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1. The citation "Chen and Cheng 2016" has been changed to "Chen and Cheng, 2017" to match the author name/date in the reference list. Please check if the change is fine in this occurrence and modify the subsequent occurrences, if necessary.

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3. References [Allen et al, 1994, Calvete et al, 2010, Hardy et al, 2015, Kowalski et al, 2012b, Stopbullying.gov, 2020] were provided in the reference list; however, this was not mentioned or cited in the manuscript. As a rule, all references given in the list of references should be cited in the main body. Please provide its citation in the body text.

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Kowalski et al. 2012a now reads "2012" now in the reference list and throughout the text.

Original Paper

Social Cognitive Factors Associated with Sharing Overt and Relational Cyberaggression Digitally

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Abstract

Cyberaggression is a substantial problem for college-aged students. The purpose of this cross-sectional study was to examine associations between social cognitive factors and digitally sharing one's own and others' overt and relational cyberaggressive material among college students. Social cognitive factors included cyber moral disengagement and facets of cognitive autonomy, including comparative validation, voicing opinions, and evaluative thinking. A convenience sample of 437 college students from a medium-sized US university completed an online survey about cyber aggression and related social cognitive factors. Results from a structural equation model, controlling for gender, showed that cyber moral disengagement was positively associated with sharing own and others' overt and relational cyberaggressive material. Sharing one's own and others' relational cyberaggression was positively associated with comparative validation but was negatively associated with evaluative thinking. The present research reinforces prior links between moral disengagement and cyberaggression while examining other social cognitive factors associated with cyberaggression and assisting cyberaggression perpetrators.

Keywords

Cyberaggression
Moral disengagement
Cognitive autonomy
Self-evaluation
College students

Electronic supplementary material

The online version of this article (https://doi.org/10.1007/s42380-020-00069-0) contains supplementary material, which is available to authorized users.

Social Cognitive Factors Associated with Sharing Overt and Relational Cyberaggression Digitally

Cyberaggression is a recognized problem facing young people, including college students. Researchers acknowledge that some individuals engage in cyberaggression perpetration, some are victims of cyberaggression, and some both perpetrate and receive cyberaggression (Meter and Bauman 2018). As empirical knowledge of these roles continues to grow, other roles individuals fulfill related to cyberaggression, and particularly in regard to different types of cyberaggression, have been largely understudied (Betts et al. 2019; Betts et al. 2017; Wachs 2012) (but see Allison and Bussey 2016 and Chen and Cheng 2017 for exceptions). Little is known about what factors predict sharing or forwarding cyberaggressive material, whether that be through sharing content displaying one's own aggression, or as a harmful bystander who shares or forwards cyberaggression media portraying others' aggressive behavior. In the present study, we tested pathways between four social cognitive factors and engagement in four forms of cyberaggression: overt and relational cyberaggression, and sharing overt and relational cyberaggression that began with a different perpetrator.

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Cyberaggression occurs when an individual or group intentionally hurts or harms a person via digital means (Smith 2012). Different from bullying, aggression is a more general term that refers to harmful behavior that is not necessarily repeated and enacted by a person with more power toward someone with less power. However, as Smith (2012) describes, characteristics of bullying including repetition and power imbalance are more difficult to define in the digital context. For example, if an incident of aggression is recorded, it may only occur once, but forwarding that information to others could be interpreted as repetitious. Power may also factor into cyberaggression in different ways in that anonymity may lead to power, even between individuals who in person would have a different configuration of more or less power (Smith 2012).

With similar variability to traditional aggression, cyberaggression occurs in different forms and contexts. Specifically, overt aggression involves directing verbal or physical harm toward another, while relational aggression involves behaviors aimed at harming a target's social relationships or reputation through means such as gossiping or purposefully ignoring individuals (Card et al. 2008). Different terms have been used to describe overt and relational aggression (e.g., direct, overt, physical, and indirect, relational, social); however, many scholars recognize more similarities than differences between these terms (Archer and Coyne 2005; Card et al. 2008; Underwood et al. 2001). Rarely have different forms of cyberaggression been considered in studies that aim to predict cyberaggression involvement. Langos (2012) differentiated between direct cyberaggression, which occurs only between the cyberbully and victim, and indirect cyberaggression, which takes place in a context in which multiple people witness the cyberaggression. Although useful differentiations, because of the ease and speed with which individuals can share even seemingly private digital communication, direct cyberaggression may quickly become indirect cyberaggression.

Secondary Aggression: Spreading Aggressive Digital Content

When aggression occurs in digital spaces, the aggressors and the targets of the aggression are not necessarily the only recipients of the media. Particularly in the case of relational cyberaggression, for the aggressive act to be successful (in that it reaches the intended audience to affect peer relationships or one's social reputation), it generally requires that the media is distributed among a particular group of friends or the greater peer group. In the

case of overt cyberaggression, distribution of the cyberaggression content may make the harm of spreading the media more impactful.

There has been a call among cyberaggression researchers to develop a better understanding of the role and impact of peer bystanders to cyberaggression (Allison and Bussey 2016; Craven et al. 2013; Yoon 2013). While helpful bystanders may buffer the ill effects for victims of cyberaggression, bystanders who assist aggression and cyberaggression perpetrators by sharing harmful digital content can exponentiate the harm toward victims. Moreover, bystanders may send the message to perpetrators that their behavior is acceptable and possibly show the value of the cyberaggression media by forwarding or sharing it.

There is limited research investigating factors associated with engaging in cyberaggression via forwarding or sharing harmful content. In a study of adults, cyberbystanders to cyberaggression via Twitter were less willing to intervene when they read re-shared tweets in comparison to original offensive tweets (Kazerooni et al. 2018). Although this previous research has a different goal than the current research, the results suggest that individuals may perceive original cyberaggressive content and re-sharing or forwarding cyberaggressive content differently.

The College Years

Evidence suggests that the college years of late adolescence may be one of the most important times to study cyberaggression due to the frequency of its occurrence. Virtually all college students use the internet (Finn 2004) and 88% of traditional college-aged individuals (18–29-year olds) use social media (Smith and Anderson 2018). This population is also likely to use computers and the internet to complete schoolwork, in addition to using it as a method of communication, creating an additional context in which college students may experience cyberaggression (Kowalski et al. ~~2012a~~). Kowalski et al. (~~2012a~~) reported that among those who had experienced cyberaggression prior to college, 43% reporting that most of their cyberaggression experiences occurred during college, and 30% of participants reported their first cyberaggression experience occurred in college. Others, however, have found a lower prevalence of received cyber harassment among college students (Finn 2004).

Individuals tend to fill the same role (cyberbully or cybervictim) in college as they did in high school (Watts et al. 2017). In their meta-analysis, Kowalski et al. (2014) reported a small but significant correlation between age and

cyberaggression perpetration ($r = .05$), suggesting that cyberaggression toward others becomes more common as youth get older. Because cyberaggression is a peer relation problem that is significant for college students, it is important to understand factors related to involvement with cyberaggression whether that be through sharing one's own aggressive behavior or sharing others' overt and relational aggressive content digitally.

There are developmental changes in forms of traditional bullying, while changes in forms of cyberbullying are less understood, particularly from a developmental perspective. In traditional contexts, physical (and overt) aggression tends to decline by the end of late childhood (Côté et al. 2007), while relational aggression appears more frequently during adolescence (Cairns et al. 1989). While the college years are an ideal time to study cyberaggression because of its prevalence, how different factors are associated with involvement in overt and relational cyberaggression at this developmental stage is still unknown. As is the case with traditional relational aggression, relational forms of cyberaggression may be more socially normative than overt cyberaggression. If this is the case, typical developmental factors may be associated with engagement in relational cyberaggression and sharing others' relational cyberaggression, while overt cyberaggression and sharing others' overt cyberaggression may be associated with different factors.

Social Cognitive Theory

Bandura's social cognitive theory (1986) posits that behavior results from the interaction between the individuals' environment, cognitive processes, and observed behavior (Bandura 2001). When considering cyberaggression, all three of these areas will differ for aggressors, victims, and bystanders. The degree to which someone would choose to engage in cyberaggression or share cyberaggressive media will depend on how the aggressor perceives the online environment (e.g., anonymity and audience), observed behavior, and, of importance to the current study, their own cognitive processes (e.g., moral disengagement, comparative validation, voicing opinions, and evaluative thinking).

Moral Disengagement

Moral disengagement is the process of convincing oneself that ethical standards do not apply in a certain context, often relating to behaviors that could harm others (Bandura 1991). Specific to aggression, Bandura and colleagues

identified different forms of moral disengagement including moral justification, euphemistic labeling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame, and dehumanization (Bandura et al. 1996). Independently or together, these tendencies are associated with engaging in aggressive behavior. Although the perpetrator typically knows that aggression toward peers is unacceptable (Bussey et al. 2015), moral disengagement allows one to dismiss moral self-sanctions that would otherwise keep an individual from engaging in peer aggression.

Moral disengagement has been studied extensively as related to traditional aggression and bullying. Meta-analytically combined results show a medium-sized association between moral disengagement and traditional aggression (Gini et al. 2014). Some facets of moral disengagement have also been associated with pro-aggressor behavior, behavior that entails encouraging, or joining in on, the action of an aggressive peer (Bjärehed et al. 2020). A growing body of literature across cultures has established the positive association between moral disengagement and cyberaggression perpetration. In a study of Australians 12–15 years of age, overall moral disengagement and some specific forms of moral disengagement were associated with cyberaggression (Robson and Witenberg 2013). Youth who engaged in more frequent cyberaggression morally disengaged more than peers who engaged in less frequent cyberaggression among a sample of German 5–10th graders (Wachs 2012). Similar connections between moral disengagement and cyberaggression were observed among both younger (12–14 years old) and older (17–25 years old) adolescents in China (Wang et al. 2016; Wang et al. 2017). There was a significant association between justification of violence and cyberaggression among Spanish 12–17-year-olds (Calvete, Orue, Esteves, Villardon, and Padilla 2010). Within an Italian sample of high school students, cyberbullies and cyber bully-victims (those who engaged in cyberaggression perpetration but who were also victims themselves) reported higher moral disengagement than their victimized and uninvolved peers (Renati et al. 2012). German 12–20-year-old cyberbullies morally disengaged significantly more than those who were uninvolved in aggression (Perren and Sticca 2011). Among seventh through ninth grade youth from the UK, moral disengagement was related to cyberaggression (Pornari and Wood 2010). Moral disengagement was related to cyberaggression among a 12–19-year-old sample of New Zealanders (Hood and Duffy 2018). Together, these studies' results show that youth from different countries and of different ages engage in moral disengagement strategies, allowing them to justify their cyberaggression perpetration.

Although infrequently studied, according to Runions and Bak (2015), bystander behavior is likely impacted by moral disengagement. Among a sample of Flemish 7–9th graders, specific components of moral disengagement, cognitive restructuring, and blaming the victim, were related to negative bystander behavior, such as forwarding cyberaggression media (DeSmet et al. 2016). One study found that those who engaged in cyberbullying as assistants more regularly (those who reported they helped to cyberbully others) had less of a bad conscience about it than those who assisted less frequently (Wachs 2012). To our knowledge, the effect of cyberaggression moral disengagement on sharing cyberaggression via digital communication has not been investigated among college students, despite the prevalence of cyberaggression perpetration during these years.

A few studies of cyberaggression and moral disengagement measured moral disengagement from cyberaggression specifically. In one study of US adolescents, moral disengagement measured via a combined scale including general moral disengagement and that specific to cyberaggression, positively and significantly predicted cyberaggression involvement either as a perpetrator or victim (Meter and Bauman 2018). Moral disengagement specific to cyberaggression was related to cyberaggression among a large sample of Australian 11–15-year olds (Bussey et al. 2015). In their meta-analysis, Kowalski et al. (2014) found a significant correlation between moral disengagement and cyberaggression ($r = .27$). Although these studies show that general moral disengagement from aggressive behavior is related to cyberaggression, it is also of interest to understand how morally disengaging from cyberaggression may specifically be related to cyberaggression involvement as a lead perpetrator, but also as an active bystander distributing aggressive digital media.

Cognitive Autonomy

The potential for peer and friend influence on adolescent behavior, even in late adolescence, is well documented (Allen et al. 2014; Ding 2017; Lee and Beckert 2012). Developing a sense of autonomy from undue influence of parents and peers is a hallmark of the transition to adulthood (Beckert 2016; Conti 2000; Wintre and Yaffe 2000) and should manifest during emerging adulthood (Lee and Beckert 2012). Interestingly, some literature suggests that those who are most autonomous in their younger years are more likely to engage in risk-taking behaviors including using alcohol and drugs and engaging in sexual activity, and delinquency (Hardy, Dollahite, Hohnson, and Christensen 2015; Huebner and Howell 2003; Moilanen 2015). However, autonomy in adolescence and early

adulthood goes beyond the common operational definition of behavioral or emotional autonomy; true autonomy implies that young people have developed in self-reliance by differentiating their own thoughts and feelings from those of parents and peers. Cognitive autonomy implies that adolescents can make their own decisions based on their opinions and experiences without undue influence from parents, peers, or other external influences (Yeh et al. 2006).

Although not previously investigated, several areas of cognitive autonomy, including comparative validation, voicing opinions, and evaluative thinking, are expected to relate to perpetration of cyberaggression and/or sharing cyberaggressive material. Comparative validation involves one's need to have others approve of their decisions and to have their views match those of parents, friends, or peers (Beckert 2016). Those who want others to approve of their behavior may engage in the behavior they believe would be positively regarded by their social circles. It is not uncommon for cyberaggression to be perpetrated initially to get the approval of others without regard for the pain it might cause another person (Baldasare et al. 2012). In the case of sharing cyberaggressive media, receiving it in the first place sets a norm for engaging in cyberaggression. Therefore, those who want approval of others may be inclined to engage in cyberaggression by sharing harmful media.

Voicing opinions involves speaking up for what is right and sharing views when disagreements arise (Beckert 2016), even against a popular belief or social norm. Reactions of those who receive cyberaggressive material, whether they forward the material or put a stop to the aggression by not engaging, relate to their cognitive autonomy in voicing opinions (Paull et al. 2012). Although we might expect individuals who voice opinions to engage in less cyberaggression through sharing others' content, it is unclear how voicing opinions would be related to spreading one's own cyberaggressive content. Their willingness to speak out against what is wrong implies they would share less cyberaggressive content; however, if they believe they are in the right or doing little harm by sharing cyberaggressive content, they may engage in cyberaggressive behavior.

Evaluative thinking involves considering consequences, different perspectives, and effects of decisions both in the short term and in the long term (Beckert 2016). In a digital context, consideration of consequences for the self and for others is often overlooked (DeSmet et al. 2016). It could be expected that those who engage in greater evaluative thinking would create and share less cyberaggressive material in that they would think through the

consequences of those actions and, in particular, the consequences of engaging in this behavior for potential victims.

Although findings from previous research allow us to formulate hypotheses regarding how different facets of cognitive autonomy are associated with different cyberaggressive behaviors, the link between different facets of cognitive autonomy and an adolescent's participation in cyberaggression, including their ability to refrain from bystander engagement, remains understudied. Further, to our knowledge, no studies have considered overt and relational forms of cyberaggressive behavior in relation to the social cognitive factors under consideration in the present study.

Current Study

Little is known about the cognitive processes involved in negative cyber bystander behavior, such as sharing digital material depicting aggression that originated with others. Cognitive autonomy requires an individual to think independently, yet much of what we know about reactions to cyberaggression indicates that it can often occur impulsively. Although traditionally difficult to measure, more information is needed about how specific areas of cognitive autonomy relate to bystander behavior.

The goals of this study were to evaluate the effects of certain social cognitive factors (cyber moral disengagement and cognitive autonomy) on four distinct forms of cyberaggression (sharing own and others' overt and relational aggressive behavior via digital communication). We hypothesized that cyberaggression moral disengagement would be positively related to engagement in each of the forms of cyberaggression. We expected that those most willing to voice their opinions in public situations would participate in less cyberaggression, that those who engaged in more evaluative thinking would also be less involved in cyberaggression, but that those with a greater need for affirming peer appraisals (comparative validation) would be more involved in cyberaggression.

Method

Participants and Procedures

Participants were a convenience sample of 437 undergraduate college students at a medium-sized US university who were at least 18 years old. They were recruited to participate through a university research participant pool and through introductory classes to complete an online questionnaire surrounding forms of cyberaggression and related cognitive social factors. There were 316 women and 121 men; the two participants who did not report gender were not included in the study. Approximately 52% of participants were freshmen, 25% sophomores, 18%, juniors, 5% seniors, and fewer than 1% had been enrolled for more than 5 years. Ninety percent of the sample identified as White non-Hispanic/Latinx, 4% as Hispanic/Latinx, 3% Asian/Pacific Islander, and less than 1%, respectively, as American Indian/Native American, Black/African American, or other. This project was approved by the Institutional Review Board and informed consent was obtained from all participants. All questionnaires were completed online and participants received extra credit or course credit for participating.

Measures

Cyberaggression Four forms of cyberaggression were measured using a scale created for this study. Participants rated each item on a scale from 1 = *never* to 5 = *always*. Initially, three items measured overt cyberaggression that assessed how often participants shared pictures, texts, or other digital messages or social media posts of themselves hitting or kicking others, pushing others around, or saying mean things to others or calling them names, but one item from the overt cyberaggression subscale ("I share pictures, text or other digital messages or social media posts of me saying mean things to others or calling others names.") was not included in the model because it loaded poorly onto the construct. The internal consistency of the two remaining items was 0.87 (McDonald's Omega is interpreted like Cronbach's alpha, but allows for loadings of different constructs to differ as is the case in CFA/SEM [McDonald 1999]). The three relational cyberaggression items included participants' reports of spreading gossip, keeping others from being part of activities or the group, or ignoring others by leaving them out via pictures, text or other digital messages, or social media posts ($\omega_h = 0.66$). Three items assessing sharing overt cyberaggression referred to sharing digital communication in which *others* engaged in overt cyberaggression as defined above ($\omega_h = 0.93$). Finally, the three items measuring sharing relational cyberaggression referred to sharing others' relational cyberaggression digital communication (i.e., showing others someone not being tagged in a posted photo; $\omega_h = 0.79$). All items are presented in the supplemental material.

Cyber Moral Disengagement Seven items from an eight-item scale, rated from 1 = *strongly disagree* to 5 = *strongly agree*, were used to measure participants' affirmation of the moral acceptability of cyberbullying (ω_h = 0.81). Each item referred to a domain from the Bandura et al. 1996 scale (Bandura et al. 1996). This scale was based on one used in a previous study (blinded for peer review). An example item is, "If people give out their passwords to others, they deserve to be cyberbullied." One item, "If people cyberbully others online, it's the social media site's fault for not stopping it," was not included in the model because it loaded poorly onto the construct in a preliminary CFA used to investigate the loadings of each of the indicators on the construct.

Cognitive Autonomy and Self-evaluation Three subscales from the cognitive autonomy and self-evaluation inventory (CASE; Beckert 2007) were included in this study: comparative validation (two of three items, ω_h = 0.41), voicing opinions (four of five items, ω_h = 0.68), and evaluative thinking (eight items, ω_h = 0.86). Participants responded on a scale from 1 = *never* to 5 = *always*, how much each statement applied to them, or from 1 = *strongly disagree* to 5 = *strongly agree*; higher scores reflected more agreement with each statement. Comparative validation reflected participants' need for approval from peers and general others: "I need my views to match those of my friends" and "I care about what others think of me." One item from the original subscale ("It's important to me that my friends approve of my decisions") was not included in the model because it was a poor indicator of the construct. Voicing opinions represented one's willingness to state their views (e.g., "When I disagree with others I share my views.") One item from the original subscale ("At school I keep my opinions to myself") was not included in the model because it was a poor indicator of the construct. Evaluative thinking items addressed thinking about the consequences of one's decisions. All items from all questionnaires are included in the supplemental material.

Analytic Strategy

First, we ran preliminary confirmatory factor analyses for each construct to assess the loadings of the different items. As a result, some items were not included in subsequent models (see above and supplemental material). The seven cyberaggression moral disengagement items were parceled into four indicators of the construct, and eight evaluating thinking items were parceled into four indicators of the construct. Item parceling allows for the inclusion of more indicators without introducing modeling problems into the model (Little et al. 2002). Because the other constructs had fewer indicators, their items were not parceled.

Next, a confirmatory factor analysis was used to test a model inclusive of all eight constructs. This allowed us to assess the loadings of the individual items as parcels as well as the model fit. We then calculated the mean and standard deviation scores of constructs as observed variables. A series of Welch's two sample *t* tests were conducted to investigate gender differences in the predictors and outcomes using manifest variables.

A structural equation model (SEM) was used to test the hypothesized regressive paths, controlling for gender, using lavaan (Rosseel 2012) in R (R Core Team 2013). Maximum likelihood estimation (MLR) with robust Huber-White standard errors and a scaled test statistic equal to the Yuan-Bentler (Rosseel 2012) was used due to non-normality of variables. The minimal missing data was handled using full information maximum likelihood estimation.

Results

Robust model fit of the CFA was satisfactory (Little 2013): χ^2 (249) = 494.56, $p < .001$, scaling correction factor = 1.33, CFI = .93, RMSEA = .06 [0.05, 06]. All indicator loadings were significant at the $p < .01$ level. Correlations between latent variables from the CFA are presented in Table 1. Cyber moral disengagement was positively, significantly associated with the four forms of cyberaggression. It was negatively associated with evaluative thinking and positively associated with gender. The four forms of cyberaggression were all positively, significantly associated with each other. Comparative validation and voicing opinions were not significantly associated with the forms of cyberaggression. Evaluative thinking was negatively associated with the four forms of cyberaggression. Comparative validation was negatively associated with voicing opinions. Evaluative thinking was positively associated with comparative validation and voicing opinions.

Table 1

Intercorrelations between the latent constructs from the CFA

	1	2	3	4	5	6	7
1. Cyber moral disengagement	–						

N = 419. *$p < .05$; **$p < .01$; ***$p < .001$

	1	2	3	4	5	6	7
2. Sharing own overt cyberaggression	0.48**	–					
3. Sharing own relational cyberaggression	0.51**	0.35**	–				
4. Sharing others' overt cyberaggression	0.41**	0.54**	0.34**	–			
5. Sharing others' relational cyberaggression	0.45**	0.42**	0.62**	0.41**	–		
6. Comparative validation	− 0.06	0.08	0.16	0.07	0.16	–	
7. Voicing opinions	− 0.09	− 0.02	− 0.09	− 0.05	− 0.06	− 0.45**	–
8. Evaluative thinking	− 0.28**	− 0.15**	− 0.24**	− 0.15**	− 0.21**	0.17*	0.26*
$N = 419$. *$p < .05$; **$p < .01$; ***$p < .001$							

Mean and standard deviation scores of the predictor and outcome constructs as observed variables are presented in Table 2. Gender comparisons were conducted to assess differences between men and women (men = 1, 0 = women) using Welch's two-sample *t* tests for each observed construct. Men scored significantly higher than women on cyber moral disengagement, $t(157.56) = -5.31$, $p < .001$. Men scored significantly higher than women in voicing opinions, $t(255.81) = -2.71$, $p < .01$. Women scored higher than men in evaluative thinking, $t(216) = 3.50$, $p < .001$. There was no significant gender difference in comparative validation. Men scored significantly higher than women in sharing own, $t(137) = -2.00$, $p < .05$, and others' overt cyberaggression, $t(131.69) = -3.03$, $p < .01$; there were no differences between men and women in sharing own cyberaggression or others' relational forms of cyberaggression.

Table 2

Descriptive statistics of constructs as observed variables

	M	SD	N	Skewness	Kurtosis

	M	SD	N	Skewness	Kurtosis
1. Cyber moral disengagement	1.33	0.50	406	2.01	3.98
2. Sharing own overt cyberaggression	1.06	0.35	406	6.41	45.21
3. Sharing own relational cyberaggression	1.39	0.54	406	1.56	2.00
4. Sharing others' overt cyberaggression	1.16	0.49	406	3.97	17.82
5. Sharing others' relational cyberaggression	1.42	0.57	405	1.99	5.43
6. Comparative validation	3.18	0.75	409	− 0.09	− 0.02
7. Voicing opinions	3.45	0.65	419	− 0.35	0.45
8. Evaluative thinking	3.93	0.57	419	− 0.61	1.56

Scales for different constructs were from 1 = *never* to 5 = *always* or 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores reflected more agreement with each item. More detail available in the measures section and the supplemental material

Next, the SEM was run with all predictor and outcome constructs regressed on gender. The model fit of the structural equation model was satisfactory: χ^2 (266) = 536.60, $p < .001$, scaling correction factor = 1.30, CFI = .93, RMSEA = .06 [.05, 06]. Unstandardized and standardized regression estimates are presented in Table 3. Figure 1 depicts the significant regression estimates, standardized completely. Covariances between predictors and between outcomes are not depicted, nor are the effects of gender. Controlling for gender, cyber moral disengagement positively, significantly predicted the four forms of cyberaggression. Comparative validation positively predicted and evaluative thinking negatively predicted sharing one's own and others' relational cyberaggression.

Table 3

Unstandardized and standardized regression estimates from the SEM

Predictor		Outcome	Estimate	SE	*p*	Std. completely

N = 437. For gender, 0 = women, 1 = men

Predictor		Outcome	Estimate	SE	*p*	Std. completely
	Sharing own overt cyberaggression					
Cyber moral disengagement			0.54	0.14	0.000	0.49
Comparative validation			0.21	0.12	0.093	0.18
Voicing opinions			0.15	0.11	0.156	0.13
Evaluative thinking			− 0.09	0.07	0.197	− 0.08
Gender			− 0.11	0.14	0.469	− 0.04
	Sharing own relational cyberaggression					
Cyber moral disengagement			0.67	0.16	0.000	0.56
Comparative validation			0.39	0.19	0.042	0.31
Voicing opinions			0.23	0.17	0.158	0.19
Evaluative thinking			− 0.29	0.11	0.012	− 0.23
Gender			− 0.62	0.25	0.011	− 0.22
	Sharing others' overt cyberaggression					
Cyber moral disengagement			0.41	0.12	0.001	0.39
Comparative validation			0.14	0.10	0.170	0.13
Voicing opinions			0.06	0.09	0.540	0.05
Evaluative thinking			− 0.07	0.08	0.352	− 0.06
Gender			0.16	0.14	0.282	0.06
	Sharing others' relational cyberaggression					
Cyber moral disengagement			0.51	0.12	0.000	0.46

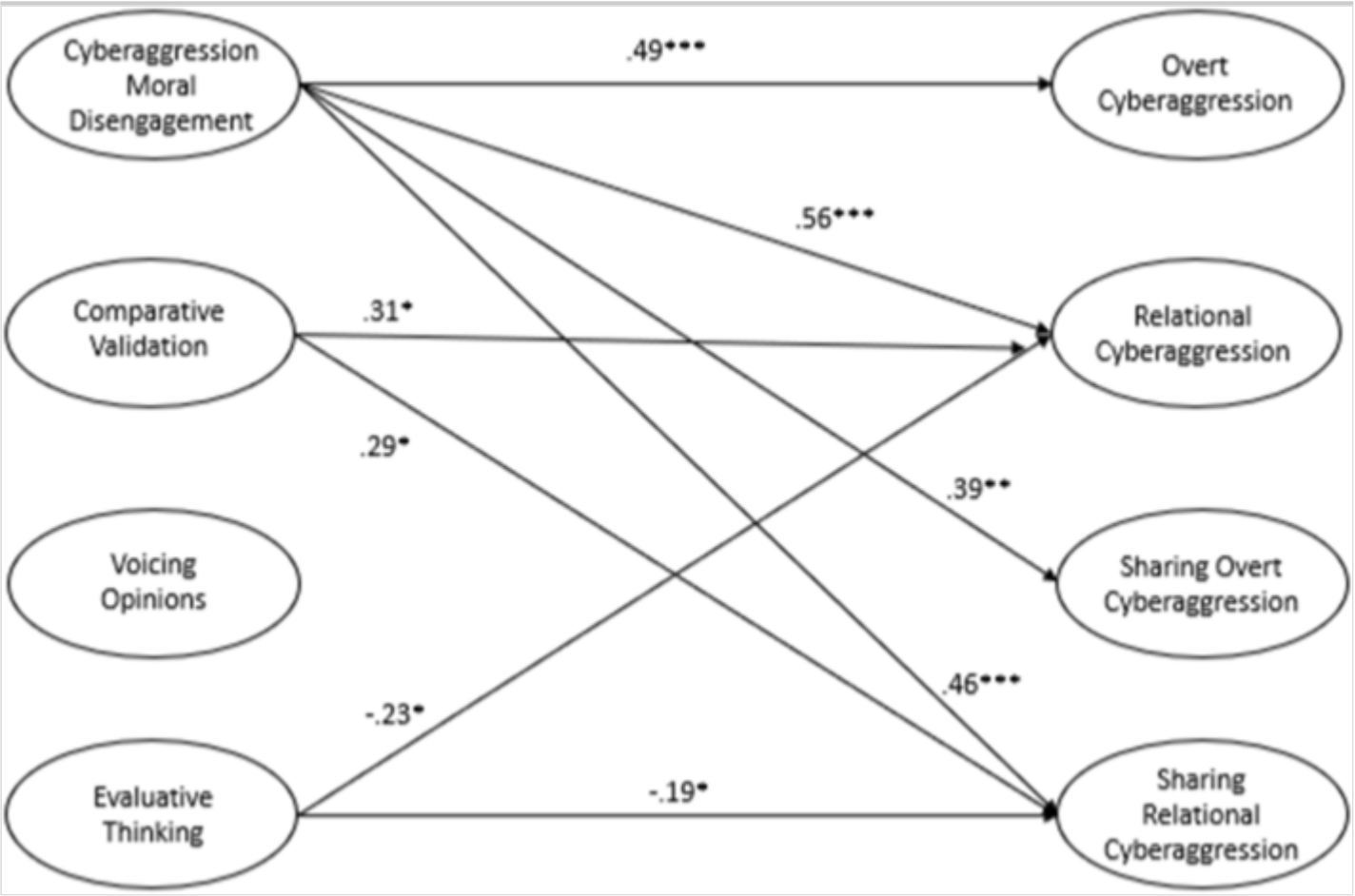
N = 437. For gender, 0 = women, 1 = men

Predictor		Outcome	Estimate	SE	*p*	Std. completely
Comparative validation			0.34	0.15	0.019	0.29
Voicing opinions			0.20	0.13	0.122	0.17
Evaluative thinking			− 0.22	0.09	0.018	− 0.19
Gender			− 0.23	0.18	0.192	− 0.09
	Cyber moral disengagement					
Gender			0.72	0.15	0.000	0.31
	Comparative validation					
Gender			− 0.12	0.17	0.478	− 0.05
	Voicing opinions					
Gender			0.36	0.13	0.008	0.16
	Evaluative thinking					
Gender			− 0.44	0.12	0.000	− 0.19
N = 437. For gender, 0 = women, 1 = men						

Fig. 1

AQ2

Associations between social cognitive predictors and cyberaggression outcomes, controlling for gender. Effects of gender and residual covariances between predictors and outcomes, respectively, not pictured. **p* < .05, *p* < .01, ****p* < .001



Discussion

The present study examined the effects of social cognitive predictors' cyber moral disengagement, evaluative thinking, voicing opinions, and comparative validation on four different forms of cyberaggression: sharing own and others' overt and relational cyberaggression. After controlling for gender, cyber moral disengagement positively and significantly predicted all four forms of cyberaggression: overt and relational cyberaggression, as well as sharing others' overt and relational cyberaggression. Additionally, results showed that individuals were more likely to engage in relational cyberaggression and sharing others' relational cyberaggression when they place

greater value of their friends' and others' opinions of them. Evaluative thinking was negatively related to the two forms of relational cyberaggression.

Cyberaggression moral disengagement was a significant predictor of all four forms of cyberaggression. College students who reported engaging in cyberaggression tended to dissociate themselves from moral self-sanctions. This finding was in line with previous research which showed that regardless of how it was measured (using a general moral disengagement from aggression scale [e.g., Pornari and Wood 2010] or through a specific measure of cyberaggression moral disengagement [Bussey et al. 2015; Meter and Bauman 2018]), young people who morally disengage from aggression engage in more aggression via digital communication. As hypothesized, this social cognitive factor was an appropriate predictor of actual, reported behavior. Although males were found to engage in cyber moral disengagement at higher levels than females, after controlling for gender in the structural equation model, cyber moral disengagement remained a significant predictor of the four cyberaggression outcomes, suggesting that despite the higher level of the social cognitive factor among males, it is still predictive of involvement in cyberaggression above and beyond the effect of gender.

In addition to replicating this important finding observed in previous research, the current study tested the association between cyberaggression moral disengagement and sharing others' aggression via digital media. This is, to our knowledge, the first study to assess this behavior which assists aggressors in their harming of others. The results showed that individuals do, indeed, report engaging in this behavior, as evidenced by mean levels of sharing cyberaggressive material, and that the same social cognitive mechanisms that predicted engaging in cyberaggression by sharing one's own aggressive act were also related to engaging in cyberaggression through sharing others' aggressive acts.

Participants who worried more about what their peers and others thought of them, or in other words, thought less independently, reported sharing more relational cyberaggression. These results fit with previous findings of cognitive autonomy with other risk behaviors (Beckert and Bundy 2008; Oudekerk et al. 2015). Regarding sharing relational cyberaggression that originated with another, one might assist an aggressor by spreading harmful digital media if they believe it is what is accepted and perhaps expected among their peers. Interestingly, those who look for validation from their peers and others also shared more of their own relational cyberaggression media, perhaps in an attempt to gain validation from others.

As expected, higher scores on evaluating one's own thoughts were negatively associated with sharing own and others' relational cyberaggression. Individuals who are able to assess the consequences of their decisions and think about the risk of their actions for themselves and for others seemed to understand that engaging in relational aggression either directly or through sharing others' aggressive acts may not ultimately serve them *or* others.

In line with social cognitive theory (1986), individuals' cognitive processes including moral disengagement, comparative validation, and evaluative thinking were associated with their engagement in cyberaggression via sharing their own aggressive acts or passing on aggressive acts initiated by others. While voicing opinions did not reflect the same level of association in this study, future studies might consider examining this construct more directly. The survey questions related to voicing opinions explored opinions in physical group settings rather than settings wherein cyber aggression occurs and this may have contributed to the incongruence in our findings.

We were surprised to find that there were no observed associations between the overt forms of cyberaggression and the components of cognitive autonomy including comparative validation, voicing opinions, and evaluative thinking. Engagement in overt forms of aggression is atypical during this developmental stage, as it generally decreases after early adolescence (Côté et al. 2007). It may be that less autonomous college-aged individuals are more likely to engage in behavior in line with what they consider to be socially normative, but not socially atypical behavior. Indeed, following Bandura's theory, modeling is more likely when environment, cognitions, and the salience of the behavior align. Thus, late adolescents who self-report lower cognitive autonomy would place greater emphasis on what is occurring among their peer group, especially if they consider the behavior acceptable and desirable.

Strengths and Limitations

This study went beyond single-item or general cyberaggression measures (Kowalski et al. 2014) to assess different forms of cyberaggression, overt, and relational cyberaggression. In this study, we also predicted forwarding or sharing cyberaggression content with peers. Furthermore, we measured cyber moral disengagement specifically. Although previous research has shown that general moral disengagement from aggression was related to

cyberaggression, the current study builds upon this research by demonstrating how moral disengagement from cyberaggression specifically is a substantial predictor of cyberaggression involvement of different forms.

One limitation of this study was the use of self-report items. Although commonly used in the cyberaggression and traditional aggression literature, self-report questionnaires may result in lower levels of "bad behavior" due to socially desirable responding (Casper et al. 2015). Without other informants with whom to compare mean levels of self-reports of cyberaggression, there is no way to know whether these data suffer from this possible problem. Nonetheless, individuals' self-reports may be the only way to collect information about social cognitive mechanisms including moral disengagement and cognitive autonomy items, since they ask about one's own private thoughts and beliefs.

Another limitation of this study was the lack of diversity in the sample. The participants were recruited as a convenience sample, so the participants do not represent a randomly selected group of US college students; data from such a sample would be more generalizable. The data were collected from a racially/ethnically homogenous US university. The data were mostly collected from social science students early in their major coursework. While the results serve as a useful first step in investigating the effects of social cognitive predictors on cyberaggression by means of sharing of own and others aggression digitally, it is possible that the results would not generalize to more diverse institutions, students form a variety of different majors, or institutions in different contexts.

An additional limitation was the correlational nature of this study. We are unable to infer causal effects as we may have been able to in the case of an experimental or longitudinal study. While social cognitive factors may precede behavior, the effects may also be reciprocal (Bandura 1986). Future studies should make use of longitudinal data to test the bidirectionality of the effects observed in the current study.

A strength of this study was its inclusion of a college-aged sample. Research suggests that even among youth who were previously victimized by cyberaggression, college is a time when late adolescents experience harassment in digital spaces frequently in their personal and work settings (Kowalski et al. 2012a). It is important to assess predictors of various forms of cyberaggression involvement among a sample likely exposed to cyberaggression.

Future Directions

This research suggests that social cognitive factors may predict involvement in aggression. In some ways, our sample's developmental stage is ideal for answering our research questions because of the tendency toward more autonomous thinking among traditional college-aged late adolescents (Allen, Hauser, Bell, and O'Connor, 1994). That being said, it would be interesting to test the current research questions in a longitudinal study or with different age cohorts to allow us to better understand developmental changes in social cognitive predictors, and how development may moderate the associations tested in the current study.

Further, this study did not explore the associations with being victimized by cyberaggression content that was forwarded or shared. However, with the potential for digital material to be easily shared around peer groups and publicly, the way that content is shared may affect victims. For instance, victims may expect certain individuals or institutions to serve as gatekeepers who might try to discontinue the spread of harmful material. However, when cyberaggressive content is freely shared, it not only re-victimizes the victim, but also sends the message to others that nothing will be done to stop these instances from continuing. As is the case in traditional victimization scenarios, when no one tries to stop cyberaggression, it may be perceived as indifference, which promotes the tolerance, or even acceptance of aggression (Juvonen and Galván 2008). Testing these important research questions about associations with victimization via forwarded or shared cyberaggressive content was beyond the scope of the current study, but we believe future research is needed to understand not only factors that contribute to cyberaggression, but also factors that predict outcomes associated with cybervictimization.

Another future goal includes expanding upon the current research by incorporating more facets of Bandura's (1986) social cognitive theory as predictors of cyberaggression involvement. For example, the digital context could be experimentally manipulated to see whether a factor such as moral disengagement is more or less associated with engagement in sharing of cyberaggression content depending on the perpetrator's ability to see the reaction of the victim. Or, the relationship of the cyberaggressive content creator to the potential forwarder could be manipulated to see whether observing peers and others' engagement in cyberaggression is associated with own cyberaggression involvement via sharing one's own content or sharing others' content. These types of investigations would help to substantiate the suppositions shared in our discussion regarding why we observed some of the expected associations and did not observe others. Attention to multiple facets of social cognitive theory would provide a stronger model; however, this was beyond the scope of the current study.

Implications for Practice

The results of this study imply that increasing evaluative thinking and decreasing moral disengagement and dependency on others' validation could help curb cyberaggression involvement. More specifically, showing the consequences of cyberaggression, whether someone creates the content or shares content of others' aggression, for victims could curtail the moral disengagement that takes place when aggressors minimize the consequences of their behavior. This might help these individuals to engage in more evaluative thinking, or thinking through the consequences of their actions. Further, interventionists could share information about the high levels of antibullying attitudes that typically exist among a peer group, or reflect a peer group's level of antibullying attitudes back to them, to show that if individuals want to be validated by peers and others, abstaining from involvement in cyberaggression may be one way to do this. Although engaging in high levels of comparative validation may be an indication of a lack of cognitive autonomy, this tendency could perhaps be used to promote *less* antisocial behavior.

The results additionally suggest that efforts to curb cyberaggression involvement should not only sanction those directly creating and sharing harmful digital content but also those who serve as harmful bystanders, sharing cyberaggression content that began with an initial aggressor. Although repetition in cyberaggression can be defined in different ways, the continuous victimization through sharing acts of cyberaggression has the potential to magnify negative effects on victims. Consequences should exist for sharing cyberaggressive media, whether that be encored through universities or law enforcement. Further, organizations can encourage reporting of cyberaggressive content and quickly remove that content when possible due to the understanding that this behavior is interpreted as quite severe in potential harmfulness (Sticca and Perren 2013).

Conclusion

The present study built upon previous cyberaggression literature by exploring the relation between moral disengagement using a specific cyber moral disengagement measure and other social cognitive predictors and different forms of cyberaggression. Moreover, the current study provided a novel look at sharing own and others' aggression in digital space. In short, the current study not only shed light on the need to address cyberaggression

that is enacted directly by a perpetrator, but also the individuals who provoke such behavior by sharing or forwarding offensive material.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Electronic supplementary material

ESM 1

(DOCX 16 kb)

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