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Exposure to cyberbullying as a bystander:

An investigation of desensitization effects among early adolescents

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Abstract

The purpose of the present study was to examine whether (repeated) exposure to cyberbullying as a bystander has an impact on early adolescents' moral evaluations in terms of a decrease in empathy and a shift towards a more tolerant attitude towards cyberbullying. A two-wave panel study with a 6-month time interval was conducted among a sample of 1,412 adolescents aged 10-13. Cross-lagged panel analysis was used to investigate relationships over time between being a bystander of cyberbullying, empathic responsiveness towards distressed others, and the attitude towards cyberbullying, while taking into account involvement in cyberbullying as a victim or a perpetrator. The results indicate a negative relationship between standing by at Time 1 and empathic responsiveness at Time 2. In other words, exposure to cyberbullying as a bystander at Time 1 predicted subsequent lower levels of empathic responsiveness at Time 2. The attitude towards cyberbullying at Time 2 was not influenced by seeing more cyberbullying acts at Time 1. Further implications of the results for prevention and intervention, and for future research are discussed.

Keywords: Cyberbullying, Bystander, Desensitization, Empathy, Attitude

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1. Introduction

A meaningful proportion of adolescents have been recently or in the past confronted with acts of cyberbullying, or bullying through mobile phone and Internet applications, taking place between other adolescents. Cyberbullying has been described, in accordance with definitions of traditional bullying, as harmful behavior that is intentional, carried out “repeatedly and over time”, and takes place in an interpersonal relationship characterized by an imbalance of power (Olweus, 1993). Recent figures indicate that about one out of three adolescents has witnessed these acts at least once in the past six months to a year (Jones, Mitchell, & Turner, 2015; Van Cleemput, Vandebosch, & Pabian, 2014). Previous research on bystanders of cyberbullying has mainly focused on bystanders’ reactions and factors that influenced their reactions (e.g., Bastiaensens et al., 2015; Jones et al., 2015; Patterson, Allan, & Cross, 2015; Van Cleemput et al., 2014). For instance, research has shown that bystanders are more likely to join in when they believe that other peers also approve and perform cyberbullying (Bastiaensens et al., 2015), and when they have lower empathic concerns (Van Cleemput et al., 2014). Until now, no research has focused on the possible consequences of being (frequently) exposed to cyberbullying acts as a bystander. Adolescents who have witnessed multiple cyberbullying acts might react differently when they are a bystander of cyberbullying compared to adolescents who have not witnessed these kinds of acts before. The goal of the present study was to investigate whether exposure to cyberbullying as a bystander leads to desensitization, as reflected in less empathic responsiveness and more positive attitudes towards cyberbullying. Both characteristics have already been associated with bystander behavior, but until now it is not clear whether these are influenced by previous exposure to

cyberbullying. Investigating these relationships could advance the understanding of negative bystander behavior and cyberbullying perpetration.

1.1. Desensitizing effects of exposure to aggressive behavior

Desensitization is a key mechanism that is proposed to explain the effects of exposure to violence and refers to the perception that repeated exposure to a certain stimulus can lead to reduced physiological, emotional, cognitive, and/or behavioral responsiveness to it (Rule & Ferguson, 1986; Strasburger & Wilson, 2014). Researchers have shown that desensitization processes also operate in the context of exposure to aggressive behavior, either in real-life or via the media (Carnagey, Anderson, & Bushman, 2007; Funk, Baldacci, Pasold, & Baumgardner, 2004; Strasburger & Wilson, 2014). These processes may include desensitization effects after (frequent) exposure to this kind of behavior, such as changes in determinants of behavior. Examples are a reduction in physiological arousal, a flattening of emotional reactions, and a (cognitive) switch towards a more favorable attitude towards aggression (e.g., Bushman & Huesmann, 2006; Carnagey et al., 2007; Fanti, Vanman, Henrich, & Avraamides, 2009; Fraser, Padilla-Walker, Coyne, Nelson, & Stockdale, 2012; Funk et al., 2004; Guo et al., 2013; Mrug, Madan, Cook, & Wright, 2015; Scharrer, 2008).

Previous research has described desensitization effects of mere exposure to aggression, such as seeing an aggressive act in real-life, movies, television series, and television news, or reading about it in newspapers or books (e.g., Fanti et al., 2009; Guo et al., 2013; Mrug et al., 2015; Scharrer, 2008). Research on new media, such as social network sites (SNS) and video games, has demonstrated that desensitization effects can also occur when individuals make use of interactive media (e.g., Fraser et al., 2012; Konrath, O'Brien, & Hsing, 2011; Lin, 2013). For instance, Lin (2013) showed in her study on playing violent video games that media interactivity can exacerbate the effects of media violence, such as a greater increase in

aggressive affect, aggressive cognition, and physiological arousal. With regard to the use of SNS, Konrath and colleagues (2011) note that repeated exposure to a wide range of negative events and emotions in other people's lives via SNS can lead to desensitization effects such as a decrease in empathy. In their cross-temporal meta-analysis, the authors found a general decline in empathic concern among American undergraduate college students (mean age of 20.27). This decline was most pronounced in samples from after 2000. The authors explain this by the content of modern, post-2000 (social) media.

1.2. The relationship between empathy, attitude and (being a bystander of) cyberbullying

Of the several person factors that have been linked to cyberbullying involvement, empathy and the attitude towards cyberbullying consistently emerge as important predictors. Previous research shows medium to large negative correlations between (general) empathic concern and the attitude towards (cyber)bullying (Barkoukis, Lazuras, Ourda & Tsorbatzoudis, 2015; Espelage, Green & Polanin, 2012).

Empathy refers to sharing the emotional state of another person through taking the perspective of that person and understanding his or her emotions (Eisenberg, 2000; Eisenberg & Strayer, 1987). It is a multidimensional concept that refers to both cognitive and affective aspects (Davis, 1994; Olweus & Endresen, 2001). Olweus and Endresen (2001, p.371) describe three aspects of empathy: perspective taking (which involves the cognitive processes for understanding the internal state of others), empathic concern (which involves feelings of sympathy, compassion, and concern), and empathic distress or personal distress (which involves feelings of discomfort, uneasiness, and distress). Empathic concern has been identified as an important predictor of cyberbullying perpetration (Ang & Goh, 2010; Renati, Berrone, & Zanetti, 2012; Schultze-Krumbholz & Scheithauer, 2013; Steffgen, König, Pfetsch, & Melzer, 2011), victimization (Schultze-Krumbholz & Scheithauer, 2009) and bystander behavior that reinforces cyberbullying (Barlińska, Szuster, & Winiewski, 2013; Van

Cleemput et al., 2014). Positive associations with bystander behavior that supports the victim have also been identified (Kowalski, Schroeder, & Smith, 2013; Van Cleemput et al., 2014).

With regard to attitudes, previous research has shown that the attitude, which is a person's global affective evaluation of a behavior, is an important predictor of cyberbullying perpetration (Heirman & Walrave, 2012; Pabian & Vandebosch, 2014) and cyberbullying bystander behavior (Holfeld, 2014; Nickerson, Aloe, Livingston, & Feeley, 2014). With regard to bystanders' reactions, research has shown that a negative attitude towards cyberbullying is associated with more positive bystander behavior (Nickerson et al., 2014). Until now no longitudinal study has investigated relationships between being a bystander of cyberbullying and empathy or attitude and how these associations evolve over time.

Research on traditional bullying might provide interesting insights with regard to these longitudinal relationships. Cross-sectional research showed that being a passive bystander of traditional bullying repeatedly is associated with having less empathy for peers who are bullied (Cowie, 2000; O'Connell, Pepler, & Craig, 1999; Rigby & Slee, 1991) and a less favorable attitude towards victims of bullying (Gini, Pozzoli, Borghi, & Franzoni, 2008). The longitudinal study of Doramajian and Bukowski (2015) revealed bidirectional relationships between passively standing by and moral disengagement (Doramajian & Bukowski, 2015). Passively standing by can lead to increased moral disengagement at a later point in time, but at the same time higher levels of moral disengagement may predict more passive bystander behavior when witnessing traditional bullying (Doramajian & Bukowski, 2015).

In sum, research on cyberbullying has shown first evidence for associations between bystander behavior, empathy, and attitudes. Until now, no studies have been reported that investigate longitudinal associations between being a bystander of cyberbullying and empathy or attitude. Research on traditional bullying has demonstrated some evidence of a decrease in

empathy and a shift towards less negative attitudes towards bullying after repeated exposure to bullying incidents as a bystander.

1.3. Objectives and hypotheses

The present study aims to contribute to the existing knowledge about desensitization effects of exposure to aggressive content via new media. More in particular, the present study focuses on possible effects of exposure to a specific form of aggressive behavior, namely cyberbullying or bullying via the Internet or mobile phone. In contrast to some of the previous studies on exposure to mediated aggression, the present study will use a longitudinal cross-lagged panel design to investigate the effects of exposure to “real-life” aggression (and not fictional aggression).

Based on previous research, it is expected that exposure to cyberbullying acts can affect the moral evaluation of an individual, which may result in actions that are taken without (or with little) consideration of their moral implications (Funk et al., 2004). Empathy and the attitude towards aggression are key determinants of an individual’s moral evaluation of aggressive behavior (Eisenberg, 2000; Funk et al., 2004). Two hypotheses can be formulated: (a) Exposure to cyberbullying as a bystander leads subsequently to lower levels of empathic responsiveness towards others; and (b) Exposure to cyberbullying as a bystander leads subsequently to a more positive attitude towards cyberbullying. Studying these relationships are important as they could advance the understanding of cyberbullying perpetration. Due to a desensitization effect in terms of lower empathic responsiveness and/or a more positive attitude towards cyberbullying, adolescents might engage in cyberbullying as a perpetrator.

The hypotheses will be tested among early adolescents between 10 and 13 years old, as this age group is at a high risk of being involved in cyberbullying for the first time (e.g., Kowalski, Giumetti, Schroeder, & Lattanner, 2014; Slonje, Smith, & Frisé, 2013). In order

to have a clear view on the influence of being a bystander of cyberbullying on empathy and attitude, the present study will investigate cross-lagged bidirectional associations and will also control for cyberbullying victimization and perpetration.

2. Material and methods

2.1. Sample and procedure

The data were collected in October 2011 and April 2012. They were gathered in the context of a large scale longitudinal study in Belgium (Flanders) among 10-13 year olds, which was aimed at investigating the association between involvement in (cyber)bullying and adolescents' developmental trajectories. In order to select the respondents, a random stratified cluster sample with grade and type of schooling as sampling criteria was applied. Informed consent was obtained from the school head, the parents, and the respondents. This study followed APA Ethical Guidelines for research with human subjects. The respondents filled in the questionnaire during school time in the presence of a researcher.

The analytic sample consisted of 1,412 adolescents (49.6 % girls) aged between 10 and 13 years ($M = 11.57$, $SD = 1.11$). The attrition from wave 1 to wave 2 was 6.96 %. A set of t -tests and Pearson's chi-squared tests showed that there were no significant differences between those who participated in both waves and those who dropped out with regard to cyberbullying involvement, the attitude, empathy, gender, and age.

2.2. Instruments

Before administering the survey, a pilot study was carried out ($N = 47$). Minor revisions were made to improve the readability. The measures of the present study are presented below in the same sequence as their appearance in the questionnaire and all the concepts were measured during both measurement points.

Self-reported cyberbullying involvement. First, the widely cited definition of bullying by Olweus (1993) was presented to the respondents. This definition describes bullying as an aggressive, intentional act or behavior that is carried out by a group or an individual repeatedly and over time against a victim who cannot easily defend him- or herself. Following this definition, some examples of cyberbullying were given (e.g., “texting mean messages via mobile phone or chat”). Subsequently, the respondents were asked how often they were bullied via the Internet or mobile phone in the past 6 months (cyberbullying victimization), how often they had bullied others via the Internet or mobile phone in the past 6 months (cyberbullying perpetration), and how often they had seen others being bullied via the Internet or mobile phone in the past 6 months (being a bystander of cyberbullying). The answer options for each question ranged from 1 (*never*) to 6 (*weekly*).

Empathy. A modified version of the Olweus and Endresen (2001) empathic responsiveness scale was used to measure empathy. The scale consisted of 8 items that measured empathic responsiveness towards distressed others. For each item a 4-point Likert scale was used, ranging from *totally disagree* to *totally agree*. An example of an item is “When I see someone who is sad, I want to comfort him or her”. Two items had factor loadings lower than .35 and were not included in further analyses: “It often makes me distressed when I see something sad on TV” and “Sometimes I feel a bit distressed when I read or hear about something sad”. After exclusion of these items, Cronbach’s alpha for the scale was .89 for wave 1 and .89 for wave 2. Factor loadings ranged from .67 to .84 for wave 1 and from .67 to .84 for wave 2.

Attitude. The questionnaire contained six semantic differential seven-point scales as a direct measurement of the attitude towards cyberbullying: “I think bullying others via the Internet or mobile phone is . . . ” (1) good-bad, (2) not pleasant-pleasant, (3) exciting-boring, (4) brave-cowardly, (5) funny-not funny, (6) immature-mature. Item selection was based on

the conceptual and methodological considerations of constructing a theory of planned behavior questionnaire, formulated by Ajzen (2006). For further analyses, items 1, 3, 4, and 5 were reverse coded in order to ensure that high response values indicated a positive attitude towards cyberbullying. Cronbach's alpha for the scale was .72 for wave 1 and .73 for wave 2. Factor loadings ranged from .49 to .79 for wave 1 and from .50 to .78 for wave 2.

2.3. Data-analysis

Before the structural model was calculated, a measurement model was tested in Mplus 6 (Muthén, & Muthén, 2010) using confirmatory factor analysis, as suggested by Anderson and Gerbing (1988). Based on the goodness-of-fit criteria, the model, that consisted of the two latent constructs attitude and empathy, fitted well (CFI = .935; RMSEA = .039 [.035 - .042]; $\chi^2(242) = 696.421, p < .001$). Cross-lagged structural equation modeling was applied to investigate the longitudinal associations between the different constructs using Mplus with MLR estimation. The aim of the analysis was to test the bidirectional longitudinal relationships between being a bystander of cyberbullying, empathy, and attitude, while controlling for cyberbullying victimization and cyberbullying perpetration. The cross-lagged analysis was performed with all latent and observed variables regressed on the sociodemographic variables gender and age. Although the data are nested in schools, multilevel analysis was not used. The unconditional null model (Garson, 2013) showed that there was no significant school effect.

3. Results

3.1. Univariate and bivariate statistics

About one out of four students indicated that they had seen that others were bullied via the Internet or mobile phone at least once in the past six months (Time 1: 28.8%, Time 2: 24.8%). More than one out of ten students indicated to be a victim of cyberbullying at least

once in the past six months (Time 1: 13.0%, Time 2: 13.6%) and about one out of ten students admitted that they had bullied others via the Internet or mobile phone at least once in the past six months (Time 1: 8.4%, Time 2: 8.5%). Table 1 presents descriptive statistics and zero-order correlations. The latter indicate a negative association between being a bystander and empathy within Time 1, but not within Time 2 (T1: $r = -.10, p < .001$; T2: $r = -.02, p > .05$). Positive associations were found between being a bystander and attitude (T1: $r = .22, p < .001$; T2: $r = .18, p < .001$) within both time points. A significant negative correlation was also found between being a bystander at Time 1 and empathy at Time 2 ($r = -.08, p < .01$). No significant association was found for being a bystander at Time 1 and the attitude at Time 2 ($r = .05, p > .05$). A set of *t*-tests revealed significant differences between boys and girls with regard to the attitude at Time 2, and empathy at Time 1 and Time 2. More precisely, boys had a more positive attitude towards cyberbullying at Time 2 ($t(1268.74) = 2.82, p < .01$), whereas girls scored higher on empathic responsiveness compared to boys at both time points (Time 1: $t(1388) = -9.82, p < .001$; Time 2: $t(1297) = -9.79, p < .001$).

(TABLE 1 ABOUT HERE)

3.2. Cross-lagged structural equation model

The unstandardized and standardized parameter estimates and their two-tailed *p*-value of the different paths of the structural model are displayed in Table 2. The fit indices showed a reasonable fit for the model, except for the chi-square test (due to its sensitivity to sample size): CFI = .888, RMSEA = .043 [.041 - .046], $\chi^2(412) = 1358.663, p < .001$. The explained variances of the main variables of the present study ranged from .151 to .506 (bystander cyberbullying T2: .151; empathy T2: .506; attitude T2: .457).

The cross-lagged associations showed stability for all of the main study variables over time (cf. Figure 1 and Table 2). While controlling for autoregressive and concurrent

associations, a reciprocal longitudinal association was found between being a bystander of cyberbullying and empathy. Being a bystander of cyberbullying at Time 1 predicts a lower level of empathy at Time 2 ($\beta = -.06, p < .05$). At the same time, a higher level of empathy at Time 1 predicts a higher frequency of being a bystander of cyberbullying at Time 2 ($\beta = .09, p < .05$). These relationships were significant, however their effect sizes were rather small (Cohen, 1988). With regard to the attitude, no evidence was found for a longitudinal association between being a bystander at Time 1 and the attitude towards cyberbullying at Time 2. The opposite pathway was found to be significant. Attitude at Time 1 significantly predicted being a bystander of cyberbullying at Time 2 ($\beta = .10, p < .05$). A more positive attitude towards cyberbullying predicts higher frequencies of being involved in cyberbullying as a bystander at a later time.

An additional model was calculated to test the potential moderating role of levels of empathic responsiveness and the attitude at Time 1 in the relationship between being a bystander at Time 1 and empathic responsiveness and the attitude at Time 2. Therefore, two interaction terms were added to the above presented model. The addition of the interaction terms between being a bystander of cyberbullying at Time 1 and empathic responsiveness at Time 1 and between being a bystander of cyberbullying at Time 1 and the attitude at Time 1 decreased the fit of the model (CFI = .447; RMSEA = .149 [.146 - .152]; $\chi^2(192) = 5398.29, p < .001$), and therefore the associations could not be interpreted as trustworthy. The interaction term between being a bystander of cyberbullying at Time 1 and empathic responsiveness at Time 1 was not a significant predictor of empathic responsiveness at Time 2 ($\beta = .12, p = .825$). Also the interaction between being a bystander of cyberbullying at Time 1 and the attitude at Time 1 could be considered as a non-significant predictor of the attitude at Time 2 ($\beta = -.89, p < .01; B = -.29, SE = .16, p = .069$).

(FIGURE 1 AND TABLE 2 ABOUT HERE)

4. Discussion

The goal of this article was to increase current knowledge on the short-term longitudinal associations between being a bystander of cyberbullying, empathy, and the attitude towards cyberbullying. More specific, the present study investigated whether (frequent) exposure to cyberbullying as a bystander leads to desensitization in terms of lower levels of empathic responsiveness to distressed others and a less aversive attitude towards cyberbullying. These relationships were examined while controlling for cyberbullying victimization and perpetration. To this aim, data were gathered amongst a sample of 1,412 Belgian early adolescents who participated in a two-wave panel study with a 6-month time interval.

In our study, about one out of four students was a bystander of cyberbullying in the past six months. The cross-lagged associations between being a bystander of cyberbullying, empathy, and attitude suggest a longitudinal association between being a bystander of cyberbullying at Time 1 and empathic responsiveness at Time 2. A higher frequency of being exposed to cyberbullying as a bystander seems to be followed by lower levels of empathic responsiveness over time. Despite the small effect size, this finding is in line with our expectations. With regard to the attitude towards cyberbullying, the results did not provide evidence for the expectation that seeing more cyberbullying acts as a bystander at Time 1 leads to a more favorable attitude towards cyberbullying at Time 2. Our results diverge from what was expected based on previous research on traditional bullying (Doramajian & Bukowski, 2015; Gini et al., 2008) and research on desensitization effects on SNS (Konrath et al., 2011). This finding will be further discussed later on (cf. *infra*).

Furthermore, the present study has investigated bidirectional cross-lagged associations between being a bystander of cyberbullying, empathy, and attitude, and therefore the results

indicate possible influences of empathy and attitude on later involvement in cyberbullying as a bystander. First, a high level of empathic responsiveness predicts a higher frequency of being a bystander of cyberbullying. In other words, adolescents who have higher levels of empathic responsiveness indicate that they more often witness cyberbullying compared to those who have lower levels of empathic responsiveness. A possible explanation might be that adolescents with higher levels of empathy interpret negative (ambiguous) online interactions more often as cyberbullying compared to adolescents with lower levels of empathy. Secondly, the attitude towards cyberbullying also predicted later involvement in cyberbullying as a bystander. It seems that adolescents who have a more positive attitude towards cyberbullying also witness this maladaptive behavior more often. A possible explanation might be that they see this behavior more often because they are friends with perpetrators. For instance, social network research on cyberbullying already showed evidence for the so-called “nests” of cyberbullying offenders in adolescent social networks (Festl, Scharkow, & Quandt, 2013; Hinduja & Patchin, 2013).

Theoretical frameworks that describe associations between cognition and behavior might help to explain why the present study has found evidence for a desensitization effect in terms of decreased empathic responsiveness towards distressed others, but not in terms of a change to a more favorable attitude towards cyberbullying. Festinger’s cognitive dissonance theory and the principle of cognitive consistency state that individuals have an inner drive to hold their attitudes, beliefs, and behavior in harmony (Festinger, 1962; Festinger, Riecken, & Schachter, 2009). Bem’s self-perception theory also describes the drive to consistency, but stresses that individuals derive their cognitions, beliefs, and attitudes from their own prior overt behavior (Bem, 1972). Following Bem’s theory, their beliefs and attitudes are adapted after observation of their own behavior, which could lead to expression effects (Pingree, 2007; Valkenburg, Peter, & Walther, 2016). Valkenburg and colleagues (2016) refer to the study of

Gonzales and Hancock (2008) as an example of a computer-mediated communication study that has addressed expression effects. In this study, subjects were asked to present themselves as either introverts or extraverts on a blog. The results showed that subjects later perceived themselves according to their self-presentation (Gonzales & Hancock, 2008). In the present study, expression effects (related to the fact that most bystanders appear to remain passive) might further explain why being a bystander could lead to subsequent changes in empathic responsiveness, but not in the attitude towards cyberbullying. The present study used a validated scale to measure empathic responsiveness in which items not only included an affective response of sympathy, but also a behavioral tendency to show concern for the needy other, for instance a wish or desire to help or comfort him/her (Olweus & Endresen, 2001). Following self-perception theory, most of the bystanders might have indicated lower empathic responsiveness at Time 2 because they remained passive when being a bystander of cyberbullying at Time 1. In other words, adolescents might have harmonized their beliefs on empathic responsiveness with the behavior they have performed in the past when witnessing cyberbullying (not helping the victim, but also not joining in cyberbullying).

The same line of reasoning can also be used to explain the non-significant relationship between standing by at Time 1 and the attitude towards cyberbullying at Time 2. Compared to empathic responsiveness, the measurement of the attitude does not include a behavioral tendency. The attitude might have remained stable because most of the adolescents remained passive and have not helped or joined in, which could lead to respectively a more negative attitude and a more positive attitude towards cyberbullying because of cognitive consistency. The study hypotheses that relied on the desensitization framework were only partly confirmed as there was no evidence for a desensitization effect in terms of attitude change and only a small empathic responsiveness change. This indicates that it might be advisable for future

research to test other theoretical framework in order to explain (longitudinal) associations between involvement in cyberbullying and personal characteristic.

Based on the findings of the present study, practical implications can be formulated. The present study shows that it is important to limit cyberbullying as it can affect not only victims (cf. research that shows negative consequences of cyberbullying victimization), but also, although the effect size was quite small, bystanders of cyberbullying in terms of lower empathic responsiveness towards distressed others over time. Previous research has already marked the importance of empathy training and education for cyberbullying perpetrators, as low levels of empathy were found to be a good predictor for cyberbullying perpetration (Ang & Goh, 2010). The present study emphasizes the importance of this kind of training for all early adolescents. Their level of empathic responsiveness might be low due to being (frequently) exposed to cyberbullying as a bystander. Higher levels of empathic responsiveness might influence later bystander behavior, such as choosing to help the victim instead of remaining passive or reinforcing the perpetrator. Intervention and prevention programs should make adolescents aware of how hurtful cyberbullying is for victims so that early adolescents can understand and share the emotions of others. Furthermore, it might be useful to also focus on the attitude towards cyberbullying in intervention and prevention programs. The cross-lagged associations showed that a positive attitude towards cyberbullying could lead to a higher frequency of being a bystander at a later time point. Taking into account that a high frequency of being a bystander could lead to desensitization effects in terms of lower levels of empathy and previous findings on the positive associations between empathy/attitude and cyberbullying perpetration (e.g., Pabian & Vandebosch, 2014), preventing adolescents from having a positive attitude towards cyberbullying and trying to adjust adolescents' positive beliefs about cyberbullying seems a plausible strategy in order to limit cyberbullying.

The present study has shortcomings, which might provide opportunities for future research. First, the present study did not control for the reaction of the bystander when witnessing cyberbullying. A bystander of cyberbullying can perform three main types of actions: helping the victim, joining in cyberbullying, or doing nothing/remaining passive. In order to control for expression effects (cf. *supra*), we advise future research to take into account bystanders' reactions when witnessing cyberbullying. Second, besides the frequency of being exposed to cyberbullying, the severity of the acts could further explain the relationships between being a bystander of cyberbullying, empathy, and the attitude. Research has shown that some acts (e.g., acts that are visible to a large number of people) are perceived as much worse, compared to others (Sticca & Perren, 2013). An interaction between the frequency of being exposed to cyberbullying as a bystander and the severity of the acts that were witnessed might further explain subsequent changes in empathic responsiveness and the attitude. Being exposed frequently to severe acts of cyberbullying, might lead to a larger decrease in empathic responsiveness and a stronger positive attitude towards cyberbullying compared to being exposed to less severe acts. On the other hand, the perceived severity of cyberbullying acts could also be a consequence of being frequently exposed to cyberbullying acts as a bystander. Those who have witnessed these acts multiple times before, might perceive them as less severe after a while. A third shortcoming is the absence of other individuals and situational factors that might influence the relationships between being a bystander of cyberbullying, empathic responsiveness, and the attitude. Future research with regard to this topic might consider to include factors that have been related with cyberbullying involvement in previous research (e.g., Kowalski et al., 2014; Mehari, Farrell, & Le, 2014).

A final note should be made with regard to the measurement of empathy. First of all, a more general measurement of empathic responsiveness was used in the present study, and not empathic responsiveness towards victims of cyberbullying specifically. Furthermore, only

affective aspects of empathy were assessed and not cognitive aspects. Cognitive empathy is the ability to understand what others are thinking or feeling, whereas affective empathy is the ability to experience and share the emotions of others (Mehrabian & Epstein, 1972; Schwenck et al., 2012). Previous research has shown that (a low level of) cognitive empathy contributes to cyberbullying perpetration (Ang & Goh, 2010) and negative bystander behavior (Barlińska, Szuster & Winiewski, 2015). Future research may consider a more extensive scale to measure both affective and cognitive empathy.

5. Conclusion

This study examined longitudinal relationships between being a bystander of cyberbullying, empathy, and the attitude towards cyberbullying in order to test for desensitization among early adolescent bystanders of cyberbullying. The present study revealed that exposure to cyberbullying as a bystander seems to lead to lower levels of empathic responsiveness towards distressed others over time. The attitude towards cyberbullying does not seem to be influenced over time by being exposed to cyberbullying as a bystander. The results of the present study emphasize the importance of empathy training and education for early adolescents in order to influence and improve their moral evaluations. We advise future research to further investigate whether the reaction of the bystander might have influenced desensitization processes and effects.

References

- Ajzen, I. (2006). Constructing a TPB questionnaire: conceptual and methodological considerations. Retrieved from <http://www.uni-bielefeld.de/ikg/zick/ajzen%20construction%20a%20tpb%20questionnaire.pdf>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. <http://dx.doi.org/10.1037/0033-2909.103.3.411>.
- Ang, R. P., & Goh, D. H. (2010). Cyberbullying among adolescents: The role of affective and cognitive empathy, and gender. *Child Psychiatry & Human Development*, *41*(4), 387–397. <http://dx.doi.org/10.1007/s10578-010-0176-3>.
- Barkoukis, V., Lazuras, L., Ourda, D., & Tsorbatzoudis, H. (2015). Tackling psychosocial risk factors for adolescent cyberbullying: Evidence from a school-based intervention. *Aggressive Behavior*, 1–9. <http://dx.doi.org/10.1002/ab.21625>.
- Barlińska, J., Szuster, A., & Winiewski, M. (2013). Cyberbullying among adolescent bystanders: Role of the communication medium, form of violence, and empathy. *Journal of Community & Applied Social Psychology*, *23*(1), 37–51. <http://dx.doi.org/10.1002/casp.2137>.
- Barlińska, J., Szuster, A., & Winiewski, M. (2015). The role of short- and long- term cognitive empathy activation in preventing cyberbystander reinforcing cyberbullying behavior. *Cyberpsychology, Behavior and Social Networking*, *18*(4), 241–244. <http://dx.doi.org/10.1089/cyber.2014.0412>.
- Bastiaensens, S., Pabian, S., Vandebosch, H., Poels, K., Van Cleemput, K., DeSmet, A., & De Bourdeaudhuij, I. (2015). From normative influence to social pressure: how relevant others affect whether bystanders join in cyberbullying. *Social Development*, 1-19. <http://dx.doi.org/10.1111/sode.12134>

- Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), (Vol. 6, pp. 1–62). New York, NY: Academic Press.
- Bushman, B. J., & Huesmann, L. (2006). Short-term and long-term effects of violent media on aggression in children and adults. *Archives of Pediatrics & Adolescent Medicine*, *160*(4), 348–352. <http://dx.doi.org/10.1001/archpedi.160.4.348>.
- Carnagey, N. L., Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology*, *43*(3), 489–496. <http://dx.doi.org/10.1016/j.jesp.2006.05.003>.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Cowie, H. (2000). Bystanding or standing by: Gender issues in coping with bullying in English schools. *Aggressive Behavior*, *26*(1), 85–97. [http://dx.doi.org/10.1002/\(SICI\)1098-2337\(2000\)26:1<85::AID-AB7>3.0.CO;2-5](http://dx.doi.org/10.1002/(SICI)1098-2337(2000)26:1<85::AID-AB7>3.0.CO;2-5).
- Davis, M. H. (1994). *Empathy: A social psychological approach*. Boulder, CO: Westview.
- Doramajian, C., & Bukowski, W. M. (2015). A longitudinal study of the associations between moral disengagement and active defendings versus passive bystanding during bullying situations. *Merrill-Palmer Quarterly*, *61*(1), 144–172.
- Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology*, *51*(1), 665. <http://dx.doi.org/10.1146/annurev.psych.51.1.665>.
- Eisenberg, N., & Strayer, J. (1987). *Empathy and its development*. Cambridge: Cambridge University Press.
- Espelage, D., Green, H., & Polanin, J. (2012). Willingness to intervene in bullying episodes among middle school students: Individual and peer-group influences. *The Journal of Early Adolescence*, *32*(6), 776–801. <http://dx.doi.org/doi:10.1177/0272431611423017>.

- Fanti, K. A., Vanman, E., Henrich, C. C., & Avraamides, M. N. (2009). Desensitization to media violence over a short period of time. *Aggressive Behavior, 35*(2), 179–187. <http://dx.doi.org/10.1002/ab.20295>.
- Festinger, L. (1962). Cognitive dissonance. *Scientific American, 207*, 93–102. <http://dx.doi.org/10.1038/scientificamerican1062-93>.
- Festinger, L., Riecken, H., & Schachter, S. (2009). *When prophecy fails*. Mansfield Center, CT: Martino Fine Books.
- Festl, R., Scharkow, M., & Quandt, T. (2013). Peer influence, Internet use and cyberbullying: a comparison of different context effects among German adolescents. *Journal of Children & Media, 7*(4), 446–462. <http://dx.doi.org/10.1080/17482798.2013.781514>.
- Fraser, A. M., Padilla-Walker, L. M., Coyne, S. M., Nelson, L. J., & Stockdale, L. A. (2012). Associations between violent video gaming, empathic concern, and prosocial behavior toward strangers, friends, and family members. *Journal of Youth and Adolescence, 41*(5), 636–649. <http://dx.doi.org/10.1007/s10964-012-9742-2>.
- Funk, J. B., Baldacci, H. B., Pasold, T., & Baumgardner, J. (2004). Violence exposure in real-life, video games, television, movies, and the Internet: is there desensitization? *Journal of Adolescence, 27*(1), 23–39. <http://dx.doi.org/10.1016/j.adolescence.2003.10.005>.
- Garson, G. D. (2013). Fundamentals of hierarchical Linear (multilevel) modeling. In G. D. Garson, *Hierarchical linear modeling. Guide and applications* (pp. 1–37). North Carolina: Sage.
- Gini, G., Pozzoli, T., Borghi, F., & Franzoni, L. (2008). The role of bystanders in students' perception of bullying and sense of safety. *Journal of School Psychology, 46*(6), 617–638. <http://dx.doi.org/10.1016/j.jsp.2008.02.001>.

- Gonzales, A.L., & Hancock, J.T. (2008). Identity shift in computer-mediated environments. *Media Psychology, 11*(2), 167-85. <http://dx.doi.org/10.1080/15213260802023433>.
- Guo, X., Zheng, L., Wang, H., Zhu, L., Li, J., Wang, Q., ... Yang, Z. (2013). Exposure to violence reduces empathetic responses to other's pain. *Brain and Cognition, 82*(2), 187–191. <http://dx.doi.org/10.1016/j.bandc.2013.04.005>.
- Heirman, W., & Walrave, M. (2012). Predicting adolescent perpetration in cyberbullying: An application of the Theory of Planned Behavior. *Psicothema, 24*(4), 614–620.
- Hinduja, S., & Patchin, J. (2013). Social influences on cyberbullying behaviors among middle and high school students. *Journal of Youth and Adolescence, 42*(5), 711–722. <http://dx.doi.org/10.1007/s10964-012-9902-4>.
- Holfeld, B. (2014). Perceptions and attributions of bystanders to cyber bullying. *Computers in Human Behavior, 38*, 1–7. <http://dx.doi.org/10.1016/j.chb.2014.05.012>.
- Jones, L. M., Mitchell, K. J., & Turner, H. A. (2015). Victim reports of bystander reactions to in-person and online peer harassment: A national survey of adolescents. *Journal of Youth and Adolescence, 1*–13. <http://dx.doi.org/10.1007/s10964-015-0342-9>.
- Konrath, S. H., O'Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review, 15*(2), 180–198. <http://dx.doi.org/10.1177/1088868310377395>.
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin, 140*(4), 1073–1137. <http://dx.doi.org/10.1037/a0035618>.
- Kowalski, R. M., Schroeder, A. N., & Smith, C. A. (2013). Bystanders and their willingness to intervene in cyber bullying situations. In R. Hanewald (Ed.), *From cyber bullying to cyber safety: Issues and approaches in educational contexts* (pp. 77–100). New York: Nova Science Publishers.

- Lin, J.-H. (2013). Do video games exert stronger effects on aggression than film? The role of media interactivity and identification on the association of violent content and aggressive outcomes. *Computers in Human Behavior*, 29(3), 535–543. <http://dx.doi.org/10.1016/j.chb.2012.11.001>.
- Mehari, K.R., Farrell, A.D., & Le, A.T.H. (2014). Cyberbullying among adolescents. Measures in search of a construct. *Psychology of Violence*, 4(4), 399–415.
- Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, 40(4), 525–543. <http://dx.doi.org/10.1111/j.1467-6494.1972.tb00078.x>.
- Mrug, S., Madan, A., Cook, E. W., & Wright, R. A. (2015). Emotional and physiological desensitization to real-life and movie violence. *Journal of Youth and Adolescence*, 44(5), 1092–1108. <http://dx.doi.org/10.1007/s10964-014-0202-z>.
- Muthén, L. K., & Muthén, B. O. (2010). *Mplus 6*. Statmodel. Retrieved from www.statmodel.com
- Nickerson, A. B., Aloe, A. M., Livingston, J. A., & Feeley, T. H. (2014). Measurement of the bystander intervention model for bullying and sexual harassment. *Journal of Adolescence*, 37(4), 391–400. <http://dx.doi.org/10.1016/j.adolescence.2014.03.003>.
- O’Connell, P., Pepler, D., & Craig, W. (1999). Peer involvement in bullying: insights and challenges for intervention. *Journal of Adolescence*, 22(4), 437–452. <http://dx.doi.org/10.1006/jado.1999.0238>.
- Olweus, D. (1993). *Bullying at School: What we know and what we can do*. Oxford, United Kingdom: Blackwell.
- Olweus, D., & Endresen, I. M. (2001). The importance of sex-of-stimulus object: Age trends and sex differences in empathic responsiveness. *Social Development*, 7(3), 370–388. <http://dx.doi.org/10.1111/1467-9507.00073>.

- Pabian, S., & Vandebosch, H. (2014). Using the theory of planned behaviour to understand cyberbullying: the importance of beliefs for developing interventions. *European Journal of Developmental Psychology, 11*(4), 463–477.
<http://dx.doi.org/10.1080/17405629.2013.858626>.
- Patterson, L. J., Allan, A., & Cross, D. (2015). Adolescent perceptions of bystanders' responses to cyberbullying. *New Media & Society, 1*-18.
<http://dx.doi.org/10.1177/1461444815606369>.
- Pingree, R. J. (2007). How messages affect their senders: A more general model of message effects and implications for deliberation. *Communication Theory, 17*(4), 439–461.
<http://dx.doi.org/10.1111/j.1468-2885.2007.00306.x>.
- Renati, R., Berrone, C., & Zanetti, M. A. (2012). Morally disengaged and unempathic: Do cyberbullies fit these definitions? An exploratory study. *Cyberpsychology, Behavior, and Social Networking, 15*(8), 391–398. <http://dx.doi.org/10.1089/cyber.2012.0046>.
- Rigby, K., & Slee, P. T. (1991). Bullying among Australian school children: Reported behavior and attitudes toward victims. *The Journal of Social Psychology, 131*(5), 615–627. <http://dx.doi.org/10.1080/00224545.1991.9924646>.
- Rule, B. G., & Ferguson, T. J. (1986). The effects of media violence on attitudes, emotions, and cognitions. *Journal of Social Issues, 42*(3), 29–50.
<http://dx.doi.org/10.1111/j.1540-4560.1986.tb00241.x>.
- Scharrer, E. (2008). Media exposure and sensitivity to violence in news reports: Evidence of desensitization? *Journalism & Mass Communication Quarterly, 85*(2), 291–310.
<http://dx.doi.org/10.1177/107769900808500205>.
- Schultze-Krumbholz, A., & Scheithauer, H. (2009). Social-behavioral correlates of cyberbullying in a German student sample. *Zeitschrift Für Psychologie / Journal of Psychology, 217*(4), 224–226. <http://dx.doi.org/10.1027/0044-3409.217.4.224>.

- Schultze-Krumbholz, A., & Scheithauer, H. (2013). Is cyberbullying related to lack of empathy and social-emotional problems? *International Journal of Developmental Science*, 7(3), 161–166. <http://dx.doi.org/10.3233/DEV-130124>.
- Schwenck, C., Mergenthaler, J., Keller, K., Zech, J., Salehi, S., Taurines, R., ... Freitag, C. M. (2012). Empathy in children with autism and conduct disorder: group-specific profiles and developmental aspects. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 53(6), 651–659. <http://dx.doi.org/10.1111/j.1469-7610.2011.02499.x>.
- Slonje, R., Smith, P. K., & Frisé, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*, 29(1), 26–32. <http://dx.doi.org/10.1016/j.chb.2012.05.024>.
- Steffgen, G., König, A., Pfetsch, J., & Melzer, A. (2011). Are cyberbullies less empathic? Adolescents' cyberbullying behavior and empathic responsiveness. *Cyberpsychology, Behavior, and Social Networking*, 14(11), 643–648. <http://dx.doi.org/10.1089/cyber.2010.0445>.
- Sticca, F., & Perren, S. (2013). Is cyberbullying worse than traditional bullying? Examining the differential roles of medium, publicity, and anonymity for the perceived severity of bullying. *Journal of Youth and Adolescence*, 42(5), 739–750.
- Strasburger, V. C., & Wilson, B. J. (2014). Television violence: Sixty years of research. In D. A. Gentile & M. Rich (Eds.), *Media Violence and Children. A complete guide for parents and professionals, second edition*. (pp. 135–178). Oxford, United Kingdom: Praeger.
- Valkenburg, P. M., Peter, J., & Walther, J. B. (2016). Media effects: Theory and research. *Annual Review of Psychology*, 67, 1–50.
- Van Cleemput, K., Vandebosch, H., & Pabian, S. (2014). Personal characteristics and contextual factors that determine “helping”, “joining in” and “doing nothing” when

witnessing cyberbullying. *Aggressive Behavior*, 40(5), 383–396.

<http://dx.doi.org/10.1002/ab.21534>.

Table 1

Descriptive statistics and zero-order correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1.Gender ¹	-											
2.Age	-.01	-										
3.Attitude T1	-.05	.13	-									

4.Emathy T1	.26	-.23	-.29	-								
	***	***	***									
5.Bystander CB T1	.12	.20	.22	-.10	-							
	***	***	***	***								
6.Victim CB T1	.09	.00	.05	.01	.30	-						
	**		*		***							
7.Perpetrator CB T1	.04	.03	.25	-.08	.04	.30	-					
			***	**		***						
8.Attitude T2	-.08	.22	.55	-.26	.05	.04	.16	-				
	**	***	***	***			***					
9.Emathy T2	.38	-.25	-.22	.59	-.08	.05	.01	-.29	-			
	***	***	***	***	**			***				
10. Bystander CB T2	.11	.11	.15	.01	.38	.10	.18	.18	-.02	-		
	***	***	***		***	***	***	***	***			
11. Victim CB T2	.08	-.04	.02	.09	.22	.35	.25	.05	.07	.26	-	
	**			**	***	***	***	*	***	***		
12.Perpetrator CB T2	.02	.07	.20	-.02	.20	.16	.26	.26	-.02	.27	.34	-
		*	***		***	***	***	***		***	***	
<i>M</i>	.50	11.57	1.64	3.26	1.57	1.24	1.12	1.64	3.06	1.51	1.24	1.11
<i>SD</i>	.50	1.11	.78	.54	1.12	.75	.47	.78	.53	1.07	.71	.42
Range	0-1	10-13	1-7	1-4	1-6	1-6	1-6	1-7	1-4	1-6	1-6	1-6

Note: ¹Girl = 1, CB stands for cyberbullying, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2

Unstandardized and standardized parameter estimates of the structural model

Path	B	SE	Two-tailed <i>p</i> value	β	Two-tailed <i>p</i> value
Cross-lagged relations main study variables					
Stability over time					
Bystander CB T1 to bystander CB T2	0.32	0.06	.000***	0.34 (.23, .44)	.000***
Empathy T1 to empathy T2	0.64	0.04	.000***	0.61 (.54, .67)	.000***
Attitude T1 to attitude T2	0.75	0.12	.000***	0.63 (.52, .74)	.000***
Cross-lagged relations between being a bystander of cyberbullying, attitude, and empathy					
Bystander CB T1 to empathy T2	-0.02	0.01	.038*	-0.06 (-.12, -.00)	.040*
Bystander CB T1 to attitude T2	0.01	0.02	.617	0.02 (-.06, .11)	.619
Empathy T1 to bystander CB T2	0.22	0.09	.013*	0.09 (.02, .16)	.013*
Attitude T1 to bystander CB T2	0.34	0.16	.041*	0.10 (.02, .18)	.015*
Cross-lagged relations between attitude and empathy					
Empathy T1 to attitude T2	-0.09	0.03	.009**	-0.10 (-.17, -.03)	.007**
Attitude T1 to empathy T2	-0.05	0.05	.344	-0.03 (-.10, -.03)	.318
Cross-lagged relations control variables					
Cross-lagged relations between being a victim of cyberbullying, attitude, and empathy					
Victim CB T1 to victim CB T2	0.26	0.06	.000***	0.28 (.15, .41)	.000***
Victim CB T1 to empathy T2	0.02	0.02	.321	0.03 (-.03, .08)	.323
Victim CB T1 to attitude T2	-0.00	0.02	.855	-0.01 (-.09, .06)	.856
Empathy T1 to victim CB T2	0.14	0.05	.008**	0.09 (.03, .16)	.007**
Attitude T1 to victim CB T2	-0.05	0.09	.534	-0.03 (-.10, .05)	.525

Path	B	SE	Two-tailed p value	β	Two-tailed p value
Cross-lagged relations between being a perpetrator of cyberbullying, attitude, and empathy					
Perpetrator CB T1 to perpetrator CB T2	0.15	0.05	.005**	0.17 (.07, .27)	.001**
Perpetrator CB T1 to empathy T2	0.04	0.04	.318	0.04 (-.04, .12)	.348
Perpetrator CB T1 to attitude T2	0.02	0.03	.603	0.02 (-.05, .09)	.601
Empathy T1 to perpetrator CB T2	0.06	0.03	.089	0.06 (-.01, .13)	.076
Attitude T1 to perpetrator CB T2	0.24	0.09	.008**	0.18 (.09, .28)	.000***
Cross-lagged relations between cyberbullying variables					
Bystander CB T1 to victim CB T2	0.08	0.03	.007**	0.12 (.04, .21)	.005**
Bystander CB T1 to perpetrator CB T2	0.03	0.02	.069	0.08 (-.00, .16)	.059
Victim CB T1 to bystander CB T2	-0.03	0.05	.515	-0.02 (-.09, .04)	.516
Perpetrator CB T1 to bystander CB T2	0.14	0.11	.196	0.06 (-.03, .15)	.174
Victim CB T1 to Perpetrator CB T2	0.05	0.03	.072	0.08 (-.01, .17)	.076
Perpetrator CB T1 to victim CB T2	0.22	0.10	.034*	0.15 (.03, .27)	.018*

Note: CB stands for cyberbullying, $p < .05$, ** $p < .01$, *** $p < .001$. For clarity, the measurement details (such as the error terms and the measurement model of the latent variables), the correlations, and the relationships with gender and age are not shown.

