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Dark Triad personality traits and adolescent cyber-aggression

Sara Pabian, Charlotte J.S. De Backer *, Heidi Vandebosch

Department of Communication Studies, University of Antwerp, Sint-Jacobstraat 2, 2000 Antwerp, Belgium

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ABSTRACT

The current study empirically investigates the relationships between the Dark Triad personality traits and cyber-aggression among adolescents (14–18 year old). The sample consisted of 324 participants aged 14–18 (M = 16.05, SD = 1.31). Participants completed the Short Dark Triad (SD3) as a measure of the Dark Triad personality traits, the Facebook Intensity Scale and a scale to measure cyber-aggression. Structural equation modelling was applied to investigate the relationships. Results show that only Facebook intensity and psychopathy significantly predict cyber-aggression, when controlling for age and gender. Findings are discussed regarding the potential importance to further study Dark Triad traits, and psychopathy in particular, in the context of adolescent cyber-aggression.

1. Introduction

Much is known about the short-term and long-term effects of cyber-aggression for victims (e.g., Slonje, Smith, & Frisén, 2013). More remains uncovered about the motives and personality profiles of online aggressors. Gammon, Converse, Lee, and Griffith (2011) have put forward a theoretical personality model to study motivations underlying cyber-aggression, emphasizing the importance of Dark Triad characteristics (Machiavellianism, and particularly narcissism and psychopathy). This assumed association between Dark Triad characteristics and cyber-aggression was recently studied among a sample of college students (Gibb & Devereux, 2014). The study here presented is the first to study the association between Dark Triad traits and cyber-aggression among an adolescent population (14–18 years old).

The work here presented focuses on cyber-aggression in general. According to Grigg (2010, p. 152) cyber-aggression can be defined as "intentional harm delivered by the use of electronic means to a person or a group of people irrespective of their age, who perceive(s) such acts as offensive, derogatory, harmful or unwanted." Cyber-aggression encompasses both cyber harassment and cyberbullying, along with other forms of online aggression (Grigg, 2010; Pyżalski, 2012). Throughout this text, the overarching term cyber-aggression will be used to refer to any act of violence that falls under this general definition.

1.1. Cyber-aggression among school-aged children

Although the prevalence rates vary (depending on factors such as the type of measurement, the type of survey, and the specific age categories used), cyber-aggression, appears to be a considerable problem among adolescents (for overviews of prevalence rates, see for instance, Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Research on adolescent perpetrators of cyber-aggression have mostly focused on profiling perpetrators in terms of sociodemographic characteristics (e.g., gender: Sevcikova & Smahel, 2009; Wade & Beran, 2011), social-cognitive factors (e.g., empathy: Kaukiainen et al., 1999; Steffgen, König, Pfetsch, & Melzer, 2011), and several personality traits (e.g., self-control, self-confidence, and social competence: Pornari & Wood, 2010; Vandebosch & Van Cleemput, 2009). This study focuses on three socially aversive personality traits – Machiavellianism, narcissism, and psychopathy – known as the Dark Triad (Jones & Paulhus, 2014; Paulhus & Williams, 2002) that have been theoretically linked to cyber-aggression (Gammon et al., 2011), but not yet empirically among adolescent populations.

1.2. Cyber-aggression and Dark Triad personality traits

Out of the three Dark Triad traits, Machiavellianism refers to manipulative strategies of social conduct that are not correlated with general intelligence, and that do not necessarily lead to success (Wilson, Near, & Miller, 1996). Narcissism and psychopathy both originated in clinical literature and practice (see Furnham & Crump, 2005), but are treated as sub-clinical traits in the Dark Triad composite (Furnham, Richards, & Paulhus, 2013; Paulhus &

* Corresponding author. Tel.: +32 32655680, mobile: +32 494724049; fax: +32 32655798.
E-mail address: charlotte.debacker@ua.ac.be (C.J.S. De Backer).

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Williams, 2002). A subclinical narcissistic personality includes a sense of importance and uniqueness, fantasies of unlimited success, requesting constant attention, expecting special favors, and being interpersonally exploitative (Emmons, 1987). With regards to psychopathy, most researchers acknowledge the inclusion of three important elements: an impulsive behavioral style, an arrogant, deceitful interpersonal style and a deficient affective experience (callousness, see Cooke & Michie, 2001; Cooke, Michie, Hart, & Clark, 2004). It has also been argued to add antisocial behavior to this list (Hare, 2003), although it is advised to exclude this dimension in the definition of child and adolescent psychopathy (Farrington, 2005).

Among non-referred samples, the three components of the Dark Triad have been associated with both offline aggression and cyber-aggression, mostly in studies only looking at one of the three traits. To start, self-report measures of Machiavellianism have been associated with offline aggression among primary school children (Andreou, 2004; Sutton & Keogh, 2000), as well as among adolescents (Peeters, Cillessen, & Scholte, 2010). Second, narcissism (specifically exploitativeness) has been linked to offline aggression among primary school children and middle school adolescents (Ang, Ong, Lim, & Lim, 2010; Fanti & Henrich, 2014). With regards to cyber-aggression, narcissists are expected to function well in online environments, because of the shallowness of online relations and the controllability of online self-presentation (Buffardi & Campbell, 2008). Narcissism is associated with more intense use of social network sites and larger online networks (Ang, Tan, & Mansor, 2011; Buffardi & Campbell, 2008; Carpenter, 2012). Further evidence supports an association between narcissistic exploitativeness, a sub construct of narcissism, and cyber-aggression among adolescents (Ang et al., 2011). While others (Eksi, 2012) found that narcissism in general is indirectly associated with cyber-aggression, when controlling for mediation by Internet addiction.

Third, psychopathic traits have been associated with offline aggressive behavior (Chabrol, van Leeuwen, Rodgers, & Gibbs, 2011; Gumpel, 2014; Marsee, Silverthorn, & Frick, 2005) and cyber-aggression (Ciucci, Baroncelli, Franchi, Golmaryami, & Frick, 2014) among adolescents. In their longitudinal study of cyber-aggression Fanti, Demetriou, and Hawa (2012) found that callous unemotional traits, a subset of psychopathic traits, were positively related to changes – between time 1 and 2 with a one year interval – in cyber-aggression above and beyond gender, offline- and online bullying.

Looking at combinations of the above-discussed traits, Fanti and Kimonis (2012) investigated the relation between both narcissism and psychopathic traits and aggressive behavior. They found that aggression was highest among those who scored high on narcissism, and especially among those who also show psychopathic callous-unemotional traits. As a combined Dark Triad cluster, Machiavellianism, narcissism and psychopathy have together been linked to children's offline aggression (Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009; Kerig & Stellwagen, 2010), children's theory of mind abilities (Stellwagen & Kerig, 2013), adults' offline aggression (Baughman, Dearing, Giammarco, & Vernon, 2012; Pailing, Boon, & Egan, 2014), and adults' cyber-aggression (Gibb & Devereux, 2014). To our knowledge the Dark Triad cluster has not yet been examined with adolescents' cyber-aggression.

1.3. The present study

This study investigates how all Dark Triad traits correspond to cyber-aggression among adolescents (aged 14–18) using Facebook. Although the Dark Triad traits are clearly clustered, the correlations among the traits are fairly modest, so that each component may still be viewed as a distinct aspect of socially aversive behavior (Baughman et al., 2012). Because of the close connection between narcissism and online behavior we described above, a control measure for Facebook intensity will be added to the design.

2. Method

2.1. Sample

The sample consisted of 324 adolescents (63.0% girls) aged between 14 and 18 (M = 16.05, SD = 1.31). The sample was a convenience sample recruited via a researcher in charge of the data collection who made personal announcements and handed out flyers with the web link to the survey at schools, scouting organizations and sports clubs.

2.2. Procedure

This study followed APA Ethical Guidelines for research with human subjects; all participants were fully informed about the general scope of the study, informed consent was collected from the participant and an adult supervisor, and no compensations were given for participation. Participants were given a link that opened the online consent form describing their rights as research participants. Only if they indicated that they and a parent or guardian agreed for participation, the online survey appeared. For those who disagreed to participate, had doubts, or had no permission from a parent or guardian, the survey ended. For all others, the survey began with the questions regarding sociodemographics, followed by the three personality traits of the Dark Triad. In a final part, respondents were asked about their cyber-aggression activities on Facebook and their intensity of Facebook use. Participants without a Facebook profile (N = 5) were referred to the end of the survey and excluded from this study.

2.3. Instruments

All instruments were translated from English to Dutch, and back-translated to English by a second translator, not familiar with the instrument (as suggested by Brislin (1986)). Before administering the survey, a pilot study was carried out among a convenience sample of five boys and five girls (M = 15.40, SD = 1.58) to test in particular whether all the words were understood. No major issues appeared.

2.4. The Short Dark Triad (Jones & Paulhus, 2014)

Using a five-point scale from *totally disagree* (1) to *totally agree* (5), participants indicated their agreement with 27 items, 9 items for each personality trait. A measurement model was calculated to test whether the observed items reliably reflect the hypothesized latent variables Machiavellianism, narcissism, and psychopathy, using Mplus 6 (Muthén & Muthén, 2010). Confirmatory factor analysis was used with robust maximum likelihood estimation (MLR) in order to adjust for deviations due to non-normal variables. The three factors were allowed to co-vary. One item that measured narcissism, two items of Machiavellianism, and two items of psychopathy had factor loadings lower than 0.30 on their corresponding factor. These items were not included in further analyses. The (final) measurement model is presented in Table 1. The results indicated a good fit for the measurement model, except for the Chi-square (due to its sensitivity to sample size): CFI = 0.902; RMSEA = .045 (C.I. 90%: 0.036–0.054); $\chi^2(201) = 332.812$, $p < .001$. The internal consistency (Cronbach's alpha) was .74 for Machiavellianism, .61 for narcissism, and .77 for psychopathy (without the low loading items). Jones and Paulhus (2014) reported alphas between .71 and .76 for

Table 1
Standardized and unstandardized regression coefficients for the confirmatory factor analysis of the dark personality traits.

Latent construct	Observed variable	β	B	SE
Machiavellianism	Item 1	0.66	1.00	
	Item 2	0.63	0.80	0.09
	Item 3	0.55	0.84	0.10
	Item 4	0.54	0.79	0.10
	Item 5	0.44	0.54	0.08
	Item 6	0.36	0.54	0.09
	Item 7	0.38	0.48	0.08
Narcissism	Item 8	0.42	1.00	
	Item 9	0.53	1.45	0.27
	Item 10	0.35	0.85	0.21
	Item 11	0.37	1.00	0.26
	Item 12	0.40	1.14	0.30
	Item 13	0.34	1.17	0.36
	Item 14	0.39	1.04	0.25
	Item 15	0.43	1.19	0.24
Psychopathy	Item 16	0.64	1.00	
	Item 17	0.72	1.01	0.08
	Item 18	0.50	0.67	0.10
	Item 19	0.48	0.75	0.11
	Item 20	0.60	0.90	0.11
	Item 21	0.40	0.65	0.11
	Item 22	0.58	0.83	0.10

Note: All factor loadings had significant two-tailed *p*-values (<.001).

Machiavellianism, .68 and .78 for narcissism, and .72 and .77 for psychopathy.

2.5. Facebook cyber-aggression

In order to measure cyber-aggression, a list of eight activities was constructed, based on previous research by Kwan and Skoric (2013), and Vandebosch and Van Cleemput (2009). To retain a short list of popular cyber-aggression activities, those with the highest prevalence rates among adolescents were selected. These items were: "sending insulting Facebook messages/comments to someone (repeatedly)", "spreading rumors about someone on Facebook to damage the person's reputation", "saying things about someone to make the person a laughing stock", "hacking into someone's Facebook account", "pretending to be someone else on Facebook and spreading personal/sensitive information about that person", "posting embarrassing photos or videos of someone else on Facebook", "deliberately excluding someone from a Facebook group to make him/her feel excluded", and "sending threatening messages/reactions to someone". Similar to Kwan and Skoric (2013), participants were asked to indicate the number of times (1 = never, 2 = once, 3 = 2–4 times, 4 = 5–7 times, 5 = 8–10 times, or 6 = more than 10 times) they engaged in specific activities in the past three months. A total score was calculated for each participant (α = .84).

2.6. Facebook Intensity Scale (Ellison, Steinfeld, & Lampe, 2007)

The Facebook Intensity Scale measures Facebook usage beyond mere frequency or duration indices. This measure includes two self-reported assessments of Facebook behavior: participants indicate their number of Facebook friends on a nine-point scale (1 = 10 or less, 2 = 11–50, 3 = 51–100, 4 = 101–150, 5 = 151–200, 6 = 201–250, 7 = 251–300, 8 = 301–400, 9 = more than 400) and the amount of minutes spent on Facebook on a typical day on a six-point scale (1 = less than 10, 2 = 10–30, 3 = 31–60, 4 = 1–2 h, 5 = 2–3 h, 6 = more than 3 h). Then follows a series of Likert-scale attitudinal questions designed to tap the extent to which the participant is emotionally connected to Facebook (e.g., "I feel I am part of the Facebook community") and the extent to which Facebook is integrated into his/her daily activities (e.g., "Facebook is part of my daily routine"). Participants indicated on a five-point scale whether they disagree or agree (*totally disagree* (1) to *totally agree* (5)). As suggested by Ellison et al. (2007), individual items were first standardized before an average score was calculated (α = .81 in this study, α = .83 in the Ellison et al. study).

3. Results

One out of 3 respondents (35.8%, *N* = 116) indicated that they were engaged at least once in the past three months in one or more than one of the eight cyber-aggression activities. Saying things about someone to make the person a laughing stock was the most used activity (17.6% of the respondents at least once in the past three months, *N* = 57), followed by sending insulting Facebook messages or comments to someone repeatedly (15.1%, *N* = 49). Descriptive statistics and zero-order correlations are presented in Table 2.

3.1. Structural model

Structural equation modeling (SEM) was applied to investigate the relationships among the different constructs using Mplus with MLR as estimator. Figure 1 presents the model, including the standardized regression coefficients. All latent and observed variables were regressed on the sociodemographic variables gender and age. In order to enhance visibility, the latter are not included in the presentation of the model (Fig. 1), as well as the observed items of the latent variables and their error terms. The fit indices

Table 2
Descriptive statistics and zero-order correlations for the study variables.

Variable	1	2	3	4	5	6	7
1. Sex[a]							
2. Age	−0.02						
3. Machiavellianism	−0.21***	−0.10*					
4. Narcissism	−0.14**	−0.08	0.44***				
5. Psychopathy	−0.20***	−0.13*	0.62***	0.45***			
6. Facebook intensity	0.18***	−0.06	0.26***	0.23***	0.32***		
7. Cyber-aggression	−0.22***	−0.03	0.30***	0.29***	0.43***	0.15**	
M	0.63	16.05	3.05	2.84	2.39	3.18	9.20
SD	0.48	1.31	0.66	0.49	0.64	0.71	2.94
Range	0–1	14–18	1–5	1–5	1–5	1–5	8–34

[a] Girl = 1.
*** $p < 0.001$.
** $p < 0.01$.
* $p < 0.5$.

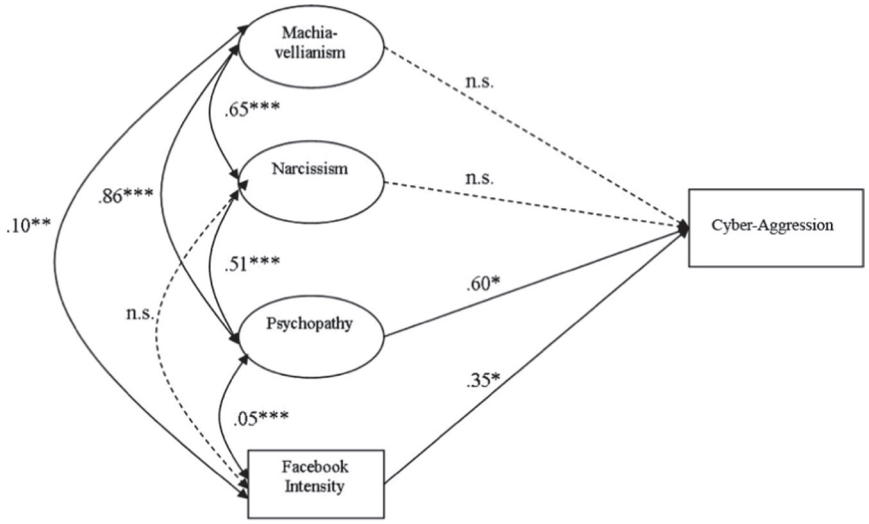

Fig. 1. Structural model. *Note:* $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.5$.

indicated a reasonable fit for the model: CFI = 0.877; RMSEA = .046 (C.I. 90%: 0.038–0.053); $\chi^2(277) = 461.869$, $p < .001$. Our analyses revealed that the three Dark Triad subscales and Facebook intensity explained 33.6 percent of the variance in cyber-aggression. As shown in Fig. 1, psychopathy ($\beta = 0.60$, $p < 0.05$) and Facebook intensity ($\beta = 0.35$, $p < 0.05$) were significant predictors of adolescents' self-reported cyber-aggression. Machiavellianism ($\beta = -0.36$, $p = 0.199$), and narcissism ($\beta = 0.23$, $p = 0.055$) were not found to be predictors of cyber-aggression. Significant positive correlations were found between the three personality traits (range r: .51–.86). Intensive Facebook users were associated with higher scores on Machiavellianism ($r = .10$, $p < .01$) and psychopathy ($r = .05$, $p < .001$), but not with higher scores on narcissism ($r = .01$, $p = .653$). Furthermore, boys scored higher on Machiavellianism ($\beta = -0.46$, $p < 0.001$), psychopathy ($\beta = -0.38$, $p < 0.01$), and cyber-aggression ($\beta = -0.25$, $p < 0.05$), whereas girls tended to be more intensive Facebook users ($\beta = 0.10$, $p < 0.01$). Finally, younger adolescents scored significantly higher on psychopathy in comparison to older adolescents ($\beta = -0.12$, $p < 0.05$).

Additional analyses were performed to investigate whether the relations between the dark personality traits and cyber-aggression are mediated by Facebook intensity. No support was found for a mediating role of Facebook intensity. More precisely, Machiavellianism ($\beta = 0.32$, $p = 0.119$), narcissism ($\beta = -0.11$, $p = 0.188$), and psychopathy ($\beta = -0.17$, $p = 0.244$) did not significantly predict Facebook Intensity.

4. Discussion

4.1. The dark triad and cyber-aggression among adolescent boys and girls

Investigating the relation between Dark Triad and cyber-aggression among adolescents, this study shows that only psychopathy, and not Machiavellianism and narcissism are related to cyber-aggression on Facebook among 14–18 year olds. In their model, Gammon et al., (2011) had assumed that especially psychopathy, but also narcissism would correspond well with cyber-aggression. Yet, even when controlling for a potential mediation effect of Facebook intensity between narcissism and cyber-aggression, no significant relation was found. In an earlier study it was shown that controlling for internet addiction as a mediator does support the existence of a relation between narcissism and cyber-aggression (Eksi, 2012). The results of this study add to this that mere intensity in social network use does not give similar results. And while an association between narcissistic exploitativeness and cyber-aggression had been acknowledged among adolescents (Ang et al., 2011), our results show that general narcissism may not follow this pattern. In this study adolescents' Facebook intensity, measured by the Facebook Intensity Scale, did not even correlate with narcissism, which also contradicts related findings confirming an association between adult narcissism and frequencies of adults' Facebook use (Carpenter, 2012) and adults' quantity of information posted on Facebook (Buffardi & Campbell, 2008).

In terms of gender, boys outscored girls in the general mean scores for cyber-aggression, Machiavellianism and psychopathy. The psychopathy results reconfirm earlier findings (Declercq, Markey, Vandist, & Verhaeghe, 2009; Schmidt, McKinnon, Chattha, & Brownlee, 2006). With regards to age, the only significant relation in this study showed a decrease in psychopathic traits with increasing age. Although Farrington (1991) found that stability in antisocial personality traits were greater between ages 18 and 32 compared to ages 10 and 18, he mainly concluded that there was significant stability in antisocial personality during adolescence. This is in line with other studies that have demonstrated stability in psychopathic traits from childhood to adulthood (Declercq et al., 2009; Frick, Kimonis, Dandreaux, & Farell, 2003; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007; Lynam et al., 2009). These findings clearly contradict the finding in this study. Yet, when breaking psychopathic traits down into subcomponents, Declercq et al. (2009) noticed that impulsiveness declined with age among boys, while among girls, scores for the callousness-unemotional factor became lower with an increasing age. Other studies as well have found that impulsiveness declines steadily from the age 10 on (Steinberg et al., 2008). This might indirectly explain our results, but further research that allows for looking at different sub factors of psychopathy is required to see if the result of this study can be replicated and explained by declines on one or more of these subcomponents.

4.2. Limitations and future research

A first limitation of this study is thus clearly the fact that our instruments did not allow to look into detailed sub constructs of psychopathy, narcissism and Machiavellianism. Instruments were kept short and simple, because of the young age of the participants in this study. Scales do exist to measure the three Dark Triad traits in more depth among adolescent populations, but adding them all

in one study design might lead to an overwhelming amount of questions. Based on the results of this study, we do advice to add more detailed measures of psychopathy to follow-up studies. Second, this study relied on a convenience sample, so generalizations of these results should be taken with extreme caution. Especially since six out of ten participants (61.1%) were following a general educational program, which is slightly more than the overall Belgian school population (40.46%, Department of Education, 2014) and our sample also consisted of more girls ($N = 204$) than boys ($N = 120$).

Third, this study relied on self-report measures. Self-reports may be subject to response distortions (e.g., extreme or central tendency responding, negative affectivity bias, socially desirable responding) that might inflate the associations between independent and outcome variables (Juvonen, Nishina, & Graham, 2001; Podsakoff, MacKenzie, & Podsakoff, 2012; Semmer, Grebner, & Elfering, 2003). Future research may consider using reports from multiple informants (peers, teachers, and parents), or, if it is not possible to attain response from multiple informants, using a social desirability scale to have an indication of the extent to which the responses are influenced by impression management (Pornari & Wood, 2010).

In sum, this study reveals an association between Dark Triad traits, psychopathy in particular, and cyber-aggression among adolescents. With personality traits being fairly stabilized in this age group (Farrington, 1991), one practical implication of this work is that cyber-aggression may be used as an indicator of Dark Triad personality traits in adolescent individuals. In addition, prevention programs should be aware that Dark Triad traits are associated with cyber-aggression. Social skills training for adolescents may therefore consider including social perspective-taking skills that have been proven successful in overcoming egocentrism and antisocial behavior (Chandler, 1973).

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