

## Abstract

Cyber aggression refers to deliberately and repeatedly harming others through any electronic device (Doane, Kelley, Chiang, & Padilla, 2013; Grigg, 2010). Despite clear evidence supporting the importance of cyber aggression among adolescents (Hinduja & Patchin, 2015), far less is known about its prevalence and correlates among emerging adults. The present study used an online survey of college students ( $N = 317$ ) to explore the relationship of cyber aggression to overt and relational aggression and to examine the role of dark personality traits in predicting the perpetration of cyber aggression. The perpetration of cyber aggression was more closely related to the perpetration of relational aggression than to the perpetration of overt physical or verbal aggression. Pathological narcissism, Machiavellianism, psychopathy, sadism, and spitefulness were positively related to the cyber aggression perpetration and victimization. The perpetration of cyber aggression was predicted by narcissistic grandiosity, psychopathy, spitefulness, and sadism while taking respondent gender into account.

## Introduction

Cyber aggression is receiving increased attention in the psychological literature due to the growing popularity of social media (Brenner & Smith, 2013), the high prevalence of cyber aggression victimization taking place through social media (Walker et al., 2011), and the evidence of psychological and emotional correlates of cyber aggression victimization (e.g., depression, suicidal ideation, anxiety, disturbed sleep; Cassidy et al., 2013). Despite mounting evidence that cyber aggression is a significant problem among adolescents (Hinduja & Patchin, 2015), the study of cyber aggression among emerging adults has been impeded by a lack of accepted definitions and psychometrically sound measures (Wright, 2016). It is hoped that the availability of the Cyberbullying Experiences Survey (CES; Doane et al., 2013) will advance the cyber aggression literature.

Cyber aggression is positively correlated with overt and relational aggression (Loudin, Loukas, & Robinson, 2003; Lento-Zwolinski, 2007), but questions remain as to the degree of overlap it shares with these constructs. Moreover, a variety of dark personality traits (e.g., narcissism, Machiavellianism, psychopathy, and sadism) have been linked to aggressive behavior (Jonason, Li, Webster, & Schmitt, 2009), and evidence is slowly accumulating that at least some of these traits may be relevant to understanding the perpetration of cyber aggression (Buckels, Trapnell, & Paulhus, 2014). The present study was conducted to compare cyber aggression with overt and relational aggression and to determine which dark personality traits were most relevant in understanding the perpetration of cyber aggression.

## Methods

College student volunteers ( $N = 317$ ; 30% male and 70% female) recruited through the web-based research system used by the Department of Psychology completed the study in exchange for research credit. Most participants (87%) were of traditional college age ( $Mdn$  age = 20) and identified themselves as White (64%) or Black (32%). Most of the sample reported using social media (93.6%), text messaging (78.8%), and email (99.5%). Regarding social media, Facebook (91.7%) was the most popular, followed by Instagram (86.4%), Pinterest (59%), and Twitter (53.9%). The majority reported using Facebook (55.8%) and Instagram (51.7%) several times a day, and 90.2% agreed that most of their time spent on social media involved looking at pictures or videos. Additionally, 79.8% characterized social media as part of their daily routine.

After providing informed consent and completing a brief demographic questionnaire and a brief social media use questionnaire developed for this study, participants completed the Cyberbullying Experiences Survey (CES; Doane et al., 2013), Self-Report Measure of Aggression and Social Behavior Measure (SRASBM; Morales & Crick, 1998; Linder, Crick & Collins, 2002), Buss-Perry Aggression Questionnaire (BPAQ-SF; Buss & Perry, 1992), MACH-IV (Christie & Geis, 1970), Self-Report of Psychopathy Scale-III (SRP-III; Williams, Paulhus, & Hare, 2007), Pathological Narcissism Inventory (PNI; Pincus, Ansell, Pimentel, Cain, Wright & Levy, 2009), Short Sadistic Impulse Scale (SSIS; O'Meara, Davies, & Hammond, 2011), and the Spitefulness Scale (Marcus, Zeigler-Hill, Mercer, & Norris, 2014).

Table 1

Scale Reliabilities, Means, Standard Deviations, and Gender Differences

Variable	$\alpha$	Men $M (SD)$	Women $M (SD)$	BCa 95% CI of the Difference
CES Perpetration	.90	.41 (.57)	.26 (.36)	<b> [.03, .28]</b>
CES Victimization	.92	.54 (.65)	.34 (.39)	<b> [.08, .35]</b>
PNI Narcissistic Grandiosity	.91	2.89 (.91)	2.56 (1.02)	<b> [.10, .55]</b>
PNI Narcissistic Vulnerability	.96	1.91 (.94)	1.98 (1.08)	[-.32, .16]
SRP-III	.92	2.44 (.49)	2.07 (.45)	<b> [.25, .47]</b>
MACH-IV	.78	2.66 (.46)	2.52 (.48)	<b> [.02, .25]</b>
Spitefulness Scale	.87	1.74 (.61)	1.57 (.57)	<b> [.03, .31]</b>
Short Sadistic Impulse Scale	.59	.11 (.15)	.06 (.09)	<b> [.02, .08]</b>
BPAQ-SF Physical Aggression	.87	3.13 (1.84)	2.30 (1.62)	<b> [.34, .13]</b>
BPAQ-SF Verbal Aggression	.84	3.49 (1.74)	3.11 (1.58)	[-.01, .79]
BPAQ-SF Anger	.87	2.79 (1.59)	2.68 (1.56)	[-.27, .51]
BPAQ-SF Hostility	.90	3.25 (1.64)	3.00 (1.72)	[-.18, .71]
Relational Aggression	.87	1.99 (1.09)	1.72 (.92)	<b> [.02, .52]</b>

Note. All 95% confidence intervals (CIs) are bootstrapped using 1,000 resamples of the data. Significant values (i.e., CIs that do not contain 0) are in bold.

Table 2

Pearson Correlation Matrix

	CES Perpetration	CES Victimization
PNI Narcissistic Grandiosity	.24 [.14, .32]	.21 [.09, .31]
PNI Narcissistic Vulnerability	.27 [.17, .37]	.25 [.14, .35]
SRP-III	.42 [.33, .50]	.37 [.26, .47]
MACH-IV	.27 [.15, .38]	.21 [.06, .34]
Spitefulness	.36 [.23, .49]	.27 [.11, .42]
Sadism	.50 [.32, .66]	.47 [.27, .63]
BPAQ-SF Physical Aggression	.23 [.11, .37]	.15 [.04, .27]
BPAQ-SF Verbal Aggression	.25 [.14, .34]	.25 [.13, .36]
BPAQ-SF Anger	.12 [.03, .23]	.13 [.04, .23]
BPAQ-SF Hostility	.13 [.04, .23]	.18 [.08, .27]
Relational Aggression	.44 [.30, .56]	.36 [.20, .51]

Note. 95% confidence intervals are bootstrapped using 1,000 resamples of the data. All correlations shown are significant at  $p < .05$ .

Table 3

Hierarchical Regression for Dark Personality Variables Predicting CES Perpetration

Variable	$B$	$SE$	Bootstrapped values	
			BCa 95% CI	$R^2$
Step 1				.02
Gender	.01	.05	[-.09, .11]	
Step 2				.56
PNI Narcissistic Grandiosity	.07	.04	<b> [.00, .14]</b>	
PNI Narcissistic Vulnerability	-.00	.03	[-.07, .06]	
SRP-III	.14	.06	<b> [.02, .26]</b>	
MACH-IV	-.00	.00	[-.01, .01]	
Spitefulness Scale	.01	.00	<b> [.00, .01]</b>	
Short Sadistic Impulse Scale	.14	.03	<b> [.08, .19]</b>	

Note. Standard errors and 95% confidence intervals (CIs) estimated with 1,000 bootstrap resamples of the data. Significant values (i.e., CIs that do not contain 0) are in bold.

\*  $p < .01$ .

## Results and Discussion

Due to the nonnormality of scores on several measures, bootstrapping was used to create 95% bias-corrected and accelerated confidence intervals with 1,000 bootstrap samples for all analyses. Key findings include:

- Men reported higher rates of cyber aggression perpetration and victimization than women.
- Although the perpetration of cyber aggression was positively related to overt physical and verbal aggression, it was more closely related to relational aggression.
- All dark personality traits were positively related to cyber aggression perpetration and victimization.
- When respondent gender (Step 1) and dark personality traits (Step 2) were entered into a hierarchical multiple regression predicting cyber aggression perpetration, the full regression model was significant ( $F(7, 313) = 19.80, p < .001$ ), with an  $R^2$  of .31. Narcissistic grandiosity, psychopathy, spitefulness, and sadism were significant predictors of cyber aggression perpetration.

While cyber aggression, as assessed by the CES, appears to be distinct from both overt and relational aggression, it appears that the perpetration of cyber aggression is more similar to relational aggression than to overt physical or verbal aggression. Thus, it appears that cyber aggression may be best conceptualized as a related but distinct type of aggression. All the dark personality traits included in the present study were positively correlated with cyber aggression perpetration and victimization. When combining them into a predictive model and taking respondent gender into account, grandiose narcissism, psychopathy, spitefulness, and sadism predicted the perpetration of cyber aggression. It would be premature to dismiss Machiavellianism and vulnerable narcissism as relevant to cyber aggression; however, the present study suggests that they may be less involved than the other traits.

The finding that men report engaging in more cyber aggression than women was consistent with previous reports from studies of college students (Baroncelli, & Ciucci, 2014; Lund, & Ross, 2016). The finding that men also report experiencing more cyber aggression victimization was unexpected and may benefit from additional research.

The primary limitations of the present study include the fact that the sample came from a single university, the overrepresentation of women, and the reliance on self-report measures. Future research in this area should utilize psychometrically sound measures of cyber aggression, such as the Cyberbullying Experiences Survey. As we learn more about the factors that predict the perpetration of cyber aggression and the correlates of cyber aggression victimization, we may be in a better position to develop programming aimed at prevention and early intervention.