals of cyberbullying. Cyberbystanders were more likely to perceive tweets as hurtful and appraise them as acts of cyberbullying if there were four people tweeting cyberbullying messages rather than just one person. We also found that people who saw four offenders were more likely to feel personally responsible for the situation and more likely to express a willingness to directly intervene than participants who witnessed one cyberbully, possibly because of increased perceptions of unfairness stemming from the power imbalance of having multiple bullies attacking a victim. These results mirror the finding of a meta-analysis on bystander intervention about attenuation of bystander apathy with severe content (Fischer et al., 2011), as having multiple offenders targeting a victim increased perceived hurt in our study, especially when they attacked with original tweets.

Furthermore, the number of aggressors influenced willingness to directly intervene, consistent with the BIM's assertion that cyberbystanders who accept responsibility for the cyberbullying show more resolve to intervene. However, number of bullies only affected direct, but not indirect intervention, although there was a marginal effect of number of bullies with original tweets on indirect intervention. Future research needs to replicate these findings in real-time studies (e.g., using an experimental paradigm developed by DiFranzo et al., 2018; Dillon & Bushman, 2015) to examine whether and how intentions to intervene translate into real actions, and how contextual and relational mechanisms might attenuate this effect.

The effect of re-sharing on cyberbullying

Another goal of this study was to understand how the affordance of message re-sharing, a unique form of repetition on SNSs, can influence cyberbystander appraisal of cyberbullying. Previous work suggests that retweeting is a light, quick, and diffuse form of communication on Twitter (boyd et al., 2010). Consistent with the idea of retweets as derivative communication (Starbird et al., 2010), participants perceived retweets to be less hurtful than original offenses. In particular, re-sharing on its own had no impact on cyberbystanders' appraisal of the cyberbullying situation, their feelings of personal responsibility, or their intervention intentions.

An additive effect of two factors—(re)sharing and number of aggressors—was found for all stages of the BIM, emphasizing the multifaceted nature of repetition in cyberbullying. Cyberbystanders perceived most severity, appraised most cyberbullying offense, took most personal responsibility, and showed most resolve to engage in direct intervention when there were multiple offenders attacking a victim with original messages. The theorized mechanisms that may have exacerbated perceptions of victimization for the multiple bullies/multiple offenses situation are the power imbalance due to "power in numbers" and perceived intent to harm for original, generative tweets compared to derivative retweets. Indeed, re-sharing moderated the effects from the number of offenders, weakening the perception of hurtfulness and appraisal of the situation as cyberbullying, as well as acceptance of responsibility and intention to intervene,

when multiple people only retweeted the original post. On the other hand, re-sharing a message did not differ from original messages when only one cyberbullying perpetrator was present.

This interaction effect between repeating content and repeated offenses by single vs. multiple attackers has implications for understanding the nature of repetition as a defining criterion of cyberbullying. As this study shows, repetition manifests itself differently online (Smith et al., 2013), and may, depending on its form, be conceptually connected to both power imbalance and intention to harm. These two factors, we argue, are what drive cyberbystanders' appraisals of a cyberbullying situation and, in turn, their behavioral intentions. Multiple attackers each generating original attacks is the utmost manifestation of cyberbullying repetition because of both power imbalance and perceived intent on the part of the attackers. Other forms of repetition (when content is replicated by multiple bullies or repeated instances of attacks by a single bully), although still very harmful, present themselves as less severe and more attenuated forms of repetition in the eyes of cyberbystanders in our study.

Future directions and limitations

This study presents a step forward in testing bystander behavior online, but has limitations in terms of generalizability of our findings. Although participants who failed the manipulation check were removed from analyses, it is important to note that the reason for their removal may signal that users in a real Twitter context may not attend to the number of offenders or resharing of a specific hashtag feed. Additionally, in this study, participants viewed screenshots that were ostensibly submitted by other students on campus, but contained no identifying Twitter profile information. Because participants were presented with decontextualized experimental stimuli, we could not create situations that mimicked real-life social connections and interactions online. This could have contributed to participants' overall lack of willingness to intervene, an assumption in line with previous research documenting the importance of relatedness in intention to intervene (Levine & Crowther, 2008). On the other hand, because participants did not know the people in our stimuli, they may have experienced less fear of negative evaluations (see Robbins & Afifi, 2014), also supported by our counterintuitive finding of the positive relationship between social anxiety and direct intention to intervene. With potential opposite forces at play within the decontextualized experimental design presented here, future studies need to carefully consider the effects of relational connections between victim, cyberbully, and cyberbystanders on willingness to intervene. Similarly, future work may want to consider anonymity as a potential affordance that changes the power balance for cyberbystanders, because cyberbullies cannot retaliate if they cannot identify the intervener (Wong-Lo & Bullock, 2014).

Furthermore, a lack of social and contextual information may have unintentionally introduced ambiguity in conditions with cyberbullying retweets. Markers of connected individuals, including retweets, could confuse a cyberbystander because they suggest the cyberbullying conversation may actually be banter among friends (Dillon, 2016), and bystanders are less likely to intervene when they believe the perpetrator and victim are related in some way (Shotland & Straw, 1976). If participants exposed to retweets by four aggressors saw this situation as either a quarrel or jest between friends, they may have perceived them as less hurtful, and in turn were less willing to intervene. The *situational ambiguity* (Allison & Bussey, 2016) brought about by retweeting hurtful messages within a specific social circle may muddle a cyberbystander's interpretation of what is unfolding, to the point of inaction. On the other hand, cyberbystanders who have no connection to those involved contextualize the situation based on the available information, with number of offenders and sharing of the offense being likely signals for assessing the situation and deciding to intervene. In sum, the lack of contextual information can complicate cyberbystanders' sense-making efforts in deciding whether to intervene or not in venues with limited social and contextual information, such as online forums.

Future research should consider replicating the present findings with in-situ studies of cyberbullying on different social media platforms that allow multiple users to engage in conversations and re-share content. Another potential future research direction would be to use contextual factors to encourage cyberbystanders to stand up to cyberbullies, such as a "quote retweet" option, which allows a user to cite and add original content to a previous tweet (Madrigal, Jiang, & Roy Chowdhuri, 2017). A clear next step for this line of work would be to examine cyberbystanders' perceptions of quote retweets, considering this feature allows users to add their own content to a replicated message, hence reintroducing intentionality within this derivative form of communication. Furthermore, future research should attempt to clarify the distinction between direct and indirect intervention tactics online. In the present study, we distinguished the two based on the extent to which a cyberbystander directly spoke to the victim or bully. However, recent work (e.g., Dillon & Bushman, 2015) suggests that publicness can be a distinguishing factor between direct and indirect cyberbystander intervention, arguing that a private message between a cyberbystander and a cyber victim is a form of indirect intervention because it is less risky to the cyberbystander than publically intervening on a message feed. Considering Latané and Darley (1970) defined indirect intervention as contacting someone outside of the situation for help, more work needs to be done to disentagle the dimensions of publicness and directedness in defining different types of interventions.

Conclusion

Though previous research suggests that bystander intervention may effectively combat cyberbullying, cyberbystanders tend to not intervene. Hence, understanding how cyberbystanders appraise a cyberbullying situation is important in addressing this common and deeply concerning phenomenon. Addressing different forms of repetition on Twitter, we found an additive effect of the number of offenders and their original offenses on cyberbystanders' perceptions of hurt, appraisal of cyberbullying, acceptance of responsibility, and direct intervention intentions, extending our understanding of cyberbystanders' perceptions and behaviors in social media.

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