The Dark Tetrad and the perpetration of Cyber Dating Abuse

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Abstract

Nowadays, online control and direct aggression are more common in the relationship context. Cyber Dating Abuse (CDA) is the term that is used to describe these types of behaviors and includes humiliating, stalking or controlling your partner via Information and Communication Technologies (ICTs). Literature shows that CDA leads to serious mental and physical problems. This indicates the importance of enlarging our understanding regarding the people behind CDA perpetration. Little research has been done concerning the perpetration of CDA and the dark personalities in the Dark Tetrad (narcissism, Machiavellianism, psychopathy, sadism). The current study investigated the association between the Dark Tetrad (narcissism, Machiavellianism, psychopathy, sadism) and the perpetration of CDA. The results of the quantitative survey study, with 214 Dutch-speaking participants, indicated that all the Dark Tetrad traits are positively associated with the perpetration of CDA. Psychopathy was found to be the most accurate predictor of CDA perpetration. The findings of the study have enlarged our understanding regarding CDA perpetrators and will help to make more effective prevention and intervention plans. Future research should investigate national culture and the reasons why people with dark personalities are more likely to perpetrate CDA.

Keywords: cyber dating abuse, dark tetrad, dark triad, cyberstalking, direct aggression, online control

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Introduction

Communication via Information and Communication Technologies (ICTs) is seen as a flexible and attractive way to create and maintain dating relationships (Caridade et al., 2019). However, communication via ICTs can also include certain types of aggression and conflict (Fox et al., 2014; Kellerman et al., 2013; Schnurr et al., 2013). Cyber Dating Abuse (CDA) has become a more common phenomenon due to the growing use of ICTs. According to March et al. (2021), CDA can be defined as "the use of technology to aggress toward and/or control current or former intimate partners. Examples of CDA include cyberstalking and monitoring a partner online, sexually harassing a partner via technology, and publicly humiliating a partner online" (p. 457).

There is a growing body of literature that focuses on the perpetration of CDA. An online survey among a large group of Spanish adults between 18 and 30 years old found that more than 80% of the participants are involved in online control and 14% in direct online aggression towards their partner (Borrajo et al., 2015). Moreover, a study by the same researchers a year later shows that 31.7% of the respondents experience direct online aggression (Borrajo & Gámez-Guadix, 2016). A systematic review by Caridade et al. (2019) shows that the perpetration rate of CDA among young adults can fluctuate between 8.1% and 93.7%. This depends on age group, ethnicity, and the used time frames in the studies. The negative effect of CDA on mental and physical well-being is significant and includes lowered self-esteem (Hancock et al., 2017), depression, and anxiety (Borrajo & Gámez-Guadix, 2016). This emphasizes the need to create a greater understanding of CDA to make sure that it can be prevented in the future.

In the last years, research in the field of CDA has grown and much new information has come to light. To date, few studies have investigated and shown a connection between CDA and offline dating violence (e.g., Borrajo et al., 2015; Temple et al., 2015; Yahner et al.,

2014; Zweig et al., 2013). Research regarding CDA has focused on finding a correlation with individual factors. For example, a more recent study shows the correlation of the Conformity to Masculine Roles Norms Inventory, the Hypersensitive Narcissism Scale, and the Acceptance of Modern Myths About Sexual Aggression Scale on the perpetration of CDA (March et al., 2021).

Little attention has been paid to the connection between CDA and the personality traits in the Dark Triad/Tetrad as a means to help us understand what drives people to perpetrate CDA. The Dark Triad is a construct described by Paulhus and William (2002) that includes the "dark" variables Machiavellianism, psychopathy, and narcissism. Later on, when sadism was added to this construct it became the Dark Tetrad (Paulhus et al., 2021). A selection of the Dark Tetrad (i.e., Machiavellianism, psychopathy, narcissism, and sadism) traits are used by researchers to explain the perpetration of traditional bullying, cyberbullying, and CDA. Mostly because it is expected that persons who exhibit characteristics of the Dark Tetrad also engage in (online) abuse behaviors (Bhogal & Wallace, 2021).

Research has shown that Machiavellianism, psychopathy, narcissism and sadism are positively related to traditional bullying (Baughman et al., 2012; Goemans et al., 2016). Additionally, different research indicates that all the traits from the Dark Tetrad correlate with cyberbullying and cyber victimization (Gajda et al., 2022). However, research regarding the connection between the Dark Tetrad and CDA is limited and inconsistent.

Pineda et al. (2021) is the only study so far that found connections between all the Dark Tetrad traits and cyber intimate partner violence (C-IPV). C-IPV encompasses the same behaviors as CDA. In line with other research (Branson & March, 2021), they found a positive relationship between C-IPV and psychopathy and narcissism. Furthermore, they

found a negative correlation between Machiavellianism and direct aggression perpetration. Moreover, this is the first study that found a positive relationship between sadism and C-IPV.

There is still uncertainty, however, whether all the Dark Tetrad traits show a connection to CDA. A different study found no connection between the Dark Triad traits and CDA behaviors (Bhogal & Wallace, 2021). The inconsistency between the findings in both studies can possibly be explained because of the differences between the participants (Bhogal & Wallace, 2021; Pineda et al., 2021). The study by Pineda et al. (2021), recruited mostly highly educated Spanish participants between the age of 18 to 65 years old. On the other hand, Bhogal & Wallace (2021) recruited participants from the UK that were in a long-term heterosexual relationship.

Because of the inconsistent and limited research in the field of CDA and the Dark Tetrad, more insight is needed to create a larger understanding of the perpetration of CDA. With the current study, we build further on the existing literature to make sure that the findings in the only study regarding this topic, by Pineda et al. (2021), are accurate. In doing so, this study will contribute to our understanding regarding the perpetration of CDA. In practice, the findings will help social workers to create a more concrete prevention and intervention plan. This leads us to the following research question:

RQ: Is there an association between the Dark Tetrad (narcissism, Machiavellianism, psychopathy, sadism) and the perpetration of Cyber Dating Abuse?

Literature Review

Cyber Dating Abuse

As mentioned earlier, the use of new technologies has created new ways of abuse and intimate partner violence (Pineda et al., 2021). More regularly ICTs are used for cyberbullying and cyberstalking. Intimidation, harassment and control in interpersonal contexts are part of these phenomena (Barlett & Gentile, 2012; Borrajo et al., 2015; David-Ferdon & Hertz, 2007; Pittaro, 2007; Sheridan & Grant, 2007). In the literature, cyber intimate partner violence (C-IPV), cyber dating violence, electronic dating violence, cyber aggression, online dating abuse, digital dating abuse, and Cyber Dating Abuse (CDA) are frequently used terms to describe violence and abuse in relationships with the use of ICTs (Flach & Deslandes, 2017). In the current study, we will use Cyber Dating Abuse (CDA) which is the most frequently used term (Flach & Deslandes, 2017).

While a variety of definitions of the term CDA have been suggested, this paper will use the definition suggested by March et al. (2021) that was stated earlier: "the use of technology to aggress toward and/or control current or former intimate partners" (p. 457). In the literature, the distinction between "direct aggression (an aggressive act with a deliberate intention to hurt the partner/ex-partner, such as insults or threats) and monitoring/control (the use of electronic means to control the partner/ex-partner; for example, the use of personal passwords)" (p. 385) is made to measure CDA more accurately (Borrajo et al., 2015). In this study, we will also focus on those two different aspects of CDA.

CDA is one of the many constructs that incorporate victimization and perpetration of violence in dating relationships through digital tools (Caridade et al., 2019). Previous research indicates that the use of the same instrument to measure both victimization and perpetration causes under-reporting because of social desirability (Pineda et al., 2021). With

this in mind, the main focus of the current study is the perpetration aspect of CDA to limit social desirability.

In the literature, CDA is seen as the most inclusive construct, in comparison to other terms that are used to describe violence in relationships with the use of ICTs, because it includes abuse as a construct and many sorts of behaviors (Borrajo et al., 2015; Caridade et al., 2019; Zweig et al., 2013). Cyber psychological control or monitoring (example: the need to constantly know the whereabouts and company of the dating partner), cyber harassment (example: persistent and sneaky calls), and cyber psychological and verbal aggression (example: insults, threats, and humiliations) are examples of these types of abuse (Caridade et al., 2019; Gámez-Guadix et al., 2018). More concrete examples of abusive behaviors that are related to CDA are sending messages that contain threats, spreading embarrassing photos or videos of a dating partner, spying on a dating partner with the use of their passwords without their consent, monitoring a partner's location via global positioning system (GPS) or creating a false social media profile for a partner (Borrajo, Gámez-Guadix, & Calvete, 2015; Flach & Deslandes, 2017).

Several studies have found a relationship between being a victim of offline dating violence, bullying, and cyberbullying and the perpetration of CDA (Borrajo et al., 2015; Schnurr et al., 2013; Van Ouytsel et al., 2016; Temple et al., 2015; Yahner et al., 2014; Zweig et al., 2013). Additionally, CDA perpetration is related to jealousy (Branson & March, 2021), sexist beliefs (Rodríguez-Domínguez et al., 2018), exposure to family conflict (Muñiz Rivas & Monreal Gimeno, 2017), and other traditional forms of psychological violence (Van Ouytsel et al., 2017). However, research focusing on other personality aspects remains limited.

Dark Tetrad

The fact that CDA is associated with control and direct aggression makes it interesting to look at the people behind this type of behavior. People with a dark personality (i.e., Machiavellianism, psychopathy, narcissism, and sadism) are expected to engage in more (online) abuse behaviors (Bhogal & Wallace, 2021). This creates an interesting link between CDA and the Dark Triad/Dark Tetrad. The term Dark Triad includes the personality variables narcissism, Machiavellianism, and psychopathy and is devised in 2002 by Paulhus and Williams (2002). All three variables exhibit positive intercorrelations, despite the differences in their conceptual roots. If this overlap is neglected, empirical relationships may be incorrectly attributed. For example, when psychopathy is actually the causal factor behind an outcome rather than narcissism (Paulus & Williams, 2002). With this in mind, Paulus and Williams (2002) suggested that the three factors should be researched together. In doing so, the distinction can be made between the effect of each of the dark personality traits (Jones & Paulhus, 2013).

In the meantime, many researchers have suggested other variables to be considered in the Dark Triad. The sadistic personality was one of the most mentioned variables and created the largest consensus among researchers (e.g., Book et al., 2016; Buckels et al., 2013; Chabrol, et al., 2009; Craker & March, 2016; Davis et al., 2018; Greitemeyer, 2015; Johnson, et al., 2019; Moor & Anderson, 2019; Plouffe et al., 2017). This led to the creation of the Dark Tetrad, which now also includes sadism as a "dark" variable (Paulhus et al., 2021). Sadism fulfils the criterion of impaired empathy and thus shares a common component with the other variables in the Dark Tetrad (Paulhus, 2014; Pajevic et al., 2018). Moreover, sadism brings a unique and new element into the Dark Triad: "intrinsic pleasure in hurting others" (Nell, 2006). This justifies the inclusion of sadism in the Dark Triad (Paulhus et al., 2021).

The Dark Tetrad is used by many researchers in the field of social, personality, and industrial-organizational psychology, which includes research regarding bullying, cyberbullying and CDA (Paulhus et al., 2021). Higher normative beliefs about aggression (Ang et al., 2010), impaired moral reasoning (Karandikar et al., 2019), moral disengagement (Egan et al., 2015), reduced empathy and impulsivity (Jonason & Krause, 2013) are known mediators between the dark traits and cyberbullying. These factors may also explain the fact that people who score higher on a dark personality trait also perpetrate more CDA behaviors. In the next sections, each dark trait will be explained in more detail and the different ways that existing research has explored the potential relationships to CDA.

Narcissism

The first dark personality described in the Dark Tetrad is narcissism. In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the Narcissistic Personality Disorder is described as a pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy (American Psychiatric Association, 2013). Vulnerable and grandiose narcissism are the two types that are known in the literature. In 1991, Wink was the first researcher to show evidence in the support of the two types. A high need for other people's praise, an exhibitionistic inclination, and a drive to preserve a pretentious self-image are all characteristics of grandiose narcissism (Rohmann et al., 2012). Contrarily, vulnerable narcissism is marked by an obsession with fantasies, swings between sentiments of superiority and inferiority, and weak self-assurance (Rohmann et al., 2012). "Whereas grandiose narcissism is equated with the social-personality conceptualization of narcissism, vulnerable narcissism resembles the clinical conceptualization" (Rohmann et al., 2012, p. 279).

In the Dark Tetrad, the construct of subclinical narcissism is used which emerged from Raskin and Hall's (1979) version. They used the Narcissistic Personality Disorder from

the DSM-5 and created a subclinical version. Grandiosity, entitlement, power, and superiority were among the clinical syndrome's preserved characteristics (Paulus & Williams, 2002).

As mentioned before, studies have shown the relationship between narcissism and traditional bullying, cyberbullying and cyber victimization (Baughman et al., 2012; Gajda et al., 2022). Research that focuses on the relationship between narcissism and CDA has grown over the years. March et al. (2021) and Branson & March (2021) found vulnerable narcissism to be a positive predictor of the perpetration of CDA. Two different studies have used the subclinical construct of narcissism, which is used in the Dark Tetrad, to investigate the association between narcissism and CDA. Firstly, the study by Pineda et al. (2021) indicates that people with narcissistic personalities are more likely to monitor and control their partner. Moreover, the results show that narcissists score higher on the direct aggression perpetration scale but compared to the other traits in the Dark Tetrad this relation is not as strong. Secondly, Bhogal & Wallace (2021) found no association between narcissism and CDA in their study. The weak relation between direct aggression and narcissism might be explained due to the fact that narcissists will only use direct aggression when their grandiosity is compromised (Jones & Paulhus, 2010). Additionally, the grandiosity of narcissists can also lead to the under-reporting of CDA because they want to maintain a pretentious self-image (Bhogal & Wallace, 2021).

Even though the literature is inconsistent in its findings, regarding the connection between CDA and narcissism, it is clear that narcissists encompass characteristics (i.e., grandiosity, entitlement, dominance, and superiority) that are in line with the control and monitor part of CDA (e.g., monitoring a partner's location via GPS). Thus, it is hypothesized:

H1: There is a positive association between narcissism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

Machiavellianism

Machiavellianism is known as a manipulative personality that was derived from the books about power written by the Florentine diplomat Niccolo Machiavelli. Christie & Geis were the first researchers that used the books of Machiavelli to build the construct of Machiavellianism (1970). The study showed that people are more inclined to act coldly and manipulatively in both lab and real-world studies if they agree with more statements (Christie & Geis, 1970).

Additionality, characteristics of military strategist Sun Tzu were added to the construct: "along with themes similar to Machiavelli's, Sun Tzu added planning, coalition formation, and reputation building. The latter qualities turn out to be important in distinguishing psychopathy from Machiavellianism" (Jones & Paulhus, 2013, p. 2). Machiavellians are more focused on forming alliances, planning ahead and working hard to uphold a good reputation (Jones & Paulhus, 2013). Compared to Machiavellians, psychopaths forsake their friends and families, act irrationally, and care little for their reputations (Hare & Neumann, 2008). More information regarding psychopathy will follow in the next section.

The fact that Machiavellianism is positively correlated with cyberbullying and cyber victimization (Gajda et al., 2022), makes it interesting to look at the possible connection between Machiavellianism and CDA. However, the study by Pineda et al. (2021), did not find support for the prediction of Machiavellianism on the victimization and perpetration of cyber intimate partner violence. Moreover, a different study also indicates that Machiavellianism does not predict CDA (Bhogal & Wallace, 2021). Furthermore, literature shows that Machiavellians refrain from controlling family members because they want to uphold their reputations (Barber, 1998). It is possible that this also happens in romantic relationships. Additionally, there is a higher chance for Machiavellians to get caught while perpetrating

direct aggression and control in an online environment (Jones & Paulhus, 2010). This may explain why Machiavellianism is not related to the perpetration of CDA.

Overall, there seems to be support for the following hypothesis:

H2: There is no association between Machiavellianism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

Psychopathy

The most important characteristics of a psychopath are low empathy and anxiety as well as high impulsivity and thrill-seeking (Paulus & Williams, 2002). As mentioned in the section above, the combination of manipulation and thrill-seeking causes psychopaths to behave in a criminal and bold way (Hare & Neumann, 2008).

The measure of psychopathy in the Dark Tetrad originated from the self-report psychopathy scale, consisting of items that distinguish between clinically diagnosed psychopaths and non-psychopaths (Hare, 1985). Moreover, impulsivity is an important factor in the conceptualization of psychopathy in the Dark Tetrad. In doing so, Paulus & Williams (2013) lean more towards secondary psychology. Psychotic thinking, inadequate intelligence and extraordinary sexual desire, or other characteristics that make a person more susceptible to persistent misbehaviour are considered indirect causes of secondary psychopathy (Newman et al., 2005). On the other hand, with primary psychopathy, it is assumed that the inappropriate behavior of the psychopath results from an underlying impairment that prevents self-control and normal adjustment (Lykken, 1995; Newman et al., 2005).

It is known that psychopathy is positively related to traditional bullying (Baughman et al., 2012; Goemans et al., 2016), cyberbullying and cyber victimization (Gajda et al., 2022). Additionality, the literature indicates that secondary psychopathy is a predictor of intimate partner cyberstalking (March et al., 2020). Moreover, there seems to be a positive connection between secondary psychopathy and CDA (Branson & March, 2021; Pineda et al., 2021).

"Perpetration of Cyber Dating Abuse may be better associated with psychopathy characterised by impulsivity and reactivity (i.e., secondary psychopathy), compared to manipulation and callousness (i.e., primary psychopath)" (Branson & March, 2021, p. 6). Psychopaths are known for their aggressive side and utilise aggressiveness for manipulative ends (Buckels et al., 2013). This relates very well to the direct aggression aspect of CDA (e.g., sending messages that contain threats).

In view of all that has been mentioned so far, it is expected that psychopathy, as it is conceptualized in the Dark Tetrad, can be linked to the perpetration of CDA. This leads to the following hypothesis:

H3: There is a positive association between psychopathy and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

Sadism

Sadism is the most recent addition to the Dark Tetrad and is defined by Paulus & Williams (2021) as: "the tendency to enjoy causing, or simply observing, others' suffering" (p. 208). As mentioned above, the fact that sadism shares and adds a new component makes this construct a validated addition to the Dark Tetrad (Paulhus et al., 2021). In the literature, the Varieties of Sadistic Tendencies (Paulhus & Jones, 2015), the Short Sadistic Impulse Scale (O'Meara et al., 2011), the Comprehensive Assessment of Sadistic Tendencies (Buckels & Paulhus, 2013) and the Assessment of Sadistic Personality (Plouffe et al., 2017) are some stand-alone measures of sadism. The construct of sadism in the Dark Tetrad is based on those four measures and combines different items of each of the measures (Paulhus et al., 2021).

Data from several studies suggest that everyday sadism is a predictor of the enjoyment of violent video games (Greitemeyer & Sagioglou, 2017), internet bullying (Kircaburun et al., 2018), revenge (Chester & DeWall, 2017), cyberstalking (Smoker & March, 2017), and

sexual violence (Russell & King, 2016). Moreover, as mentioned earlier, sadism is related to traditional bullying (Baughman et al., 2012; Goemans et al., 2016), cyberbullying and cyber victimization (Gajda et al., 2022). However, research regarding sadism and CDA is limited. With sadism being the most recently added construct to the Dark Tetrad, so far only one study has found a significant relationship, which was positive, between sadism and direct aggression and control perpetration of CDA (Pineda et al., 2021). The characteristics of sadists (i.e., callousness and enjoyment of suffering) might be well related to CDA behavior, for example spreading embarrassing photos or videos of a dating partner.

Even though research that focuses on the link between CDA and sadism is limited, the study by Pineda et al., (2021) gives enough reason to believe that there is a positive association between sadism and CDA. With this in mind, it is hypothesized that:

H4: There is a positive association between sadism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

Summary

In summary, the goal of this study is to gain a better understanding of the perpetration of CDA with the use of the personalities in the Dark Tetrad. Previous literature indicates an association between the Dark Tetrad and (online) abuse behavior (e.g., internet bullying, cyberstalking). However, research regarding the association between the Dark Tetrad and CDA is limited, even though there are enough reasons to expect an association between those two aspects. Based on all that is mentioned above, the following hypotheses will be tested in this study:

H1: There is a positive association between narcissism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

H2: There is no association between Machiavellianism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

H3: There is a positive association between psychopathy and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

H4: There is a positive association between sadism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

Table 1

Literature overview on the relationship between CDA perpetration and the Dark Tetrad

	+	-	No relationship
Narcissism	March et al. (2021) Branson & March (2021) Pineda et al. (2021)		Bhogal & Wallace (2021)
Machiavellianism		Pineda et al. (2021)	Bhogal & Wallace (2021)
Psychopathy	Branson & March (2021) Pineda et al. (2021)		Bhogal & Wallace (2021)
Sadism	Pineda et al. (2021)		

Methods

Design

The research question was answered by conducting a survey. To measure the direct effect of the independent variable (Dark Tetrad) on the dependent variable (CDA) a between-subjects design in the form of a survey was set up that combined the items of both variables.

The survey was designed by five master's students (Emma Davids, Séverine Nez, Tom Rooseboom, Louisse Kriek, and Imre Meier) at Tilburg University, who worked together on the data collection part. All five students were interested in finding a relationship between a variable (Porn Consumption, Ambivalence Sexism, Gender Roles, Domestic Violence Myths, Sexual Aggression, and the Dark Tetrad) and the perpetration of CDA.

This meant that, besides the Dark Tetrad, the participants in the study also answered the Domestic Violence Myths scale. However, in this study, we only focus on the effect of the Dark Tetrad on CDA. The order in which the survey items were presented to the participants in the survey was randomized.

Participants

The questionnaire was completed by 393 participants, of which half of the participants were exposed to the part of the survey that included the items of the Dark Tetrad. As a result, the sample that included the Dark Tetrad as a scale consisted of 214 participants, of whom 139 were female, 74 were male and 1 identified themself as other. Participants ranged in age from 19 to 76 years old, with a mean age of 33.4 ($SD = 14.1$). There was a wide variety of educational backgrounds among the participants. Most of the participant's highest or current educational level is the University of applied science ($N = 85$), followed by a University Master ($N = 57$) and vocational college ($N = 36$).

Measures

Appendix A contains a list of the two scales that were used in the current study.

Cyber Dating Abuse Questionnaire scale

The perpetration of CDA was measured with the Cyber Dating Abuse Questionnaire (CDAQ) (Borrajo et al., 2015). In this 40-item long questionnaire both victimization and perpetration are incorporated, which are structured of two components: direct aggression and monitoring/control (Borrajo et al., 2015). In this study, only the questions related to the perpetration of CDA were asked to the participants. As mentioned earlier, this decision was made to reduce under-reporting because of social desirability. The scale related to the perpetration of CDA consists of 20 questions (e.g., "I controlled my partner´s or ex-partner´s wall status updates on social networks"), which participants had to rate on a 6-point Likert scale (1 = Never. This has never happened in our relationship, 2 = Not last year, but it used to happen, 3 = Rarely. It has happened 1 or 2 times, 4 = Sometimes. It has happened between 3 and 10 times, 5 = Frequently. It has happened between 11 and 20 times, 6 = Usually. It has happened more than 20 times). The reliability of the scale was adequate, with $\alpha = .73$ for the Direct Aggression Perpetration and $\alpha = .81$ for the Control Perpetration scale (Borrajo et al., 2015).

The survey in the current study was conducted among Dutch-speaking people. This meant that the CDAQ had to be translated into Dutch. The five researchers of this overall study, which are all native Dutch speakers, translated the questions into Dutch. After doing so, we asked five English/Dutch-speaking people to translate the questions back into English to make sure that the meaning of the items was still the same. In the literature, back-translation is known as an established way to create adequate translations (Brislin, 1970). The reliability score for the translated CDAQ scale was good ($\alpha = .83$).

The Short Dark Tetrad scale

The independent variable was measured with the Short Dark Tetrad (SD4) scale (Paulhus et al., 2021). Each dark trait (Machiavellianism, narcissism, psychopathy, and sadism) was measured with 7 items (e.g., narcissism: "People see me as a natural leader." and sadism: "Watching a fist-fight excites me."). Participants had to rate the agreement with each statement on a 5-point Likert scale (1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The reliability scores of the scale were acceptable, $\alpha = .80$ for narcissism, $\alpha = .75$ for Machiavellianism, and $\alpha = .81$ for both psychopathy and sadism (Paulhus et al., 2021).

As mentioned above, the survey in the current study was conducted in Dutch which meant that the SD4 scale had to be translated into Dutch. For this, the same procedure was used as for the CDAQ translation. The reliability scores of the translated Dark Tetrad scale were acceptable, α = .79 for narcissism, α = .71 for Machiavellianism, α = .75 for psychopathy, and α = .77 for sadism. Additionally, all the items of the Dark Tetrad combined also show a good reliability score, α = .89.

Procedure

The survey was carried out using an online questionnaire in Qualtrics. The questionnaire was pre-tested to make sure that the length of the questionnaire was not longer than 15 minutes. During the pre-testing phase, we found out that the participants needed around 25 minutes to fill in all six scales. We were concerned about the drop-out rate, which is why we decided to split the survey into two parts to lower the completion time to 15 minutes.

Convenience sampling was used to select the participants. To create a diverse sample, we asked people on the street (i.e., at train stations, supermarkets, and busy places in the city)

to fill in the questionnaire. Additionally, we distributed a duplicated version of the survey on our social media platforms (i.e., LinkedIn, Instagram, Facebook and Twitter).

First of all, participants needed to give their informed consent to take part in the study. The participants needed to be older than 18 years old to participate. We asked participants if they are in a relationship or if they were in a relationship in the last 12 months. If not, they were excluded from filling in the survey. In the current study, we only recruited participants that were in a dating relationship because they were able to fill in the questions about CDA.

During the pre-test phase, we found out that the length of the survey was not sufficient. This meant that participants were randomly distributed to one of the two parts of the survey. They either saw the items of the Dark Tetrad and the Domestic Violence Myths scale or the items of Porn Consumption, Ambivalence Sexism, Gender Roles, and the Sexual Aggression scale. The 20 questions of the CDAQ were incorporated and answered by the participants.

The last questions, in the survey, collected demographic details including age, gender and educational background. Additionally, the participants were asked to indicate their understanding of the questions in the study on a 7-point Likert scale (1= very difficult to 7= very easy). After filling in all the questions, the participants were taken to a screen where they were debriefed and thanked for filling in the survey.

Data analysis

To test whether the Dark Tetrad traits (i.e., Machiavellianism, psychopathy, narcissism, and sadism) have an association with the perpetration of CDA, multiple linear regression analyses were performed. The Dark Tetrad traits were used as independent variables and the CDA perpetration as the dependent variable. The statistical analysis was carried out using jamovi software.

Results

In the following section, the combining of the data is justified with the use of an Independent Samples T-Test. Furthermore, the hypotheses are tested by performing multiple linear regression analyses. In the additional analyses, the same linear regression model was used but the distinction was made between Direct Aggression and Monitoring/Control perpetration, which are used in the linear regressions as the dependent variables.

Combining the data

As mentioned earlier, participants were recruited by two methods: we asked people on the street (i.e., the community) and via social media. In the dataset, a distinction was made between participants that were recruited in the community ($N = 135$) and the participants that filled in the survey via social media ($N = 79$). In this study, we wish to combine the two methods and include all the participants in the results. However, to do this, it is important to make sure that there are no differences between the two sampling methods. To test this an Independent Samples T-Test was performed. The assumptions were checked, and the homogeneity tests showed no problems. However, most of the normality tests (i.e., Shapiro-Wilk, Kolmogorov-Smirnov and Anderson-Darling) showed non-normality ($p < .001$). With this in mind, more weight should be placed at the 95% confidence interval.

As seen in Table 2, on average, the social media participants ($M = 1.43$, $SD = 0.43$) scored higher on CDA perpetration than the community participants ($M = 1.36$, $SD = 0.38$). However, this difference was not significant ($p = .25$). Participants in the social media condition also scored higher on narcissism ($M = 2.53$, $SD = 0.67$), psychopathy ($M = 1.85$, $SD = 0.60$), and sadism ($M = 2.21$, $SD = 0.66$) than the participants from the community condition. The score for Machiavellianism was for both conditions the same ($M = 2.90$).

Table 2

Means and standard deviations per group

	Group	N	Mean	Median	SD
Cyber Dating Abuse	Community	135	1.36	1.25	0.430
	Social Media	79	1.43	1.35	0.382
Machiavellianism	Community	135	2.90	3.00	0.693
	Social Media	79	2.90	2.86	0.506
Narcissism	Community	135	2.46	2.43	0.718
	Social Media	79	2.53	2.57	0.674
Psychopathy	Community	135	1.84	1.71	0.625
	Social Media	79	1.85	1.71	0.600
Sadism	Community	135	2.10	2.00	0.739
	Social Media	79	2.21	2.14	0.655

Note. Cyber Dating Abuse was measured on a 6-point scale. Machiavellianism, narcissism, psychopathy, and sadism were measured on a 5-point scale.

Even though we can identify some differences in the scores between the two groups, the Independent Samples T-Test showed no significant effects ($p > .005$). Moreover, all the 95% confidence interval scores cross the 0-difference. Table 3 presents the results of the Independent Samples T-Test with the five dependent variables.

Table 3

Independent Samples T-Test

		Statistic	df	*p*	Effect Size
Cyber Dating Abuse	Welch's t	-1.1447	179	.254	-0.15961
Machiavellianism	Welch's t	-0.0568	202	.955	-0.00772
Narcissism	Welch's t	-0.6816	172	.496	-0.09575
Psychopathy	Welch's t	-0.1541	169	.878	-0.02172

		Statistic	df	*p*	Effect Size
Sadism	Welch's t	-1.1292	180	.260	-0.15742

In summary, these results showed that there are no differences between the two different types of sampling methods that are used in this study. With this in mind, it is justified that combining the data from the two different sampling methods will still lead to credible results. Additionally, we asked the participants to rate their understanding of the questions in the survey. 36.9% experienced the questions as easy, 27.1% thought that the questions were average, and a bit easy and very easy both scored 11.7%. Overall, this indicates that people had a good comprehension of the questions in the survey.

Test of hypotheses

To test whether there is an association between Cyber Dating Abuse and the Dark Tetrad, five linear regression models were performed. Regarding the assumptions, the autocorrelation test, collinearity statistics, normality test, residual plots and Cook's distance were checked in each analysis. Most of the assumptions were met, except for the normality tests, which showed significant results in each of the analyses ($p < .005$). Additionally, the Breusch-Pagan heteroskedasticity test showed significant scores ($p < .001$) for both sadism and psychopathy. The other two tests (i.e., Goldfeld-Quandt and Anderson-Darling) showed no significant scores in any of the analyses.

Of the four dark personalities, Machiavellianism ($M = 2.90$, $SD = 0.63$) showed the highest scores, followed by narcissism ($M = 2.49$, $SD = 0.70$), sadism ($M = 2.14$, $SD = 0.71$), and lastly psychopathy ($M = 1.85$, $SD = 0.62$). All the items of the Dark Tetrad combined showed a mean score of 2.34 ($SD = 0.53$). On average, participants had a mean score of 1.39 ($SD = 0.41$) on the perpetration of CDA. The first linear regression analysis showed that CDA can be predicted by all the items of the Dark Tetrad combined, $b = .272$, $\beta = .350$, $t =$

5.43, $p < .001$. The model explains 12.2% of the variance in CDA, $R^2 = 0.122$, F (1, 212) = 29.5, $p < .001$.

In the first hypothesis, it is expected that there will be a positive association between narcissism and the perpetration of Cyber Dating Abuse. The linear regression analysis showed that CDA can be predicted by narcissism, $b = .155$, $\beta = .263$, $t = 3.98$, $p < .001$. The model explains 6.94% of the variance in CDA, $R^2 = 0.0694$, F (1, 212) = 15.8, $p < .001$. With the results of this analysis in mind, we can confirm H1.

The second hypothesis, in this study, states that there is no association between Machiavellianism and the perpetration of Cyber Dating Abuse. The second linear regression analysis showed a positive association between CDA perpetration and Machiavellianism, $b = .157$, $\beta = .240$, $t = 3.59$, $p < .001$. The model explains 5.74% of the variance in CDA, $R^2 = 0.0574$, F (1, 212) = 12.9, $p < .001$. This means that H2 needs to be rejected because the analysis indicates that there is a positive association between Machiavellianism and the Direct Aggression and Control perpetration of Cyber Dating Abuse.

The third and fourth hypotheses both state there will be a positive association between psychopathy and sadism and the perpetration of Cyber Dating Abuse. The linear regression analysis showed that CDA can be predicted by psychopathy, $b = .211$, $\beta = .314$, $t = 4.81$, $p < .001$. The model explains 9.83% of the variance in CDA, $R^2 = 0.0983$, F (1, 212) = 23.1, $p < .001$. The last linear regression analysis showed that CDA can also be predicted by sadism, $b = .178$, $\beta = .305$, $t = 4.66$, $p < .001$. The model explains 9.3% of the variance in CDA, $R^2 = 0.0930$, F (1, 212) = 21.7, $p < .001$. This indicates that both H3 and H4 can be confirmed.

The results showed that psychopathy ($\beta = .314$, $p < .001$) is the most accurate predictor of CDA perpetration followed by sadism ($\beta = .305$, $p < .001$), narcissism ($\beta = .263$, $p < .001$), and lastly Machiavellianism ($\beta = .240$, $p < .001$) Table 4 shows an overview of the results of the five regression analyses.

Table 4

Regression analyses

Predictor	Estimate	SE	95% CI		t	*p*
			Lower	Upper		
Dark Tetrad	.272	.0500	0.173	0.370	5.43	< .001
Narcissism	.155	.0391	0.0783	0.232	3.98	< .001
Machiavellianism	.157	.0438	0.0710	0.244	3.59	< .001
Psychopathy	.211	.0438	0.124	0.297	4.81	< .001
Sadism	.178	.0381	0.103	0.253	4.66	< .001

Taken together, these results suggest that there is a positive association between the Dark Tetrad (i.e., Machiavellianism, psychopathy, narcissism, and sadism) and the perpetration of CDA. With this, H1, H3 and H4 are confirmed. Only H2 needs to be rejected, because contrary to what we thought Machiavellianism also positively predicts CDA.

Additional analyses

The CDAQ scale makes the distinction between Direct Aggression and Monitoring/Control perpetration. In the section above, only the full CDAQ scale was analyzed. With this in mind, it is interesting to look at the possible differences in the effect of those two aspects of CDA and the association with the Dark Tetrad. Thus, it was decided to perform an extra set of linear regression analyses to look at the possible effect of these two aspects of the CDAQ scale. In each analysis, one of Dark Tetrad traits (i.e., Machiavellianism, psychopathy, narcissism, and sadism) was incorporated as the independent variable and either the Direct Aggression or the Monitoring/Control perpetration scale as the dependent variable. In line with the previous linear regressions, there were some problems regarding the assumptions. The autocorrelation test, collinearity statistics, and Cook's

distance all showed acceptable scores. However, some of the normality tests and heteroskedasticity tests indicated some problems. Especially, for the analyses with psychopathy and sadism as the independent variable.

First, we will look at the results of the direct aggression scale, which showed a good reliability score ($\alpha = .70$). The analysis indicates that all four personalities in the Dark Tetrad are positively related to the direct aggression aspect of CDA perpetration. The results showed that psychopathy ($\beta = .347$, $p = .001$) is the most accurate predictor of direct aggression perpetration of CDA followed by sadism ($\beta = .313$, $p < .001$), narcissism ($\beta = .282$, $p < .001$) and lastly Machiavellianism ($\beta = .218$, $p < .001$). Besides the four individual dark traits, the full Dark Tetrad scale also showed a positive significant effect ($\beta = .362$, $p < .001$). Tables 5 and 6 show an overview of the results of the five regression analyses.

Table 5

Model Fit Measures Direct Aggression scale

Model	R	R²	Overall Model Test			
			F	df1	df2	p
Dark Tetrad	.362	.131	31.9	1	212	< .001
Narcissism	.282	.0796	18.3	1	212	< .001
Machiavellianism	.218	.0474	10.5	1	212	0.001
Psychopathy	.347	.120	29.0	1	212	< .001
Sadism	.313	.0977	23.0	1	212	< .001

Table 6

Regression analyses Direct Aggression scale

Predictor	Estimate	SE	95% CI		t	p
			Lower	Upper		
Dark Tetrad	.301	.0533	0.196	0.406	5.65	< .001
Narcissism	.178	.0416	0.0962	0.260	4.28	< .001
Machiavellianism	.153	.0472	0.0602	0.246	3.25	0.001
Psychopathy	.250	.0464	0.158	0.341	5.38	< .001
Sadism	.195	.0407	0.115	0.276	4.79	< .001

Second, there are similar results for the Monitoring/Control scale, which had an acceptable reliability score (α = .63). The only difference was that both psychopathy (β = .264, p < .001) and sadism (β = .264, p < .001) seemed to be the most accurate predictors of the monitoring and control perpetration of CDA. Narcissism (β = .233, p < .001) and Machiavellianism (β = .227, p < .001) follow. Additionally, the full Dark Tetrad scale also indicates a positive significant effect (β = .308, p < .001). Tables 7 and 8 show an overview of the results of the five regression analyses.

Table 7

Model Fit Measures Monitoring/Control scale

Model	R	R²	Overall Model Test			
			F	df1	df2	p
Dark Tetrad	.308	.0948	22.2	1	212	< .001
Narcissism	.233	.0541	12.1	1	212	< .001
Machiavellianism	.227	.0513	11.5	1	212	< .001
Psychopathy	.264	.0697	15.9	1	212	< .001

Model Fit Measures Monitoring/Control scale

			Overall Model Test			
Model	R	R²	F	df1	df2	p
Sadism	.264	.0699	15.9	1	212	< .001

Table 8

Regression analyses Monitoring/Control scale

			95% CI			
Predictor	Estimate	SE	Lower	Upper	t	p
Dark Tetrad	.236	.0501	0.137	0.335	4.71	< .001
Narcissism	.135	.0389	0.0588	0.212	3.48	< .001
Machiavellianism	.147	.0434	0.0614	0.232	3.39	< .001
Psychopathy	.175	.0440	0.0886	0.262	3.99	< .001
Sadism	.152	.0381	0.0771	0.227	3.99	< .001

All the results for each Dark Tetrad trait in combination with the CDA scales can be seen in Figure 1. The inclusion of the control variables (i.e., gender, age, and educational background) in the linear regression analyses did not lead to substantial changes in the results. All the scores remained significant ($p < .001$) and there were no large changes in the R-squared.

Figure 1

Standardized estimates of the Dark Tetrad traits and CDA
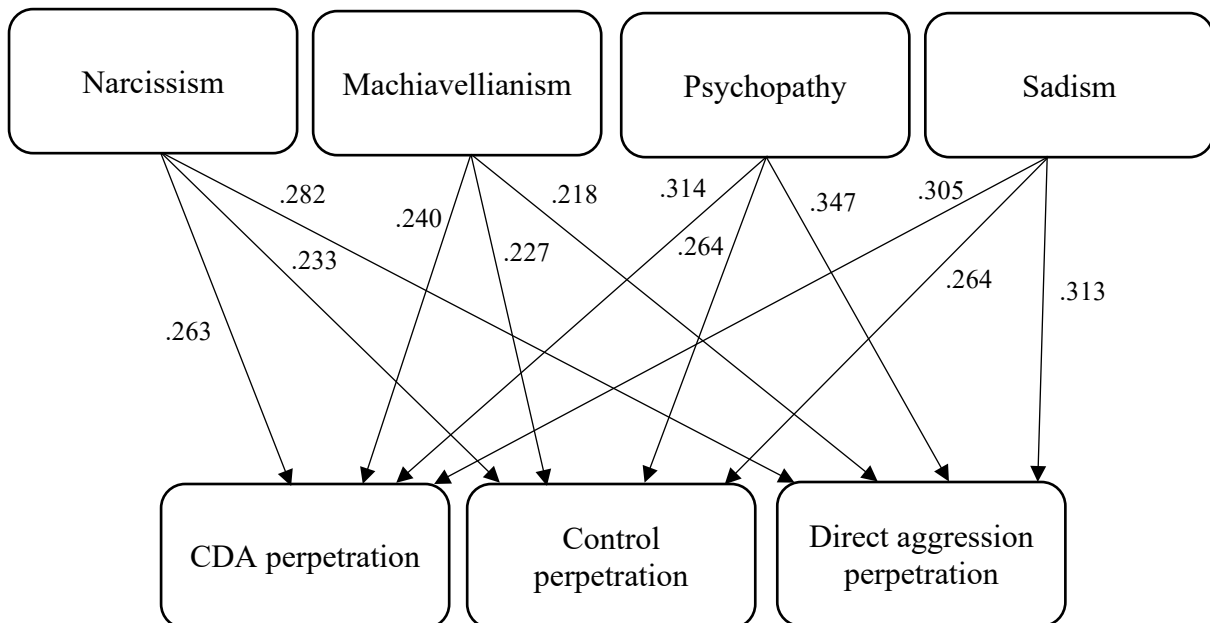
Discussion

The purpose of the current study was to determine whether there is an association between the Dark Tetrad (i.e., Machiavellianism, psychopathy, narcissism, and sadism) and the perpetration of CDA. The current study found a positive association between all the dark personality traits in the Dark Tetrad and the perpetration of CDA. As mentioned in the literature review, it was expected that narcissism, psychopathy, and sadism would have a positive association with the perpetration of CDA. This indicates that people who score higher on these personality traits are more likely to perpetrate CDA. These results are in line with those of previous literature. Contrary to expectations, this study also found a significant positive association between Machiavellianism and the perpetration of CDA.

First of all, this study found psychopathy to be the most accurate predictor of CDA perpetration. The positive connection between psychopathy and CDA perpetration is in line with other research (Branson & March, 2021; Pineda et al., 2021). Additionally, if we look at the results of the additional analyses it can be seen that psychopaths score high on the direct aggression facet of CDA. The results further support the idea that the aggressive and manipulative side of psychopaths is related to the direct aggression perpetration of CDA. Examples of those types of behaviors are sending messages that contain threats or spreading embarrassing photos or videos of a dating partner (Borrajo, Gámez-Guadix, & Calvete, 2015). Overall, the results suggest that people who score high on psychopathy are more likely to perpetrate CDA because of their aggressive and manipulative side.

Secondly, another important finding was that narcissism also showed a positive association with CDA perpetration. Even though the literature regarding the connection between CDA and narcissism was inconsistent in its finding, it was hypothesized that there would be a positive association between narcissism and CDA perpetration. The results of the analyses in this study are consistent with those of Pineda et al. (2021), who also found a

positive connection between narcissism and both the Direct Aggression and Monitoring/control perpetration of CDA. Nonetheless, in contrast to the findings of Pineda et al. (2021), in this study narcissists did not score higher on the monitoring and control part of CDA perpetration in comparison to direct aggression. There could be differences between the sample in the current study and the study by Pineda et al. (2021), which may possibly cause differences in the results. More regarding this will be discussed below. The higher score for the direct aggression aspect of narcissists in this study makes sense and may improve on the findings by Pineda et al. (2021) when we consider the compromising of grandiosity. As stated before, narcissists are likely to use direct aggression when their grandiosity is compromised (Jones & Paulhus, 2010). It may be that narcissists who are in a relationship experience this, which means that they will react aggressively.

Thirdly, this was the second study that found a positive connection between sadism and the perpetration of CDA. This most recently added construct to the Dark Tetrad in combination with CDA perpetration is only researched by Pineda et al. (2021), who found a significant positive relationship between sadism and CDA perpetration. In the current study, the same results were found. More specifically, sadism is the second-best predictor of CDA perpetration. It is interesting to find out that the characteristics of sadists (i.e., callousness and enjoyment of suffering) are very well associated with CDA behavior. This can to some extent be explained by the fact that certain CDA behaviors (e.g., insulting or humiliating a partner or spreading secrets or rumors about a partner) are in line with the enjoyment of suffering that sadist's experience.

Lastly, in contrast to what was expected in the literature review, Machiavellianism also showed a positive association with the perpetration of CDA. Based on the characteristics of Machiavellians and previous studies focusing on this personality trait and the victimization and preparation of CDA, it was hypothesized that Machiavellianism would not have an

association with the perpetration of CDA. However, the analyses in this study showed a positive association between Machiavellianism and CDA perpetration. A possible explanation for this might be that a study indicates that female Machiavellians show more controlling behavior and emotional abuse in a relationship (Brewer & Abell, 2017). This is in line with the finding in the current study which showed that Machiavellians score higher on the Monitoring/control facet of CDA perpetration.

However, it is important to note that in all the analyses Machiavellianism is the least accurate predictor of CDA perpetration. This indicates that, even though Machiavellianism is a predictor of the perpetration of CDA, in comparison to the other dark personality traits Machiavellianism shows a weaker association. The characteristics of a Machiavellian can be associated with those of a CDA perpetrator, but the other dark personality traits (narcissism, psychopathy, and sadism) explain it better. As stated earlier, a possible explanation for this can be that the manipulative side of Machiavellians causes under-reporting of CDA perpetration (Bhogal & Wallace, 2021).

Implications

Theoretical

The current study has shown that there is a positive association between the Dark Tetrad and the perpetration of CDA. The goal of this study was to build further on the existing literature and the only study by Pineda et al. (2021) that also focuses on the Dark Tetrad and CDA. In doing so, with the current study, we made sure that the findings in the study by Pineda et al. (2021) were accurate. With the study of Pineda et al. (2021) as a guide, we found similar results in the current study that will help to enlarge our understanding regarding the perpetration of CDA. Before this study, there was only evidence that psychopathy, narcissism, and sadism were positively associated with CDA perpetration.

Surprisingly, in the current study, it was found that Machiavellianism is also positively associated with the perpetration of CDA.

Overall, this study strengthens the idea that people with dark personalities are more likely to show control and aggression in an online dating context. Additionally, this study is the first to find support for the positive association between Machiavellianism and the Direct Aggression and Monitoring/control perpetration of CDA. Moreover, we are the second study that found strong support for the positive association between sadism, the most recently added construct of the Dark Tetrad, and the perpetration of CDA.

This study enlarged our knowledge regarding the perpetration of CDA by examining certain personality traits as possible predictors of CDA perpetration. Earlier research focused more on behavior or other types of psychological violence and CDA perpetration. The combination of the dark personalities in the Dark Tetrad and CDA perpetration, however, provides more insights into the characteristics of the person who is a CDA perpetrator.

Practical

The findings have important implications for developing prevention and intervention plans to further minimize the negative effects of CDA in society. With the results from this study, our knowledge regarding the people behind CDA perpetration has grown. The fact that people with dark personalities (i.e., Machiavellians, psychopaths, narcissists, and sadists) are more likely to be perpetrators of direct aggression and control in CDA makes it easier to identify them and act appropriately. Social workers, psychologists and relationship therapists can use this information to help and understand people that are either victims or perpetrators of CDA.

In more detail, a psychologist or therapist is likely to adjust a treatment plan based on the personality traits of the patient. With this in mind, professionals can use the information that someone who scores higher on a personality trait in the Dark Tetrad is more likely to

perpetrate CDA. Moreover, for example, if someone is diagnosed with a Narcissistic Personality Disorder it is important to look at the behavior of this person in the online dating context because the current study shows a positive connection between narcissism and the perpetration of CDA.

Limitations and future research

Although we found some interesting results in this study there are some limitations to take into consideration. In the current study, it was decided to only focus on the perpetration part of CDA, in contrast to Pineda et al. (2021) which also incorporated victimization. When the same instrument is being used to measure both victimization and perpetration this may lead to under-reporting because of social desirability. With this in mind, the current study only focused on the perpetration part of CDA, However, it is still possible that participants have hidden their dark personality traits and their CDA perpetration. For example, the manipulative characteristic of Machiavellians may cause them to under-report the perpetration of CDA (Bhogal & Wallace, 2021). This may indicate that the measure that was used in this study, a quantitative survey, may have been a weakness. Future research can explore different measures.

There are important limitations to note regarding the sample in the current study. First, more than half of the participants in the current study identify themselves as women (65%), which indicates a gender imbalance. Second, because of the small sample of only Dutch-speaking people that was used in the study, it may not be possible to generalize the findings. For example, a similar study by Pineda et al. (2021) consisted of a sample with 1189 participants. However, this study also struggled with an even larger gender imbalance (261 men, 928 women). Lastly, regarding the recruitment of the participants, we recruited participants via our own social media channels and in doing so they were not completely random. Moreover, the recruitment of participants on the street also could have led to biases.

However, the analysis in the current study indicates that there were no significant differences in the mean scores of the two different sampling methods. For future researchers, it is recommended to take the time to generate a larger and more diverse sample, which was unfortunately in the current study not possible due to certain deadlines.

In the survey, we included a question to check the attention level of the participants. This question was randomly presented in the survey to the participants and stated the following: "I like having people around me. Select 'totally disagree' to show that you are reading this question carefully.". Most of the participants (84%) answered this question correctly. Yet, looking back we believe that this question was too difficult and confusing. Thus, it was decided to not exclude the participants who failed to answer the attention check correctly. In future research, it would be advised to use an attention check with an understandable question to make sure that only the participants who are answering the questions with their undivided attention are included in the results.

Lastly, there were some problems regarding the assumptions in the current study (i.e., normality and heteroskedasticity). In the first analysis, the Independent Samples T-Test showed problems regarding normality. However, this did not led to serious issues. In the test of the hypotheses and the additional analyses, we indicated some problems with normality and heteroskedasticity. Specifically, in the analyses with psychopathy and sadism as the independent variable. The generalizability of the results from the current study is subject to this limitation.

Future studies should replicate this study to make sure that the findings are generalizable. Additionally, it may be interesting to find out why people with dark personalities are more likely to perpetrate CDA. As mentioned earlier, research indicates that for example, higher normative beliefs about aggression is a known meditator between dark traits and cyberbullying (Ang et al., 2010). Further research should be carried out to establish

possible mediators of the existing association between the Dark Tetrad and CDA perpetration. Moreover, it could be interesting to look at national culture as research indicates that social expectations may influence the measurement of the Dark Tetrad across different cultures (Blötner et al., 2022).

Conclusion

The goal of the current study was to determine whether there is an association between the Dark Tetrad (narcissism, Machiavellianism, psychopathy, sadism) and the perpetration of Cyber Dating Abuse. The results of this quantitative survey study showed that all the Dark Tetrad traits are positively associated with the perpetration of CDA. Even though it was thought that Machiavellianism would not be associated with CDA perpetration, the results indicate a positive association. This implies that people that score higher on a dark personality trait are more likely to perpetrate CDA. Psychopathy seems to be the best-related dark trait regarding the perpetration of CDA, psychopaths especially score high on the direct aggression facet of CDA. Machiavellians showed the lowest scores. The findings of this study have created more understanding regarding the online monitoring and direct aggression perpetration of partners in a relationship. Future research should be carried out to further establish why people with dark personalities are more likely to perpetrate CDA. The current study adds to the limited amount of research that focuses on the association between the Dark Tetrad and CDA perpetration.

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Appendix

Appendix A

Cyber Dating Abuse Questionnaire

Original English item	Dutch translation
1. I controlled my partner´s or ex-partner´s wall status updates on social networks.	Ik heb mijn partner's of ex-partner's timeline gecontroleerd op status updates op sociale netwerken.
2. I have threatened to physically hurt my partner or former partner with new technologies.	Ik heb gedreigd om mijn partner of ex fysiek pijn te doen via nieuwe technologieën.
3. I created a fake profile of my partner or a former partner on a social network to cause problems.	Ik heb een nepprofiel van mijn partner of ex-partner gecreëerd op een sociaal netwerk om problemen te veroorzaken.
4. I wrote a comment on a wall of a social network to insult or humiliate my partner or former partner.	Ik heb een opmerking op de timeline van een sociaal netwerk geschreven om mijn partner of ex-partner te beledigen of vernederen
5. I used passwords (phone, social networking, email) of my partner or a former partner to browse their messages and / or contacts without his/her permission.	Mijn partner of ex-partner heeft mijn wachtwoorden (telefoon, sociale netwerken, e-mail) gebruikt om zonder toestemming door mijn berichten en/of contacten te bladeren.
6. I have spread secrets and / or compromising information about my partner or ex-partner using new technologies.	Mijn partner of voormalige partner heeft geheimen en/of persoonlijke informatie over mij verspreid door het gebruik van nieuwe technologieën.
7. I checked the time of my partner's or ex-partner's last connection to mobile applications.	Mijn partner of voormalige partner heeft de tijd van mijn laatste verbinding met mobiele applicaties gecontroleerd.
8. I have threatened to disseminate secrets or compromising information about my partner or former partner using new technologies.	Mijn partner of voormalige partner heeft gedreigd met het verspreiden van geheimen of persoonlijke informatie door het gebruik van nieuwe technologieën.
9. I have used new technologies to pretend to be my partner or former partner and cause problems.	Ik heb nieuwe technologieën gebruikt om mijzelf voor te doen als mijn partner of ex-partner om problemen te veroorzaken.
10. I sent insulting and/or humiliating messages to my partner or former partner using new technologies.	Ik stuur beledigende en/of gênante berichten naar mijn partner of voormalige via nieuwe technologieën.

English	Dutch
11. I have reviewed my partner's social networks, WhatsApp or email without his/her permission.	Ik heb mijn partner's social media kanalen, zoals WhatsApp of email, gecheckt zonder zijn/haar toestemming.
12. I have sent and / or posted photos, images and / or videos of sexual content of my partner or former partner to other people without his/her permission.	Ik heb foto's, afbeeldingen en/of video's met intieme of seksuele inhoud van mijn partner of voormalige partner zonder zijn/haar toestemming verstuurd of geplaatst.
13. I have used new technologies to control where my partner or ex-partner has been and with whom.	Ik heb nieuwe technologieën gebruikt om te controleren waar mijn partner of ex-partner is geweest en met wie.
14. I have threatened to answer my calls or messages immediately using new technologies.	Ik heb gedreigd mijn oproepen of berichten onmiddellijk te beantwoorden met behulp van nieuwe technologieën.
15. I have pretended to be another person using new technologies to test my partner or ex-partner.	Ik heb mij voorgedaan als een ander persoon met behulp van nieuwe technologieën om mijn partner of ex-partner te testen.
16. I have posted music, poems, phrases ... in reference to my partner or former partner in status updates on my social network with intent to insult or humiliate.	Ik heb muziek, gedichten, zinnen ... in verwijzing naar mijn partner of voormalige partner in statusupdates op mijn sociale netwerk geplaatst met de bedoeling hem te beledigen of te vernederen.
17. I have reviewed the mobile phone of a partner or ex-partner without his/her permission.	Ik heb wel eens in de telefoon van mijn partner of ex-partner gekeken zonder zijn of haar toestemming.
18. I have spread rumors, gossip and / or jokes about my partner or former partner using new technologies with the intent to ridicule.	Ik heb wel eens met gebruik van nieuwe technologieën geruchten, roddels en/of grappen over mijn partner of vroegere partner verspreidt met opzet tot spot.
19. I called my partner or former partner excessively to control where he / she was and with whom.	Mijn partner of vroegere partner belde me overdreven veel om me te controleren waar hij/zij was en met wie.
20. I have controlled my partner´s or former partner´s friendships on social networks.	Ik heb de vriendschappen van mijn partner of vroegere partner gecontroleerd op sociale netwerken.

Short Dark Tetrad

Original English item	Dutch translation
<u>Identity 1: "Crafty"</u>	
1. It's not wise to let people know your secrets.	Het is niet verstandig om je geheimen te vertellen.
2. Whatever it takes, you must get the important people on your side.	Koste wat het kost, moet je de belangrijke mensen aan jouw kant krijgen.
3. Avoid direct conflict with others because they may be useful in the future.	Vermijd directe conflicten met anderen, omdat ze in de toekomst nog van pas kunnen komen.
4. Keep a low profile if you want to get your way.	Hou je afzijdig als je ergens mee weg wilt komen.
5. Manipulating the situation takes planning.	Het manipuleren van een situatie vereist planning.
6. Flattery is a good way to get people on your side.	Vleierij is een goede manier om mensen aan jouw kant te krijgen.
7. I love it when a tricky plan succeeds.	Ik hou ervan als een lastig plan succesvol is.
<u>Identity 2: "Special"</u>	
1. People see me as a natural leader.	Mensen zien mij als een natuurlijke leider.
2. I have a unique talent for persuading people.	Ik heb het unieke talent om mensen over te halen.
3. Group activities tend to be dull without me.	Veel groepsactiviteiten zijn saai zonder mij.
4. I know that I am special because people keep telling me so.	Ik weet dat ik speciaal ben, omdat iedereen het mij blijft vertellen.
5. I have some exceptional qualities	Ik heb enkele exceptionele kwaliteiten.
6. I'm likely to become a future star in some area.	Ik word waarschijnlijk een toekomstige super ster op een bepaald gebied.
7. I like to show off every now and then.	Ik hou ervan om af en toe te pronken.
<u>Identity 3: "Wild"</u>	
1. People often say I'm out of control.	Mensen zeggen vaak dat ik onbeheerst ben.
2. I tend to fight against authorities and their rules.	Ik vecht tegen de autoriteiten en hun regels.

3. I've been in more fights than most people of my age and gender.	Ik ben in meer gevechten geweest dan andere mensen van mijn leeftijd en geslacht.
4. I tend to dive in, then ask questions later.	Ik doe iets en daarna pas stel ik vragen.
5. I've been in trouble with the law.	Ik heb problemen gehad met de wet.
6. I sometimes get into dangerous situations.	Soms kom ik in gevaarlijke situaties terecht.
7. People who mess with me always regret it.	Mensen die met me sollen krijgen daar altijd spijt van.
Identity 4: "Mean"	
1. Watching a fist-fight excites me.	Het kijken van een gevecht windt me op.
2. I really enjoy violent films and video games.	Ik vind gewelddadige films en video games leuk.
3. It's funny when idiots fall flat on their face.	Het is grappig als idioten onderuit gaan.
4. I enjoy watching violent sports.	Ik kijk graag naar agressieve sporten.
5. Some people deserve to suffer.	Sommige mensen verdienen het om te lijden.
6. Just for kicks, I've said mean things on social media.	Gewoon voor de kick, heb ik weleens gemene dingen gezegd op social media.
7. I know how to hurt someone with words alone.	Ik weet hoe ik anderen kan kwetsen met alleen woorden.