**Chapter 4:**

**Dark tetrad, cyberaggression, and cyberbullying**

**Terminology and review of the concepts**

**Cyberaggression as the higher-level construct** Cyberaggression is 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" (Grigg, 2010, p. 152). Grigg proposes that behaviors using mobile phones or the Internet to conduct bullying, harassment, stalking, abuse, assault, or hostility, as well as violent behaviors such as 'happy slapping,' 'outing,' and 'flaming,' be classified under the term 'cyber-aggression.' According to this definition, it is also possible to include bystander roles in a cyber-aggressive environment (e.g., in cases of 'happy slapping') as part of the construct of cyberaggression.

Cyber aggression is an umbrella term given to socially undesirable online behaviors that encompasses behaviors such as cyber harassment, cyberbullying, and other forms of online aggression (Grigg, 2010; Pyzalski, 2012; Brown, Hazraty & Palasinski, 2019). Cyberaggression is a broader construct than cyberbullying in that cyberbullying involves repetitive behavior and a power differential, whereas cyberaggression is not defined by these criteria. Thus, studies involving cyberbullying are relevant to cyber aggression but may need to assess the full scope of the broader cyber aggression construct (Nocera et al., 2022). Cyberaggression is a derivative form of traditional aggression. Cyber aggressive behavior is a new form of aggressive behavior resulting from the development of the Internet, which involves using the Internet and mobile phones to harm others intentionally (Zhang & Zhao, 2020).

Throughout this book, the overarching term cyberaggression will refer to any act of violence that falls under this general definition. According to Grigg (2010), it is acknowledged that the field of cyberbullying is relatively new; as such, research within this area must propose a broader concept that embraces the negative behaviors of internet and mobile phone users without current cyberbullying definitional and conceptual issues. 'Cyberaggression' describes broad negative behaviors that may occur when people are using the Internet. This term includes both repeated and unrepeated acts that are likely to cause harm to the intended recipient(s) of message(s). However, because many studies refer to cyberbullying, rather than cyberaggression, this book will address the concept of cyberbullying in a specific section. It should be noted, however, that there will be some overlap between the concepts of cyberbullying and cyberaggression.

Before focusing on cyber aggression and its dimensions as the primary constructs discussed in this chapter, some characteristics of aggressive behavior need to be described. Björkqvist, Lagerspetz, and Kaukialnen’s (1992) theory posits that aggressive behavior does not decrease over time; instead, individuals engage in different types of aggressive behavior dependent upon their abilities. This theory was refined to suggest that individuals engage in a risk/benefit analysis, such that they engage in aggressive behaviors that provide a high level of benefits (e.g., distress of a target) at relatively low risk (e.g., social exclusion or physical harm). For individuals that can accurately read social situations, this means a movement towards more covert/indirect (e.g., manipulating an individual to ‘explode,’ causing them to lose face in front of their peers) or relational (e.g., spreading gossip or otherwise attacking another’s social relationships) forms of aggression. The age of an individual, their gender, their experience with specific types of aggressive behavior, and their personality traits (e.g., the dark tetrad, described later) may play essential roles in determining that individual's abilities and, thus, the type of aggressive behavior they engage in.

Several features of cyber aggression distinguish it from overt and relational forms of aggression implemented without electronic assistance. First, one of the essential aspects is the lack of non-verbal cues in online communication. This has been the focus of the cues-filtered-out theories that generally regard communication via computers as less 'rich' as it does not allow for all contextual information (i.e., non-verbal cues) to be transmitted similarly to face-to-face interactions. Consequently, perpetrators of bullying could be less aware of the effect of their behavior on their victim when bullying online instead of offline, which might further reinforce cyberbullying behavior (Vranjes et al., 2017).

Second, whereas the perpetrator is usually known in traditional bullying, online communication offers many opportunities for the perpetrator to stay anonymous. This is problematic because it hinders the targets of negative behavior from acting against their abusers. It also limits the target's feeling of control over the situation, making this bullying uniquely harmful. Additionally, given that a perpetrator of cyberbullying can stay anonymous, there must be some indications in the hostile acts themselves that the bullying arose in the work context. These indications may include the nature of the harmful acts (e.g., making someone’s work impossible), the context of the acts (e.g., via the workplace intranet), or the information disclosed (e.g., the perpetrator refers to work-related issues). Technology allows some aggressors to remain anonymous, facilitating aggression by reducing accountability. However, aggressors who do not conceal their identities may still benefit from a degree of "invisibility" that comes with indirect forms of aggression, primarily when delivered via online platforms (i.e., the perpetrator not being personally known to the victim, deletion of aggressive comments) (Nocera et al., 2022; Vranjes et al., 2017).

Another important aspect of online communication is its intrusive nature*.* Victims of traditional bullying can usually escape bullying from colleagues, supervisors, subordinates, or others related to the work context (e.g., clients) while at home. However, online communication allows the transgression of the private/public boundary: individuals can communicate everywhere (i.e., at home as well as at work) and at any time (i.e., during and after work hours). Because of this, it may be much harder for the victims of cyberbullying to escape this behavior. Furthermore, the online environment allows violators to access private information previously unattainable in face-to-face interaction. In support of the previous arguments, the aspects of pervasiveness and boundarylessness, which relate to behaviors invading someone's personal life and making individuals feel pursued, are reoccurring themes in people's experience of cyberbullying at work (Vranjes et al., 2017).

Vranjes et al. (2017) argue that the nature of negative behavior differentiates acts that require repetition from the ones that do not. Intrusion (i.e., transgression of the private/public boundary) is an essential distinctive factor of cyberbullying. According to Vranjes et al. (2017), to meet the one-time requirement, negative behavior has to pose an intrusion into one's private life (e.g., hacking, identity theft, posting private photos or videos online). With this behavior, individuals' private space becomes invaded, making them feel pursued and unable to escape.

Also, a power imbalance (social, psychological, or physical) between the target and the perpetrator is a defining characteristic of bullying. However, the aspect of power imbalance changes meaning online. 'Power' in the online context can be argued to stem from technological opportunities (i.e., availability of online content or characteristics of computer-mediated communication such as anonymity), allowing individuals low in power in a physical context to be still perpetrators of cyberbullying in the online environment (Vranjes et al., 2017)

In addition, bullying and cyberbullying can be aimed directly (e.g., insults) and indirectly (e.g., gossiping) at the victim. However, compared to traditional bullying, indirect cyberbullying behavior has the potential to reach a much larger audience. This relates to the viral reach of a negative cyber-act: the volume of online or offline message viewing, sharing, and forwarding by Internet users. Other vital features of cyber aggression involve the increased accessibility of the victim to the perpetrator and the potential for a larger audience than is typical in traditional bullying. In addition, victims of cyber aggression may never feel safe from perpetrators who can aggress at any time from any location and who can publicize their attacks (Vranjes et al., 2017; Nocera et al., 2022).

Finally, private information that was never meant for the public eye can subsequently become exposed to and consulted by a broad online audience. This invasion, together with the constant threat of public exposure—or its actualization—makes this kind of activity incredibly distressing, even after a single occurrence. Furthermore, if made public, the negative behavior which was only committed once from the perspective of the perpetrator can be repeated by others who can frequently access, view, share and repost this information (Vranjes et al., 2017).

**Cyberbullying and cyber harassment**

As argued in the previous section cyberbullying and cyber harassment are subdimensions of cyberaggression. According to Slonje and Smith (2008), bullying is a form of abuse based on an imbalance of power. It can be defined as an aggressive, intentional act or behavior conducted by a group or an individual repeatedly and over time against a victim who cannot easily defend him or herself. Researchers distinguish several main types of bullying. The most common categories are physical, verbal, indirect, and relational. Physical aggression includes hitting, kicking, punching, and taking or damaging belongings; attacks on property might be considered separately. Verbal aggression includes teasing, taunting, and threatening. Both these are usually direct and face‐to‐face types of aggression. During the 1990s, the scope of aggression broadened to include indirect aggression (carried out via a third party), relational aggression (aimed at damaging someone's peer relationships), or similar social aggression (done to damage self‐esteem and/or social status). Most researchers now consider indirect aggression, such as spreading nasty stories, and relational/social aggression or social exclusion, such as telling others not to play with someone, as forms of bullying (Slonje & Smith, 2008). Bullying is also a pervasive problem among children and adolescents. It may take various forms, including physical (e.g., hitting), verbal (e.g., name-calling), relational (e.g., social isolation), or cyber, which occurs in cyberspace (Wang, Nansel, & Iannotti, 2011).

However, in recent years a new form of bullying has emerged, labeled "cyberbullying," in which the aggression occurs through modern technological devices, specifically mobile phones or the Internet. Cyberbullying is commonly defined as the repeated use of technology to harass and cause distress to others (March, 2022). The explanation of cyberbullying is derived from the term bullying by adding 'electronic forms of conduct' to its definition. Though some researchers argue whether cyberbullying is the 'same wine' in an old bottle, studies have shown that bullying and cyberbullying differ. The main differences between the two types of bullying are anonymity, publicity, the connection between bully and victim, and the time and space limits. Since publicity and anonymity worsen the effect of bullying, cyberbullying can be considered a more severe form of bullying (Ildirim, 2021).

Research on this topic is still at an early stage; the phenomenon of cyberbullying only appeared in recent years, as the use of electronic devices such as computers and mobile phones has increased (Slonje & Smith, 2008). Cyberbullying refers to repetitive, intentional, and harmful online behaviors demonstrated against weaker ones (Patchin & Hinduja, 2015; March, 2022; Kircaburun, Jonason & Griffiths, 2018b; Charalampous et al., 2021). There is a range of reasons why someone might perpetrate cyberbullying behaviors, including revenge, jealousy, boredom, and seeking approval. In addition, Cyberbullying may include flaming (a brief online fight using profanities and hostile languages), harassing (repeatedly sending offensive messages to someone), slandering (spreading malicious rumors), masquerading (pretending to be someone else), and exclusion (intentionally excluding a person from an online group) (March, 2022; Balakrishnan et al., 2019). Due to the highly detrimental psychological, physical, and emotional consequences of cyberbullying, much research has explored its predictors to manage and prevent cyberbullying (March, 2022).

Online harassment, another behavior mentioned in the literature, consists of offensive behaviors conducted through electronic media to harm and embarrass another person intentionally. Online harassment behavior is seen as a form of verbal or sexual aggression. In addition, victims also experience cyberstalking, receiving inappropriate and/or pornographic messages, as well as threatening messages. Online harassment differs from cyberbullying in that most harassment incidents are not repetitive; they only happen once. Even though the terms are used interchangeably, statistics show that the number of people suffering from cyber bullying and/or online harassment increases daily. In addition, researchers have found that many youths are victims of both traditional bullying and cyberbullying. There is growing literature on the causes and effects of cyberbullying. Personality is among the factors related to cyberbullying and online harassment (Ildirim, 2021). This will be elaborated on in later sections.

**Cyberbullying**

The following section will focus on cyberbullying because this specific behavioral construct generally attracts most of the attention, particularly with respect to its relationship to dark personalities. Social media bullying has been defined as any bullying that occurs over digital devices, including cell phones, computers, and tablets. These instances of bullying can occur through SMS, text, social media platforms, and other forums. Social media bullies often send posts or share harmful content about another individual. The shared information is often personal and private, meant to cause embarrassment or humiliation to the target. Social media bullying includes repeated threats and attacks toward a target intended to cause harm to the target, including physical or mental abuse. The U.S. Department of Health and Human Services (2017) concluded that, unlike traditional bullying, cyber and social media bullying usually comprises mental torture rather than physical threats. The fact that a perpetrator can constantly attack the target at any time makes the issue of cyber or social media bullying a severe issue. This form of bullying can have a lasting effect on the target. It may create a permanent, negative online record that may be accessible to and misunderstood by schools, employers, and colleagues. The target is often an individual who has been identified as a threat in a manner unique to the perpetrator's perception (Herron, 2021).

Cyberbullying includes characteristics such as repetition, intention, harm, and power imbalance, but perpetrated in a digital context. It is an intentional act to incur injury or damage over time by using computers, cell phones, and other electronic devices against others who cannot prevent or stop this behavior. In addition, the invisibility of the aggressor, the increased potential of the number of spectators, and the lack of "safe spaces" for the victim could be significant problems of cyberbullying. Thus, the perpetrator remains anonymous and unaccountable and could post messages to a large audience without socially visible consequences. Therefore, cyberbullying offers an ideal forum to harass others, taking advantage of the feeling of impunity (Sánchez-Medina, Galván-Sánchez & Fernández-Monroy, 2020).

The literature provides us with several more definitions of cyberbullying in addition to those mentioned previously. These definitions reflect the variety of perspectives on cyberbullying and can lead to a better understanding of this behavior. Giumetti et al. (2012) defined cyberbullying as rude/discourteous behaviors occurring through Information and Communication Technologies. Smith and his colleagues (2008, 376) defined it as "An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself." Safaria et al. (2020) defined cyberbullying as repeated deliberate actions to insult, hurt, and humiliate others through the internet media. Smith et al. (2008, p. 376) defined it as 'an aggressive intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself. Smith & Slonje (2012) considered cyberbullying as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith & Slonje, 2012, p. 249).

According to Vyawahare and Chatterjee (2020), Cyberbullying can be of two types: direct or indirect cyberbullying. Direct cyberbullying involves only two people, the bully, and the victim, whereas, in indirect cyberbullying, a group of people can get involved. An excellent example of indirect cyberbullying is a post on social media to make fun of someone, and many people comment on it and share it. As for direct cyberbullying, recent literature suggests a need to focus on the victim's perspective and the bully's perspective (Kallis & Meluch, 2021; Alipan, et al., 2015). According to this view, the bully uses information and communication technology to target one or more people directly or indirectly, whereby (1) the bully's goal is to harm the victim intentionally. Repetition can also help establish intentionality and cyberbullying, in which the bully continuously conducts a harmful behavior towards the same victim; (2) the behavior is perceived as intentional and harmful as defined by a victim. A one-off attack can also be considered cyberbullying as the negative impact on the victim may be just as severe as frequent attacks; and (3) a bystander observes that behavior has negatively affected another person or that such behavior would likely negatively affect the bystander if directed toward him or her. A bystander may also perceive the behavior alone as intentional and aggressive. (p. 12)

Indirect cyberbullying has a significant and more dangerous impact. More specifically, this form of cyberbullying often involves multiple parties, the most prominent being the bullies, victims, bully-victims, and bystanders. Bullies perpetrate a bullying incident; victims are bullied, and bystanders witness a bullying/victimization incident online. Bully-victims are the result of a vicious cycle in which a victim turns into a bully and vice-versa. There is a consensus across studies that cyberbullies have a profile of being aggressive, manipulative, and exploitative, whereas victims often have low self-esteem. In addition, some studies differentiate between bullies and aggressors, whereby the latter refers to someone who engages in an offensive behavior once (Balakrishnan et al., 2019).

According to Scott et al. (2020), although much of this abuse can include private communication between the perpetrator(s) and victim, it also often manifests in the publicly visible online record (e.g., Facebook timeline or Twitter page). Out of all the social media platforms, Facebook, Twitter, YouTube, ASKfm, and Instagram have been listed as the top five networks with the highest percentage of users reporting having experienced cyberbullying. According to the Warranting Theory, these publicly visible abusive messages constitute behavioral residue and, as such, would carry weight in the impressions formed of targets and may contribute to a stereotyped impression based on their content. This may be especially true in the case of celebrity victims who observers may think are being disingenuous with their online communications to self-promote and, thus, may deserve any abuse directed towards them (Vyawahare & Chatterjee, 2020).

**The effects of Cyberbullying on the victims**

Not only teenagers but people of all age groups may suffer from the shameful act of cyberbullying. Cyberbullying can have very harmful effects on the psychological health of the victim and the bully. Cyberbullying is more harmful than traditional bullying because it can quickly turn into indirect cyberbullying, and victims cannot escape anywhere. Depression and isolation are major effects of cyberbullying. Many victims report emotional, concentration, and behavioral issues (Olckers & Hattingh, 2022). These victims are also likely to report frequent headaches, recurrent stomach pain, and sleeping difficulties. An extreme result of cyberbullying can be a suicide attempt (Vyawahare & Chatterjee, 2020).

Vyawahare and Chatterjee (2020) also state that cyberbullying impacts male victims and perpetrators because they become more aggressive and get addicted to alcohol consumption or cigarette smoking, whereas female victimization results in internalizing behaviors, such as ideation, isolation, depression, or suicide attempts. Through social networks, many teenagers, as well as adults, are suffering from cyberbullying. Almost 50% of the youth in the United States have admitted to being bullied. Nevertheless, these victims usually hide their victimization for different reasons. Teenagers or adolescents fear that the device may be taken away from them. Adults are embarrassed to acknowledge that they are being bullied and fear being misunderstood by their peers or family members. Hence, identifying and reporting cyberbullying is vital for identifying victims and taking action to cure them. It is also required to save society from the damage cyberbullying is causing (Vyawahare & Chatterjee, 2020).

Cyberbullying is particularly problematic because as schools, parents, and communities attempt to combat it, perpetrators find new and creative ways to victimize others through the use of evolving technologies (e.g., new cell phone apps, social networking websites, and messaging programs; Goodboy & Martin, 2015). Cyberbullying is a prevalent problem affecting between 20% and 40% of youths, typically via mobile phones and the Internet. Cyberbullying is carried out using text messages, website postings, emails, pictures, and video clips that attempt to harass, denigrate, impersonate, or ostracize others. Students report varying motivations for cyberbullying, including revenge, jealousy, boredom, and seeking (Goodboy & Martin, 2015).

Cyberbullying harms victims in many ways, including educational functioning and mental health. Regarding educational functioning, cyberbullying victims show an increase in school absences and a decrease in concentration, educational achievement, and performance. They also show higher levels of anxiety, increased symptoms of depression, suicide ideation, self-harm, and suicide attempts than their peers. The undesirable effects of cyberbullying are also evident in reactive aggression, instrumental aggression, depression, and somatic symptoms. Mental health problems, drug abuse, and low self-esteem in both victims and perpetrators of cyberbullying have also been also found (Safaria et al., 2020).

Another form of cyberbullying was advanced by Ehman and Gross (2019), who contend that there does not exist a specific name for the subset of cyberbullying behaviors that are sexual. They defined sexual cyberbullying as "any sexually aggressive or coercive behavior facilitated through the use of electronic media (i.e., text messages, social networking sites, cell phone applications, etc.)" (Ehman & Gross, 2019, p. 80).

Not much differently than cyberbullying, victims of cyber aggression may experience various negative emotions (e.g., anger, sad, depression, and afraid), some psychiatric and psychosomatic problems (e.g., insomnia, headaches, substance abuse, and eating disorders), several social function disorders (e.g., high level of social anxiety, poor concentration, and losing interest in things), and suicidal ideation (Zhang & Zhao, 2020). Victims also reported receiving little or no support from friends or authorities. Although the population generally underestimates the severity of online abuse and its impact on victims, individuals differ in terms of how abusive incidents are interpreted (Scott et al., 2020).

**The dark triad/tetrad and cyberbullying and cyberaggression.**

Identifying the antecedents of cyberbullying perpetration is crucial to reduce cyberbullying and eliminate the detrimental consequences of cyberbullying victimization. Recently, cyberbullying studies have begun to explore the roles of user personalities in cyberbullying perpetration, with the majority focusing on dark triad/tetrad models (Demircioğlu & Çıkan, 2021; Balakrishnan et al., 2019; Sánchez-Medina et al., 2020; Achuthan et al., 2022; Zhang et al., 2022). According to Antoniadou, Kokkinos, and Markos (2019), personal characteristics (e.g., personality traits) result from an interplay between biological and environmental factors. Therefore, their effect on an individual's behavior is related to the given situation or the individual's perception of the situation. In this sense, personal characteristics are dynamic since they can result in different behavior expressions. Hence, it can be assumed that personality traits can predict cyberbullying behavior (Sánchez-Medina et al., 2020).

The above argument leads for the search for personality traits that are more capable of performing cyberbullying. Antoniadou et al. (2019) contend that the characteristics of cyberspace might facilitate the expression of psychopathic traits and contribute to disinhibited online acts. Most cyberbullies spend a considerable amount of time online and engage in risky online behaviors, but there are essential individual/personality differences that predict this behavior beyond the characteristics of Internet use (Goodboy & Martin, 2015; Peterson & Densley, 2017). For instance, cyberbullies tend to lack self-control and sensitivity; they tend to be higher in psychoticism and verbal aggressiveness and lower in empathy. Low empathy is the most reported individual risk factor for cyberbullying. Similarly, reduced empathic responsiveness and moral disengagement may increase potential cyberbullying behaviors (Goodboy & Martin, 2015; Zhang et al., 2022).

All the above characteristics point on the dark triad/tetrad as the likely cyberbullies because of the similarities between the above traits and theirs. Specifically, individuals scoring high in the dark tetrad of personality traits – psychopathy, narcissism, Machiavellianism, and sadism – may be likely to underplay the severity of online abuse and to attribute more blame to victims (Hand et al., 2021). The tetrad members tend to show different patterns of associations with aggression, whether self-reported, observer-reported, or behavioral. Many recent studies include three or four of the dark personalities. This multivariate methodology helps control for the overlap among members, thereby avoiding possible misattribution of the effect of one tetrad member to another unmeasured member (Paulhus, Curtis & Jones, 2018).

Much like traditional bullying enacted face to face, cyberbullying should be associated with the dark tetrad (Goodboy & Martin, 2015; Brown et al., 2019). Given the collective findings that suggest the dark triad traits predict traditional bullying and negative Internet behavior, these traits should also predict cyberbullying (Brown et al., 2019; Baughman, et al., 2012; Goodboy & Martin, 2015). The dark tetrad has been consistently linked with low levels of empathy, suggesting that those high in the dark tetrad may be less likely to perceive abusive incidents from the victim's point of view and appreciate the potential impact such abuse might have on the recipient. In addition, individuals scoring high in the dark tetrad may likely underplay the severity of online abuse and attribute more blame to victims (Scott et al., 2020; Hand et al., 2021).

Studies exploring the relationship between cyberbullying and darker personalities have presented evidence that cyberbullying behavior appears more often with these four traits. As for the specific relationship between each dark personality and cyberbullying, there are varied results (Wang et al., 2022). To date, the bulk of such research has involved the Dark Triad (all but sadism) but work with the full tetrad is growing (Paulhus et al., 2018). The sadistic personality is unique among the dark tetrad in involving an appetite for cruelty, as opposed to callous indifference. Only sadistic individuals are willing to pay a price (e.g., perform a boring task) for the opportunity to harm others (Paulhus et al., 2018).

There is evidence that all four traits are related positively to bullying, (Baughman, et al., 2012; Goodboy & Martin, 2015; Brown et al., 2019). However, in recent years sadism has also been incorporated into the dark triad to form the dark tetrad due to the similarities with the other three personality traits (Brown et al., 2019). Sadism may uniquely predict antisocial behavior because over and above callousness towards the suffering of others (i.e., psychopathy), calculated aggression (i.e., Machiavellianism), or lashing out because of a threatened ego (i.e., narcissism), sadists simply enjoy the suffering of others (Van Geel et al., 2017). Brown et al.’s, (2019) findings indicate that in an ethnically diverse sample, Machiavellianism and psychopathy are better predictors of cyberbullying than narcissism or sadism. However, sadism showed itself as a legitimate predictor of cyberbullying.

According to Lopes and Yu (2017), in contrast to psychopaths, narcissists display a self-serving schema composed of firm beliefs about their distorted sense of self-importance and grandiosity. Hence, their underlying motivation is not necessarily to cause harm to others but to socially compare themselves favorably to other perceived essential people. This can help them maintain their inflated views of themselves, thus protecting their self-esteem. Like narcissists, Machiavellians have also been characterized by self-interest, such that they will manipulate, deceive, and exploit others to achieve their goals. Previous literature shows positive intercorrelations between Machiavellianism and narcissism, and these two personalities are similar with regard to manipulating and exploiting others to promote self-advancement and success. This suggests that narcissists and Machiavellians may be only motivated to bully when this leads to personal gains and self-advancement. In contrast, psychopaths seem to bully not only to self-advance but also simply because they get a kick out of harming other people just for fun (Lopes & Yu, 2017).

All dark tetrad personality factors influence individuals' cognitions and perceptions of social situations. Individuals high in dark tetrad factors are higher in levels of Schadenfreude, lower in empathy, generally hold negative perceptions of others, and utilize fewer cues when making assessments of others' vulnerability. In addition, those high on psychopathy and Machiavellianism are more likely to perceive social situations as competitive, and those high on narcissism perceive fewer social restrictions. This demonstrates fundamental differences in how individuals high in dark tetrad factors perceive other individuals and social situations. It suggests they may interpret antisocial online behaviors in a way that could impact their perceptions of victims and the acts perpetrated against them. (Scott et al., 2020).

According to Gibb and Devereux (2014), each trait may influence the perception of risk/benefit associated with engaging in aggressive behaviors. As for Machiavellianism, individuals high in this trait may engage in cyberbullying to solidify, maintain, or establish their place within their social network due to the relatively low risk associated with these behaviors and the potentially considerable influence on their social network. Individuals high in narcissism may engage in cyberbullying because they feel socially invulnerable (i.e., they believe that their social status is such that there is a relatively low level of social risk associated with the behavior; Gibb & Devereux, 2014). Traits associated with subclinical psychopathy include high impulsivity and engagement in thrill-seeking behavior, low levels of empathy, and low social anxiety. The low levels of empathy exhibited by these individuals have been linked to reactive and proactive aggression, which in turn have been linked to bullying behavior (see Azamy and Taremian, 2021). The emergence of sadism as the primary predictor in the online context suggests that anonymity can unleash the darker side of human nature (Paulhus et al., 2018). Therefore, sadism should be included as another important trait even though its relationship with cyberbullying has been examined only in very recent years.

Gammon et al. (2011) proposed that the dark triad traits are particularly relevant to cyber harassment. Narcissism is a stable individual difference characterized by statements of exaggerated self-worth, grandiosity, arrogance, and entitlement. To protect their fragile ego, narcissists make substantial efforts to augment their self-view through exaggerated accounts of dominance and continually seeking affirmation from others. These relationships with others protect the narcissist's fragile ego unless the exaggerated views of the narcissist are questioned, which often leads to aggressive or hostile responses from the narcissist. Rather than forming close personal relationships, narcissists are likely to form bonds that will preserve their façade of superiority and will attempt to maintain their exaggerated self-views at all costs, usually at the expense of others who must bear the burden of constant self-aggrandizing and hostile reactions to ego threat.

People with subclinical psychopathy are characterized as being impulsive, thrill-seeking, carefree, easily bored, and lacking empathy and remorse. The behavior of psychopaths tends to be excessively selfish and manipulative, and they demonstrate no compunction for hurting others in the process of pursuing their agendas.

Machiavellianism is characterized by cold calculation, instrumentality, and the strategic manipulation of others to achieve desired goals. These goals are often tied to money or power rather than community building or interpersonal relationships. Rather than act reactively or impulsively, Machiavellians are noted for their cool detachment from conflict situations. Little research has tied Machiavellianism to overt acts of aggression. Research suggests that high Machiavellians are prone to betraying others, especially when they feel that no retribution is possible. However, the research suggests that Machiavellians are not prone to revenge motives because they view revenge as a maladaptive strategy (Gammon et al., 2011).

Following the above, Gammon et al. (2011) propose that individuals high on narcissism and psychopathy are more likely to engage in cyber harassment behavior after specific triggering events. In contrast, those high on Machiavellianism are not likely to engage in cyber harassment. Gammon et al. contend that the traits of narcissism and psychopathy [missing word? “contribute”?] to aggression via ego threat and physical threat provocations, respectively. Given this, the triggering event in our proposed model for narcissists is a situation that is likely to be interpreted as threatening to one's ego, such as a personal insult by a customer service representative. In contrast, the triggering event for psychopaths is a situation likely to be interpreted as a physical threat, such as being physically bullied by employees.

Given their high level of self-control, being slighted as a consumer may be less likely to be encoded as a provocation by those high in Machiavellianism. Thus, when Machiavellians view provocation as an opportunity for strategic gain, they may betray, aggress, or seek revenge. Extended to the cyber harassment domain, Machiavellians may only engage in the behavior if they view it as leading to economic goal attainment (Gammon et al., 2011).

Sadists may engage in cyberbullying simply because they are stimulated by hurting others and seeing the victims suffer as they find it gratifying, which becomes easier and anonymous in cyberspace (Kircaburun et al., 2018a, 2018b; Brown et al., 2019). Therefore, theoretically, researchers should find dark tetrad to be a more useful and complete model of personality traits than the dark triad as the role of sadism may prove integral as an explanatory mechanism for antisocial behaviors in cyberspace (Alavi et al., 2022).

Some scholars directed their attention to one of the dark personality traits and its relationship to cyberaggression and cyberbullying. The following section focuses on these specific explanations.

**Psychopathy, cyberaggression, and cyberbullying**

The literature suggests that psychopathy predicts cyber aggression and abuse better than milder uncivil online behavior (March, 2022). Therefore, some researchers focus on this dark personality trait and its relationship to cyberaggression and bullying. According to Lopes and Yu (2017), under a cognitive-behavioral framework, beliefs and associated cognitions are part of the self and other schemas that act as "lenses" through which information is perceived and appraised, thus determining behavior, which in turn will help to maintain the beliefs. The inherent belief that characterizes psychopathy is that it is acceptable for others to be manipulated and hurt for the individual's benefit and by an underlying sadistic motivation to cause harm to others (both psychological and physical) that ultimately will give pleasure to the Psychopath. This sadistic streak motivates psychopaths to bully and prey on people that catch their attention to use them for their benefit and self-advancement (e.g., bullying and blackmailing famous individuals for social connections and social gains).

The behavior of bullying will therefore maintain the Psychopaths' sadistic beliefs and motivation by providing them with feelings of pleasure derived from provoking harm to people that are important, socially salient, and attractive. Moreover, although psychopaths may be motivated to bully weak and vulnerable victims, they are also aware that they can obtain more from weaker and lower-status victims by showing false sympathy and modesty, thus gaining their trust. This is because vulnerable victims usually have lower self-esteem and self-confidence, are more gullible, and are more willing to trust (which makes them easier to be manipulated) than mentally strong victims. Therefore, bullying vulnerable and less popular individuals does not give as much sadistic pleasure to psychopaths as bullying popular people does. This is simply because bullying vulnerable low-status individuals does not necessarily pose a challenge to psychopaths; it is too easy to do and does not necessarily bring any benefit or pleasure to psychopaths (Lopes & Yu, 2017; Peterson & Densley, 2017).

March (2022) also explained why psychopathy should predict cyberbullying behaviors. This trait is characterized by high impulsivity, thrill-seeking behavior, and low levels of empathy and has previously been associated with traditional bullying behavior. Unlike other dark personality traits, the predatory nature of psychopathy may motivate these individuals to seek online victims to bully in an attempt to inflict emotional and psychological harm. Further, individuals with higher levels of psychopathy feel little remorse in doing so, as they often disregard the distress they cause. According to Antoniadou, Kokkinos, and Markos (2019), internet users may exhibit online disinhibition, which refers to the tendency to feel less inhibition and concern for the consequences of one's actions in the online world. Overall, the user may not be aware of the consequences of online behavior in real life. They contend that psychopathy is necessary to consider when studying online behavior because users with such traits exhibit tendencies for disinhibited behaviors that may be exuberated online. Therefore, when studying the association of psychopathic traits with online disinhibition, a distinction should be made between primary and secondary psychopathy, since they differ significantly in terms of the individual's behavioral tendencies and empathic abilities.

**Narcissism and cyberaggression, and cyberbullying**

In the case of narcissism, there is a need to consider the dimensionality of this personality trait when dealing with cyberaggression and cyberbullying. According to Fan et al. (2019) the inflated and depleted aspects of narcissism constitute two separate disorders of the self: the exhibitionistic and closet narcissistic disorders, based on the fusion of a grandiose self-representation with an omnipotent object representation. Specifically, the exhibitionistic narcissist has an inflated, grandiose self-perception maintained by receiving attention and admiration from others. By contrast, the closet narcissist has a deflated, inadequate self-perception derived from the dependency on and admiration of those idealized others. In this sense, the covert narcissist, unlike the overt narcissist, may have more maladaptive features, including a shy demeanor, hypersensitivity to criticism and failure, and a lack of self-confidence. Empirical evidence also supports the conceptual distinction between overt and covert narcissism (Brown et al., 2019; Fan et al., 2019).

Each type of narcissism predicts different types of violence, the former being more active denigration of others and the latter being a form of apparent self-belittlement at the emotional cost of others. Cyberbullying and cyberaggression are believed to be defense mechanisms against low self-esteem (Brown et al., 2019). Fan et al. (2019) explained that according to the theory of threatened egotism, aggression is a means of defending a highly favorable self-view against someone who seeks to undermine or discredit that view. Hence, individuals with either overt or covert narcissism are more likely than others to act aggressively against people. These aggressive behaviors appear in different forms, one of which is bullying others via electronic means. Given narcissists' frequent disrespect and disregard for others, their behaviors may engender negative behaviors from others. They are also more likely to retaliate against or exclude others in the cyber context due to their tendency to bully others. Similarly, victims may be attacked online by narcissistic cyber-bullies, as those victims have learned the bullying behaviors and need to externalize the strain resulting from the experiences of victimization. In brief, overt and covert narcissism may be associated with both cyberbullying perpetration and victimization (Fan et al., 2019).

As argued by Fan et al., (2019) the framework of hostile attribution bias also sheds light on possible connections between narcissism and aggression. A hostile attribution bias lead one to interprets others' intent as hostile when social cues fail to indicate a clear intent. Individuals with hostile attributions of intent tend to display more aggressive behaviors. In the cyber environment, there is a lack of facial expressions and verbal and emotional cues. This lack of information may be more challenging for covert narcissists, who are more sensitive about their interpersonal relationships than overt narcissists. Covert narcissists may be more likely to perceive the information they receive as aggressive, and their antisocial behaviors are more likely to be motivated by this hostile attribution bias. In addition, due to the anonymity and elimination of physical strength in virtual space, covert narcissistic individuals can efficiently utilize different media online to retaliate against those who bully them.

In contrast, covert narcissists are introverted, vulnerable, emotionally unstable, lack confidence, and have socially avoidant interpersonal styles. Hence, it might be difficult for them to succeed in the process of interpersonal communication, and more accessible for them to be bullied online. From this perspective, we hypothesize that overt and covert narcissism positively correlate with cyberbullying perpetration and victimization. However, covert narcissism produces a more substantial effect on cyberbullying than overt narcissism (Fan et al., 2019).

According to Fan et al. (2019), individuals with high levels of covert narcissism are sensitive to others' evaluations and more likely to express indirect forms of aggression, such as anger and hostility. Without a physical presence, cyberbullying happens in chiefly covert and indirect ways (e.g., excluding someone in chat rooms), which may help to explain why covert narcissists are aggressive in the cyber environment. However, covertly narcissistic individuals may be easily bullied online due to some personal characteristics, such as high neuroticism, lack of confidence, vulnerability, and socially avoidant interpersonal styles. In addition, covert narcissists might perceive themselves as victims of cyberbullying to soften the negative implications of poor performance in various domains of life (e.g., they might justify a poor academic performance by believing that they would have performed better if no one attacked them), to make their accomplishments seem more impressive (e.g., they could emerge victorious against all odds, although they were frequently bullied), or to justify treating people with similar disregard (e.g., they might justify bullying other people by attributing this behavior to others' bullying behavior toward them). Hence, they may become a relatively high-risk group in cyberspace, and efforts toward prevention or intervention should be targeted at this group (Fan et al., 2019).

As for overt narcissists, Fan et al. (2019) explained that their characteristics may make them likely to develop good interpersonal relationships both offline and online. Therefore, fewer interpersonal problems or conflicts experienced by overt narcissists might reduce the likelihood of involvement in cyberbullying, which is, by its very nature, is a potential result of troubled relationships. Naturally, there is a need for more theory and empirical studies on this vital issue.

**Machiavellianism and cyberaggression and cyberbullying**

High Machiavellianism involves self-interest and deception and seeing others as tools or mechanisms for pursuing and achieving goals. Engaging in manipulative behaviors coupled with the desires to promote self-interest and goals increases the risk of antisocial and aggressive behaviors, including cyberbullying involvement (Paulhus & Williams, 2002; Wright et al., 2022). Individuals with high Machiavellianism characteristics often utilize deception, see others as tools for achieving their goals, and promote their self-interest. In addition, they often have no reservations about using exploitative practices to achieve goals. Each of these characteristics increases the likelihood of engaging in antisocial and aggressive behaviors. Cyberbullying might be a strategy adolescents with high Machiavellianism characteristics use to promote their self-interest and goals. They might have few or zero qualms about engaging in such harmful behaviors as they might consider their peers a means to an end. Because of their aggressive behavioral strategies, they might also be at risk of being targeted by cyberbullying (Paulhus & Williams, 2002; Wright et al., 2022).

**Sadism and cyberaggression and cyberbullying**

Since most past conceptualizations of dark personalities did not include sadism, it is not well understood how sadism interacts with cyberbullying. Some studies found that when sadism is incorporated into the models, it becomes the strongest predictor of cyberbullying. Perpetrators of cyberbullying may enjoy seeing the victims in distress to gain pleasure (Alavi et al., 2022).  Alavi et al., (2022) further contend that if sadism as a trait is found to be significantly correlated with cyberbullying, alongside the dark triad, future researchers should consider investigating online behaviors from the lens of the dark tetrad as a whole.

**Research findings**

A growing number of empirical studies have examined the relationship between dark triad personalities, cyberaggression, and cyberbullying. The main findings and conclusions of these studies are reviewed in the following sections. A summary of the quantitative studies is presented in Table 2 and will be discussed later.

It is essential to start this review with a meta-analysis that provides a quantitative summary of the studies on this issue. Demircioğlu and Çıkan's (2021) meta-analysis aimed to investigate the effects of the dark triad personality traits on cyberbullying perpetration with the moderating role of participants' age group. Relevant databases (i.e., Google Scholar, PsycINFO, ProQuest, Wiley Online Library, Scopus, Science Direct, Web of Science) were systematically reviewed. Only studies are written in Turkish and English, and studies that reported at least one Pearson correlation coefficient between study variables were included. In total, 22 study findings were integrated (k = 22, N = 12967 for Machiavellianism - cyberbullying; k = 24, N = 12533 for narcissism - cyberbullying; and k = 18, N = 10885 for psychopathy - cyberbullying). Study samples were comprised of adolescents, university students, and adults. The findings revealed that the overall effect sizes of psychopathy, narcissism, and Machiavellianism on cyberbullying were significant (r = .36, p ≤.001; r = .22, p ≤ .001; r = .31, p ≤ .001, respectively). Furthermore, age was found to moderate the link between psychopathy and cyberbullying. However, the moderating role of participants' age group in the association between the other variables was found as insignificant.

The following empirical studies will be presented according to a Western or non-Western culture. Such categorization will enable some comparative perspective on the relationship between dark triad traits and cyberaggression and cyberbullying.

**Western cultures**

Giumetti, Kowalski, and Feinn (2022) examined 317 students from two U.S. universities (61 males, 254 females) who participated in both times 1 and 2, Their findings showed that of the three dark triad traits, only Machiavellianism significantly predicted cyberbullying perpetration and victimization. According to them, from a theoretical standpoint, this finding supports the role of personality processes in predicting aggressive behavior. Because people who score high on Machiavellianism tend to be manipulative, low in empathy, and calculating, cyberbullying perpetration may be one of their outlets for interpersonal manipulation. Although the positive relationship between Machiavellianism and cyberbullying perpetration was not surprising, the nonsignificant relationships of psychopathy and narcissism with cyberbullying perpetration in the model are surprising. They explained these findings as a result of the differences in the gender composition of the sample and lower levels of narcissism in the current study compared to previous research.

In a sample of 297 undergraduate and graduate students from a Western university in the U.S., Gibb and Devereux’s (2014) results differ from those Giumetti et al., (2022). Their study found that Machiavellianism and narcissism were nonsignificant predictors. However, individuals who scored high on a measure of subclinical psychopathy were more likely to report engaging in cyberbullying. They explained that this finding lends support to the idea that at least some of the behaviors engaged in might be retaliatory, as individuals high on psychopathy tend to be more impulsive and less empathetic than others. For these individuals, the instant gratification of knowing that they are potentially causing harm to another may drive their behavior and increase their propensity to engage in similar behaviors. (Gibb & Devereux, 2014).

In a study of U.S. undergraduate students, Goodboy and Martin (2015) examined the relationships between the dark triad and cyberbullying behavior. Cyberbullying was defined in the survey as two-dimensional: visual-based cyberbullying and text-based cyberbullying. Their findings showed that Machiavellianism, psychopathy, and narcissism were positive correlates of both visual-based and text-based cyberbullying reports. However, these associations were small to moderate, suggesting that dark personalities play some role in cyberbullying tendencies. However, one of their more interesting findings was that psychopathy was revealed to be the unique predictor of the three traits, suggesting that this trait may be more problematic than the others. Goodboy and Martin (2015) explained this by relying on Jones and Paulhus (2010), who contended that individuals with Dark Triad traits are predisposed toward aggression but that psychopaths tend to be aggressive even when unprovoked.

Nocera and Dahlen (2017, 2020) examined the relationships of dark triad personality traits to cyber aggression in a college student sample (*N* = 297-317) in the U.S. Their finding showed at all the dark personality traits 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, and sadism predicted the perpetration of cyber aggression. They concluded that it would be premature to dismiss Machiavellianism and vulnerable narcissism as relevant to cyber aggression; however, their findings suggests that they may be less involved than the other traits.

When focusing on the US samples it seems that psychopathy is the strongest predictor of cyberbullying. Future studies should explore what exactly is behind this interesting finding.

Van Geel et al. (2017) examined whether the dark tetrad predicts traditional bullying and cyberbullying. Their sample comprised 1568 participants (61.9% female) from 17 senior vocational high schools in the Netherlands. Concerning the dark tetrad and traditional bullying, they found that Machiavellianism, psychopathy, and sadism were predictors of traditional bullying, but narcissism was not. Concerning cyberbullying, sadism was found a significant predictor, whereas narcissism and psychopathy were marginally significant, and Machiavellianism was not significant. Van Geel et al. (2017) conclude that their study points to the possibility that sadism is more predictive of antisocial online behavior than dark triad traits; online antisocial behavior then seems more driven by sadistic pleasure than by callousness, strategic considerations, or a threatened ego.

It is interesting to note that the relationship between the dark tetrad traits and cyberbullying was weaker than the relationship with bullying. Moreover, sadism was found to be a unique predictor of traditional bullying when the dark triad and Big Five were controlled for. Van Geel et al. (2017) attributed this to the possibility that beyond a strategic instrument to achieve dominance (Machiavellianism) and callousness towards victims and thrill-seeking (psychopathy), seeing victims suffer may be a fundamental reason behind traditional bullying behaviors.

Pabian, De Backer and Vandebosc (2015) investigated the relationship between the dark triad and cyber-aggression on Facebook among adolescents in Belgium. Their findings showed that only psychopathy, and not Machiavellianism and narcissism were related to cyber-aggression on Facebook among 14-18 years old. Furthermore, no significant relation was found when controlling for a potential mediation effect of Facebook intensity between narcissism and cyber-aggression. This finding is quite similar to the findings in the U.S.

March and Marrington (2021) examined the relationship between the dark triad and antisocial and prosocial behaviors using a sample of 288 participants recruited via social media (e.g., Facebook, Reddit) advertisements. The participants were predominantly English speakers from Australia (80.4%) and the United States. Their findings showed that the dark triad traits were significant positive predictors of antisocial online behavior. According to them, using the Internet for antisocial purposes (e.g., 'being mean' and 'showing off') may be attributed to the dark triad's opportunistic, exploitative interpersonal styles. However, quite interestingly, they found that narcissism was a significant, positive predictor of prosocial online behavior. They concluded that future research could explore if prosocial online behavior is associated with more grandiose or vulnerable forms of narcissism.

Brown et al. (2019) also found in a sample of 1,310 UK females and 790 males recruited through social media that the dark triad predicts cyberbullying. More specifically, Machiavellianism and psychopathy are better predictors of cyberbullying than narcissism. A significant positive correlation between psychopathy and the cyberbullying tendency was found in both genders, which, according to them, is consistent with previous research. Their results showed that Machiavellianism was a significant predictor for cyberbullying for both genders, even though male participants often scored higher. The findings generalize across white, Black, and Asian participations.

Two final studies discussed here examine more developed cultures that seem to adopt the values of the Western culture. Sánchez-Medina et al., (2020) found in a convenience sampling of 374 higher education students from the Canary Islands (Spain) that two dimensions of the dark triad (psychopathy and Machiavellianism) were significantly related to sexual cyberbullying behaviors. Their study focuses on a form of cyberbullying not examined frequently, and more studies are needed to validate the findings of this one.

In a sample of 251 participants from Poland that were recruited from social media advertisements, Gajda et al. (2022) found that sadism, Machiavellianism, and psychopathy were positively associated with cyberbullying and cybervictimization. These results indicate that cyberbullying perpetration may be associated with callousness which characterizes Machiavellianism, psychopathy, sadism, but also with the manipulativeness characteristic of Machiavellianism and psychopathy, and the enjoyment of cruelty present in sadism. The finding from path analysis indicated that, when controlling for shared variance between dark tetrad traits, only sadism appeared to be significantly associated with cyberbullying. This may indicate that callousness and enjoyment of cruelty may fuel cyberbullying perpetration the most. They suggested that sadistic personality promotes reward-motivated (appetitive-controlled) cyberaggression. Thus, from the dark tetrad perspective, cyberbullying appears to be related to enjoying cruelty, which is the essence of sadism.

Their findings also showed that narcissism was weakly correlated with cyberbullying, and not significantly correlated with cyber victimization. They contend that narcissistic individuals could engage in cyberbullying only in a particular situation of ego-threat aiming at face-restoration. Thus, future studies should investigate not only the frequency of cyberbullying, but also its motivations to better describe the role of narcissism in cyberaggression (Gajda et al., 2022).

A broader view of the findings from studies performed in Western culture emphasizes psychopathy as important determinant of cyberaggression and cyberbullying while narcissism seems to have a weaker effect among the three dark personalities. Could it be because narcissism typifies Western societies (Foster, Campbell & Twenge, 2003) and therefore its negative features are less dominant? Future studies should try to provide answer to this question.

**Non-Western cultures**

In a sample of 675 Chinese college students (296 males, 379 females), Zhang and Zhao (2020) found a positive association between dark personality traits and cyber aggression in adolescents. They contend, based on their findings, that psychopathy can significantly predict cyber aggression, which may be because psychopathic individuals tend to be less empathic and are more callous, and are more likely to engage in aggression. In cyberspace, the anonymity of the Internet may promote the cyber-aggressive behaviors of Machiavellian individuals. Therefore, their study revealed that Machiavellianism is positively correlated with adolescents' cyber aggression. In addition, they found a significantly positive correlation between narcissism and cyber aggression. Narcissistic individuals tend to be self-centered and exploitative; the anonymity of the Internet could exacerbate their sense of disregard for others and their belief that aggression is acceptable and justifiable (Zhang & Zhao, 2020).

Safaria et al. (2020), in a sample of 2407 adolescents from 11 cities in Indonesia, found that all three Dark Triad traits have significant positive correlations with cyberbullying. Multiple regression analysis showed that Machiavellianism emerged as the strongest predictor of cyberbullying, followed closely by psychopathy and narcissism. They concluded that all the dark triad personalities contribute to cyberbullying conduct to some extent. Adolescents with a dark triad personality are more likely to bully others on social media. The dark triad personality plays a role in increasing cyberbullying conduct. They also contend that one factor that might have allowed Machiavellianism to develop into cyberbullying is the ability for the bully to hide their identity on the Internet, enabling them to deceive the victims.

In a sample of 425 Iranian high school students (199 boys and 226 girls), Azamy and Taremian (2021) found that the dark triad (Machiavellian, narcissism, psychopathy) did not significantly increase or decrease the chances of cyberbullying, cyber victimization, or cyberbullying victim as such. [IN ANOTHER STUDY (REF)] The dark triad and antisocial cyber-behaviors (i.e., cyberbullying, cyber trolling) were examined among young Malaysians (n=323). Partial least squares structural equation modeling revealed that Machiavellianism was not related to cyberbullying or cyber trolling, while narcissism was positively related to cyberbullying but not to cyber trolling. Psychopathy was positively related to both cyberbullying and cyber trolling. In another study, Afzal, Latif and Siddique (2021) collected data from 200 adolescents in Pakistan. Correlational analysis revealed no significant relationship between a combined scale of the dark triad and cyberbullying.

In a sample of 501 high school students in China, a direct relationship between the dark triad and moral disengagement. They also found that moral disengagement mediated the connection between the three dark personalities and adolescents’ cyber aggression. Adolescents high on dark triad personality traits are more prone to justifying immoral consequences, which consequently leads to a rise in cyberattacks. Zhang et al., (2022) conclude that their findings are in line with similar results in Western cultures. One of their interesting findings is that all subsets of dark triad personality traits are more strongly associated with cyber aggression for women than for men.

Alavi et al., (2022) examined the relationship between the dark tetrad and antisocial cyber-behaviors (i.e., cyberbullying and cyber trolling) in the Malaysian context using structured equation modeling (SEM). The findings among 323 young Malaysian adults revealed that Machiavellianism had no relationship with cyberbullying and cybertrolling, narcissism had a positive relationship with cyberbullying but no relationship with cybertrolling, and psychopathy and sadism had a positive relationship with cyberbullying and cybertrolling. According to them the main theoretical implication of their study is that it further supports the use of the dark tetrad in studies on personality and antisocial cyber-behaviors over the dark triad. In line with past studies involving sadism as a variable. their study found sadism to be an essential predictor of both cyberbullying and cybertrolling behaviors. Therefore, theoretically, researchers should find the dark tetrad to be a more useful and complete model of personality traits as the role of sadism may prove integral as an explanatory mechanism for antisocial behaviors in cyberspace.

In short, findings from non-Westernized cultures are not consistent. It is impossible at this stage to make any generalization based on the findings in these societies and there is a strong need for more studies in order to reach to more firm conclusions.

**Comparative studies**

Comparative studies have a great value for better understanding the relationship between the dark tetrad and cyberaggression. There aren’t many such studies but even the few that exist can contribute. The following study (Wright et al., 2020) was performed in three nonwestern countries. The total sample was 1,631 adolescents from China (n = 683), India (n = 480), and Japan (n = 474). Wright et al. (2020) found evidence that the role of the dark triad of personality traits in cyberbullying perpetration is not universal and varies by country. Their findings showed that narcissism and callous and unemotional traits were positively associated with cyberbullying perpetration for Chinese and Indian adolescents but not for Japanese adolescents. In addition, the relationship between Machiavellianism traits and cyberbullying perpetration was found for Indian adolescents only. Considering these findings, the associations between the dark triad of personality traits and cyberbullying perpetration are not consistent across different countries. Wright et al. (2020) explained that the caste-based system in India promotes attitudes conducive to bullying and bullying typically occurs in social groups because of significant disparities in social status. Endorsing individualism, along with the caste-based system and disparities in social status in Indian culture, might increase Indian adolescents' cyberbullying perpetration, especially when they possess the characteristics associated with the dark triad of personality traits, including a lack of empathy and guilt, the promotion of self-interests and goals, and a lack of concern with the feelings of others.

According to Wright et al. (2020) the Chinese culture values relational hierarchy, which promotes obedience to social hierarchies and a desire to order relationships by status. The hierarchical nature of Chinese adolescents' relationships combined with characteristics of the dark triad of personality (e.g., having little empathy and guilt, being unconcerned with others' feelings) might increase their perpetration of cyberbullying. However, Wright et al. (2020). did not find that Machiavellianism and cyberbullying perpetration were linked among Chinese adolescents. This finding might reflect the collectivistic orientation of Chinese culture, which does not promote self-interest and goals. Machiavellianism is characterized by self-interest and goals, and this personality trait was not found to increase cyberbullying perpetration among Chinese adolescents. Collectivistic, like Chinese culture, Japanese culture values a patient, gentle, and harmonious life and is less relationally hierarchical, with characteristics that do not promote aggressivity. Given these values, it might be less likely for Japanese adolescents to engage in cyberbullying perpetration and for the dark triad of personality traits to increase this propensity. Their findings support this proposal as these personality traits were not linked to cyberbullying perpetration among Japanese adolescents (Wright et al., 2020).

In a later study, Wright et al. (2022) performed a one-year longitudinal study to examine, among other goals, the relationships between Machiavellianism and cyberbullying perpetration among adolescents from China (N=683), Cyprus (N=480), India (N=480), and the U.S. (N=813) adolescents. The importance of this study results from the fact that it compares Western and non-Western cultures. Their findings revealed that Machiavellianism characteristics and popularity goals were positively associated with cyberbullying victimization and perpetration in all countries, suggesting that these risk factors have potentially universal effects on cyberbullying involvement. Their study applied the social-ecological perspective, and they proposed that differences would be found among adolescents in different countries; however, they found more similarities between the adolescents than differences. Most of the differences between adolescents in the countries involved the inclusion of gender as a moderator in the associations between Machiavellianism and cyberbullying victimization and perpetration; similar patterns were found for popularity goals too. Machiavellianism was related positively to cyberbullying involvement in all four countries.

A sample of 743 individuals (44% from Austria, 52% from Germany, and 4% from other European countries; Schade, Voracek, & Tran, 2021) found that the dark triad traits are associated with more self-reported cyberbullying behavior. In addition, secondary psychopathy, but also primary psychopathy, was associated with more cyberbullying among both men and women. The associations with both primary and secondary psychopathy highlight that cyberbullying may either be an impulsive or a strategic form of aggression, depending on the perpetrator's profile. They also found an association between grandiose narcissism and cyberbullying and between vulnerable narcissism and cyberbullying behavior, particularly among men. Finally, they found that Machiavellianism was both directly and indirectly associated with cyberbullying.

Hossain et al. (2022) posit that cyberbullying is a complex and multidimensional phenomenon that should be explained as a triadic configuration of the Big 5 and dark triad with demographic attributes. Their 313 responses (158 from the U.S. and 155 from India) showed that to commit cyberbullying, a social media user must be a psychopath (necessary condition) with high Machiavellianism. High psychopathy and sadism are also sufficient to commit cyberbullying. Alternatively, cyberbullying is less likely for a social media user with low psychopathy and sadism, low narcissism and sadism, or low narcissism and psychopathy, even with high Machiavellianism. These five configurations within the Dark tetrad sufficiently explain the high and low scores on their measure of cyberbullying.

Again, it is vital to compare the dark tetrad behavior across cultures. There is a need for much more studies like those reviewed above to get a firm conclusion about cross-cultural differences in dark tetrad cyberaggression and cyberbullying. Such an understanding can increase our ability to explain the roots of this behavior.

**Cyberbullying celebrities**

           One of the appealing populations to examine cyberaggression and cyberbullying that has received scholars' attention in recent years is celebrities. In an interesting study, Scott et al. (2020) examined how different types of tweets by celebrities, as well as observers' dark triad personality scores, influence attributed victim blaming and perceived abuse severity. More specifically, they examined how the type of tweet written by celebrities (identity claims; negative, neutral, or positive) and the volume of abusive responses by followers (behavioral residue; low or high) affected participants' attribution of victim blaming to the celebrity and participants' perceptions of incident severity. More importantly, they examined whether participants' dark triad personality traits impacted their perceptions of victim-blaming and severity. In an experimental design of 184 UK university Twitter users (146 female), they presented to the participants celebrity tweets and later measured participants' dark triad personality traits. Their finding showed that Machiavellianism, narcissism, and psychopathy positively associated with victim blaming in the harmful tweet condition. Regarding abuse severity, narcissism and psychopathy were inversely associated with perceived severity in the harmful tweet condition.

Further, psychopathy was inversely related to perceived severity in the positive tweet condition. Those high in psychopathy perceived abusive tweets as less severe regardless of the original tweet's valence. In contrast, those high in narcissism only perceived less severity when the original tweet was negative. They further revealed that narcissism was a significant independent predictor of victim blaming in the negative tweet condition, but Machiavellianism and psychopathy were not. Narcissism was the only significant independent predictor of perceived severity in the negative tweet condition. This suggests that as narcissism increases, victim blaming following negative tweets also increases, while the perceived severity of abusive tweets decreases (Scott et al., 2020).

Scott et al. (2020) also found that psychopathy was a significant predictor of perceived severity in the positive tweet condition alone: those high in psychopathy were likely to perceive abuse as less severe when the celebrity tweet was positive. As the tweets used in the positive tweet condition were arguably a reflection of the celebrity's success and happiness, it is possible that participants high in psychopathy may believe that celebrities deserved the resulting abuse. A key characteristic of psychopathy is a fundamental belief in superiority over others; those high in the trait often view interactions with others as competitive. According to Scott et al., when celebrity tweets were positive, those high in psychopathy may have viewed the abusive responses as justified to 'bring the celebrity down.' This is because psychopaths tend to experience envy or contempt for those, they perceive to be in a more prosperous position than themselves.

Scott et al. (2020) found that Machiavellianism was not a significant predictor of victim blaming or perceived severity in either condition. Their explanation for this finding was that Machiavellianism is underpinned by attitudes and behaviors aimed at achieving success at all costs, with little consideration or concern for how one's behavior might impact others. As the central interaction in the present study does not reflect an opportunity for a Machiavellian individual to prosper personally, they may be indifferent to the incident. Therefore, while Machiavellianism may predict engagement in cyberbullying behavior, which could be used as an advancement tool, it does not appear to predict attitudes regarding cyber abuse committed by or expressed towards others.

In a similar study that examined 125 volunteers who indicated on a questionnaire that they used Twitter regularly (84 females, 39 males) recruited via advertisements, Hand et al. (2021) found that psychopathy was a significant predictor of perceived severity of abuse that followed positive tweets by the victim. The association between psychopathy and perceived severity was also found by Scott et al. (2020), whose results indicated that psychopathy was a significant predictor of perceived severity in the positive tweet condition. This suggests that positive initial tweets by celebrities and lay users result in reduced perceived severity of abuse received by the victim in those high in this trait.

However, Hand et al. (2021) also found that psychopathy is predictive of perceived severity following negative tweets. They explained that it might be that those high in psychopathy view the abuse as less severe because the initial negative tweets insinuate that the individual can handle the abuse they receive. Again, due to their feelings of superiority, they may view a lay-user target as even more inferior than the celebrity targets used by Scott et al. (2020) and may be more likely to attribute minimized impact on the victim. Hand et al. (2021) also found that Machiavellianism predicts the perceived severity of abuse following neutral victim tweets only. The fact that Machiavellianism was not predictive of victim blaming or perceived severity in the negative or positive tweet condition is in line with the findings of Scott et al. (2020). However, Hand et al.’s (2021) study indicates that Machiavellianism may be relevant in instances where the victim's initial tweet is neutral in valence. Given the goal-oriented nature of Machiavellianism, it may be that these individuals view any neutral social media posts as futile and non-goal-directed. For this reason, they may demonstrate less sympathy for the impact of the abuse on that individual.

Interestingly, Hand et al. (2021) found that narcissism was not a significant predictor of victim blame or perceived severity of abuse. This is in contrast to the findings of Scott et al. (2020), who found narcissism was the sole predictor of victim blaming and perceived severity following negative tweets by celebrities. A fundamental aspect of narcissism is heightened ego-threat monitoring, making those high in this trait quick to respond negatively and aggressively to potential ego threats (whether real or imagined). It is possible that the lay users portrayed in this experiment represented a lesser threat to those high in narcissism than the successful and wealthy celebrities portrayed in Scott et al.'s study. Those high in narcissism may find it harder to relate to the 'everyday person' given their feelings of eminence and, therefore, may be somewhat disinterested and unresponsive to observed instances of abuse.

In sum, for observations of online abuse against lay users, psychopathy predicts perceived severity following positive or negative initial tweets, whereas Machiavellianism predicts perceived severity following neutral tweets (Hand et al., 2021). When observing abuse against celebrities, narcissism predicts both victim blaming and perceived severity following negative tweets, and psychopathy predicts perceived severity following positive tweets (Scott et al., 2020). Observers scoring high in the dark triad are less able to perceive online abuse from the victims' perspective or understand the negative impact that such actions may cause (Hand & Scott, 2022).

In another study that examined similar research questions, Hand and Scott (2022) examined 309 participants (230 females, 77 males), who were recruited utilizing a mixture of on-campus poster advertisements and social media posts. Their findings showed that participants who scored more highly in dark triad characteristics (Machiavellianism, narcissism, and psychopathy) were likelier to blame victims and perceive incidents as less severe. Psychopathy and Machiavellianism both negatively correlated to both victim blaming and perceived severity.

Hand and Scott explained that these dark triad traits (as well as narcissism) are associated with low empathy levels and a reduced ability to take others' perspectives, and with an inability to relate to the viewpoint of victims and understand the negative impact of abuse. Individuals high in psychopathy think of themselves as superior to others and highly competitive. Such individuals may view abuse as bringing others down and increasing their position by comparison. For celebrities, who may be considered to occupy an elevated position to start with, this could be viewed as 'taking them down'. In contrast, lay victims may be viewed as especially inferior, so any abuse impact on them will likely be minimized. Individuals high in Machiavellianism are focused on achieving success without concern for how their actions might impact others. For this reason, they might be less sympathetic to any victim of abuse and not be as sensitive to the severity of abusive incidents (Hand & Scott, 2022).

Finally, Hand et al. (2022), in an experiment with 197 participants, found that user-generated content (i.e., Initial Tweet Valence) was the largest contributor in explaining attributed victim blame variability; however, Machiavellianism was found to contribute to the model as observers' Machiavellianism increased, as did their likelihood of attributing attributed victim blame. This is in line with the findings of Hand and Scott (2022). However, unlike previous research investigating perceptions of male victims, there was no attributed victim blame for narcissism (as per Scott et al., 2020) or psychopathy (as per Hand & Scott, 2022), or sadism. These contrasting model structures suggest a different interplay between victim-generated content and observer dark triad characteristics when victims are female celebrities as opposed to male celebrities and /or male laypersons.

The findings also showed no evidence of a linear relationship between observer narcissism and perceived incident severity, regardless of Initial Tweet Valence. There was mixed evidence for a relationship between observer Machiavellianism and psychopathy on perceived incident severity, which seemed to depend on victim-generated content (i.e., Initial Tweet Valence). The findings also showed that the Volume of Abuse received and Initial Tweet Valence explained a larger proportion of variability than observer characteristics; however, observer Machiavellianism contributed significantly to this model. However, there was no place in the regression model of perceived incident severity for narcissism or psychopathy (as per Hand & Scott, 2022; Hand et al., 2021; Scott et al., 2020) or sadism. This may suggest that those high in Machiavellianism find it particularly difficult to grasp the risk that online abuse may pose to a female victim. As with victim blame data, this suggests a different inter-play between victim-generated and abusive content received.

**Detecting cyberbullies based on their personality**

           Another important research trend is the detection of cyberbullies or cyber aggressors’ dark personalities based on the content of their posts. Balakrishnan, Khan and Arabnia (2020) and Balakrishnan et al. (2019) developed a cyberbullying detection model based on user personality. They contend that studies still need to incorporate users' personalities in automatically detecting cyberbullying. Most of the studies revealed the empirical findings from survey-based studies, attempting to examine relationships between personality traits and cyberbullying perpetration. Balakrishnan et al. (2019)contend that their study differs because their aim was to investigate whether users' personalities can be used collectively and individually to automatically detect cyberbullying based on their textual communication, using a technique from artificial intelligence (i.e., Random Forest). They used Twitter as the social media platform of choice for their study.

Their model aims to recognize bullying patterns among Twitter communities based on relationships between personality traits and cyberbullying. Random Forest, a well-known machine-learning algorithm, was used for cyberbullying classification (i.e., aggressor, spammer, bully, and normal), applied in conjunction with a baseline algorithm encompassing seven Twitter features (i.e., number of mentions, number of followers, and following, popularity, favorite count, status count and number of hashtags). Their findings based on 9484 tweets in the first study and 5453 tweets in the second indicate that factoring user's personality greatly improves cyberbullying detection mechanisms. More specifically, their findings showed that psychopathy had greater impacts on cyberbullying than narcissism and Machiavellianism, significantly improving online bullying detection.

           Balakrishnan et al. (2019, 2020) conclude that their findings demonstrate the emergence of psychopathy as a significant predictor for cyberbullying, compared to Machiavellianism and narcissism. Unlike Machiavellians, who are more likely to harm others if the perceived benefits are high and the personal risk is low, and narcissists, who tend to harm others when their sense of self feels threatened, psychopaths are predatory, callous, and fearless. The predatory nature of psychopaths, for example, may drive these individuals to seek potential victims to inflict emotional and psychological harm, as they also have a complete disregard for the distress they cause others. This probably explains why the trait has been consistently found to predict antisocial behaviors, including cyberbullying (Balakrishnan et al., 2019, 2020). Balakrishnan et al. (2019, 2020) concluded that knowledge of each user's traits could help distinguish between individuals with tendencies to engage in cyberbullying and those who do not, and that this will enable a more effective detection mechanism as opposed to identifying them solely based on the use of abusive words, or platform-features.

The following section will present empirical studies concentrating on one of the dark triad personalities.

**Psychopathy and cyberbullying and cyberaggression**

Charalampous et al. (2021) examined 407 high school students randomly selected from six schools in urban and rural areas in Nicosia, Cyprus. The results indicated that the interrelationships among psychopathic traits, moral disengagement, school climate, and cyberbullying and cyber victimization were differentiated based on the level of participants' self-reported psychopathy and their gender. Based on the findings, it seems that for boys cyberbullying directly relates to psychopathic traits, only for students with high psychopathy, and that for this group, moral disengagement does not relate to cyberbullying, even though both psychopathic traits and perceived aggressive attitudes have a significant effect on moral disengagement. Therefore, for boys reporting high psychopathic levels, psychopathy is the key variable affecting cyberbullying levels. Moral disengagement is a side effect of high psychopathy without relation to cyberbullying perpetration.

In contrast, for boys reporting low psychopathy levels, moral disengagement has a strong significant relationship with cyberbullying, and psychopathic traits have no effect on cyberbullying or on moral disengagement. Therefore, negative psychopathy does not affect cyberbullying perpetration, nor does moral disengagement, but in this case, moral disengagement is the key variable influencing cyberbullying, with school climate also playing a significant role as a determinant of moral disengagement. Lastly, for boys with moderate levels of psychopathy, cyberbullying is not significantly predicted by none of the variables in the hypothesized models.

Charalampous et al. (2021) reported that, for girls, the results differed significantly. The psychopathy trait was a significant predictor for cyberbullying regardless of the levels of self-reported psychopathy. Nevertheless, the coefficient of this effect was considerably higher for girls high in self-reported psychopathy levels than those with moderate or low such levels. In contrast, for girls high in self-reported psychopathic levels, moral disengagement and perceived aggressive attitudes all had significant effects on cyberbullying, but this was not the case for girls in the low and moderate psychopathy groups. Thus, for girls' psychopathy is an essential determinant of cyberbullying perpetration for all levels of self-reported psychopathy, with this effect being more substantial for high-psychopathy girls. Moral disengagement seems to be affecting cyberbullying only for high-psychopathy girls and is related indirectly to psychopathy through the latter's effect on perceived aggressive attitudes.

Charalampous et al. (2021) argued that one explanation for this finding might be traced to gender socialization differences that lead to different reactions to ethical dilemmas by men and women. Societal norms expect women to be communal and expressive, whereas men are expected to be agentic and instrumental. Thus, for girls, moral disengagement affects cyberbullying only for the high and moderate psychopathy group (much more effective is in place for the high psychopathy group) since girls seem to apply moral justifications for their actions much more when socioemotional dysfunction – associated with psychopathic traits – are present.

As for cyber victimization, the findings of Charalampous et al. (2021) showed that only psychopathy was a significant predictor of cyber victimization, and this effect was in place only for high-psychopathy boys. However, in that instance, the magnitude of the predictor exceeds the magnitude of psychopathy on cyberbullying. Thus, boys reporting high psychopathy seem to be at a higher risk of being cyber-victims than cyberbullies. Yet again, the partition of the participants into different subgroups based on gender and self-reported levels of psychopathy in their study further revealed major differences in how psychopathy relates to cyber victimization for individuals reporting different levels of psychopathy. Moral disengagement was predictive of higher involvement in cyberbullying in low-psychopathy boys and high-psychopathy girls, supporting the idea that cognitive distortion facilitates bullying as they limit the possibilities that the person will take responsibility for his/her actions, will sympathize with the victim, and will try to take the agency to do something about bullying incidents.

           Antoniadou, Kokkinos, and Markos (2019) examined the relationship between psychopathic traits and online disinhibition in 1097 Greek Junior High School students (51% female). A correlation analysis showed that psychopathic traits and social anxiety were positively related to online disinhibition, thus indicating that they may be context dependent and differently manifested online.

**Narcissism and cyberbullying, and cyberaggression**

Fan et al. (2019) examined the above contentions among 814 students recruited from two schools in central China (53.3% male). Participants were in the seventh, eighth, 10th, and 11th grades. Their findings showed that covert narcissism positively predicts cyberbullying perpetration and victimization, whereas overt narcissism predicts neither perpetration nor victimization.

**Machiavellianism and cyberbullying and cyberaggression**

           In a sample of 879 adolescents from four junior high schools in east China, Yuan, Liu, and An (2020) found a strong direct relationship between Machiavellianism and cyberbullying. However, their findings also showed that Chinese adolescents with high levels of mindfulness and low levels of Machiavellianism engage in less cyberbullying through the development of empathy.

**Sadism and cyberbullying and cyberaggression**

In a sample of 404 (41% men and 59% women) emerging adult volunteers recruited from Amazon's Mechanical Turk website and currently living within the United States, Nocera et al. (2022) found that sadism and psychopathy predicted cyber aggression perpetration. According to them, the dimensions of psychopathy and sadism coincide with some of the motives for cyber aggression perpetration among emerging adults (e.g., disinhibition relating to negative affect as a motive, boldness relating to thrill-seeking behaviors such as deprecating humor, and meanness relating to retaliation motives). They found that moral disengagement partially mediated these relationships, suggesting that it may be one mechanism through which dark personality traits are connected to cyber aggression.

Their findings also showed examining psychopathic and sadistic traits in the same model demonstrated that both predict cyber aggression perpetration even when considered together. According to them this finding supports the contention that these dark personality traits are overlapping but distinct and suggests that both are likely to clarify why some emerging adults perpetrate cyber aggression (Nocera et al., 2022).

The table below shows a summary of the findings presented in this chapter. A review of the table shows moderate relationship between dark personalities and cyberaggression and bullying. First it should be noted that there is a underrepresentation of studies that examined the dark tetrad. Most of the studies in the table focused on the dark triad. There is a need for more research that includes sadism within the framework of dark personalities. Viewing the size of the correlations presented in the table, an immediate conclusion is that the relationship between dark personalities and cyberaggression and abuse are not direct. There are possibly moderators and mediators that affect the magnitude of this relationship. The table also reveals that most of the samples used in these studies consist of adolescents. There is little representation of adult and working individuals’ samples. This fact means that it is quite difficult to generalize from the results presented here to the general population. There is a growing need to examine older populations, working individuals, and not to rely too much on findings based on samples from elementary, high school students, and university students.

Table 1

*Summary of research findings*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Sample size | Type of behavior | Sample characteristics | | | | | | Correlations | | | |
| Gender | Age  (Mean) | A.T. or similar | Country | Occupation | Education | Narcissists | Psychopathy | Machiavellianism | Sadism |
| Van Geel et al., (2017) | 1568 | Cyberbullying | 61.9% female | 17.58  (16-21) | No | Netherlands | Senior vocational high schools | Senior vocational high schools | 0.177⁎⁎⁎ | 0.278⁎⁎⁎ | 0.172⁎⁎⁎ | 0.313\*\*\* |
| Van Geel et al., (2017) | 1568 | Traditional Bullying | 61.9% female | 17.58  (16-21) | No | Netherlands | Senior vocational high schools | Senior vocational high schools | 0.234⁎⁎⁎ | 0.410⁎⁎⁎ | 0.268⁎⁎⁎ | 0.363\*\*\* |
| Wright et al., (2020) | 683 | Face-to-face bullying perpetration | 52% boys | 11-14 | No | China | Two middle schools | Two middle schools | .18\*\*\* | .22\*\*\* | .33\*\*\* | NE |
| Wright et al., (2020) | 480 | Face-to-face bullying perpetration | 52% boys | 11–15 | No | India | Six middle schools | Six middle schools | .08\* | .24\*\*\* | .15\*\* | NE |
| Wright et al., (2020) | 474 | Face-to-face bullying perpetration | 39% boys | 11–14 | No | Japan | Two middle schools | Two middle schools | .07 | .12\*\*\* | .24\*\*\* | NE |
| Wright et al., (2020) | 683 | Cyberbullying perpetration | 52% boys | 11-14 | No | China | Two middle schools | Two middle schools | .24\*\*\* | .34\*\*\* | .33\*\*\* | NE |
| Wright et al., (2020) | 480 | Cyberbullying perpetration | 52% boys | 11–15 | No | India | Six middle schools | Six middle schools | .33\*\*\* | .37\*\*\* | 36\*\*\* | NE |
| Wright et al., (2020) | 474 | Cyberbullying perpetration | 39% boys | 11–14 | No | Japan | Two middle schools | Two middle schools | .12\*\* | .08\* | .21\*\*\* | NE |
| Fan et al. (2019) | 814 | Cyberbullying perpetration | 53.3%male | 14.67  (11-18) | No | China | Middle and high school students | Middle and high school students | Overt = .26\*\*\*  Covert = .35\*\*\* | NE | NE | NE |
| Fan et al. (2019) | 814 | Cyberbullying victimization | 53.3%male | 14.67  (11-18) | No | China | Middle and high school students | Middle and high school students | Overt = .27\*\*\*  Covert = .38\*\*\* | NE | NE | NE |
| Charalampous et al., (2021) | 407 | Cyberbullying | 55.3% female | 16.01  (15-18) | No | Nicosia, Cyprus | High school students | High school students | NE | Direct relationship for girls. Direct relationship for boys with high psychopathy. | NE | NE |
| Brown et al. (2019) | 2100 | Cyberbullying perpetration scale | 62.4% female | 22.48 | No | UK | NR | NR | Significant positive relationship | Significant positive relationship | Significant positive relationship | Significant positive relationship |

Note: AT=Amazon Turk; NR= not reported; NE = not examined; GN = Grandiose narcissism; VN = Vulnerable narcissism; SNS =Social Networks Sites

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

Table 1 (continue)

*Summary of research findings*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Sample size | Type of behavior | Sample characteristics | | | | | | Correlations | | | |
| Gender | Age  (Mean) | A.T. or similar | Country | Occupation | Education | Narcissists | Psychopathy | Machiavellianism | Sadism |
| Gibb & Devereux (2014) | 297 | Cyberbullying | 61% female | 22.70 | No | USA | Undergraduate and graduate students | Undergraduate and graduate students | No significant relationship | Positive significant relationship | No significant relationship | NE |
| Zhang & Zhao (2020) | 675 | Cyberaggression | 56.1% females | 19.64  (17-22) | No | China | College students | College students | 0.11\*\* | 0.37\*\*\* | 0.32\*\*\* | NE |
| Schade et al. (2021) | 743 | Internet Trolling | 54% female | Median = 25  (19–81) | No | Austria and Germany | 40% students | 23% tertiary education | Leadership=.28\*\*\*  Entitlement and exhibitionism= .28\*\*\*  Vulnerable=0.21\*\*\* | Primary=0.40\*\*\*  Secondary=0.44\*\*\* | 0.27\*\*\* | NE |
| Schade et al. (2021) | 743 | Cyberaggression | 54% female | Median = 25  (19–81) | No | Austria and Germany | 40% students | 23% tertiary education | Leadership=.19\*\*\*  Entitlement and exhibitionism= .21\*\*\*  Vulnerable=0.17\*\*\* | Primary= 0.28\*\*\*  Secondary=0.30\*\*\* | 0.16\*\*\* | NE |
| Nocera et al. (2022) | 404 | Cyberbullying | 59% women | 25.16  (18-29) | Yes | USA | 45% enrolled in college | 45% enrolled in college | NE | 0.69-0.75 with 4 dimensions of Cyberbullying | NE | 0.74-0.82 with 4 dimensions of Cyberbullying |
| Sánchez-Medina et al., (2020) | 374 | Sexual cyberbullying | NR | NR | No | Canary Islands (Spain) | Higher education students | Higher education students | 0.461\*\*\* | 0.543\*\*\* | 0.608\*\*\* | NE |
| Azami & Taremian (2021) | 425 | Cyberbullying | 53.5% female | 16.61 | No | Iran | High school students | High school students | No relationship | No relationship | No relationship | NE |
| Afzal, Latif & Siddique (2021) | 200 | Cyberbullying | NR | NR | No | Pakistan | Adolescents | Adolescents | A combined scale of dark triad  -0.04 | | | NE |
| Giumetti, Kowalski & Feinn, (2022) | 317 | Cyberbullying perpetration (time 1) | 80.1% female | 21.24  (19-31) | No | USA | College students | College students | .16\* | .36\* | .33\* | NE |
| Giumetti, Kowalski & Feinn, (2022) | 317 | Cyberbullying perpetration (time 2) | 80.1% female | 21.24  (19-31) | No | USA | College students | College students | .10 | .27\* | .25\* | NE |
| Giumetti, Kowalski & Feinn, (2022) | 317 | Traditional perpetration (time 1) | 80.1% female | 21.24  (19-31) | No | USA | College students | College students | .16\* | .40\* | .27\* | NE |
| Giumetti, Kowalski & Feinn, (2022) | 317 | Traditional perpetration (time 2) | 80.1% female | 21.24  (19-31) | No | USA | College students | College students | .18\* | .40\* | .27\* | NE |

Note: AT=Amazon Turk; NR= not reported; NE = not examined; GN = Grandiose narcissism; VN = Vulnerable narcissism; SNS =Social Networks Sites

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

Table 1 (continue)

*Summary of research findings*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Sample size | Type of behavior | Sample characteristics | | | | | | Correlations | | | |
| Gender | Age  (Mean) | A.T. or similar | Country | Occupation | Education | Narcissists | Psychopathy | Machiavellianism | Sadism |
| March & Marrington (2021) | 288 | Antisocial online behavior | 37.7% female | 28.69 | No | Australia (80.4%) and USA (9.4%). | NR | NR | .31\*\*\* | .36\*\*\* | .34\*\*\* | NE |
| Yuan, Liu & An (2020). | 879 | Cyberbullying | 41.9% female | 13.51 | No | China | Junior high schools' students | Junior high schools' students | NE | NE | .551\*\*\* | NE |
| Antoniadou et al., (2019) | 1097 | Online Disinhibition | 51% female | 13.95  (12–17) | No | Greece | Junior high School students | Junior high School students | Only psychopathy was examined  Grandiose-Manipulative = 39\*\*\*; Callous-Unemotional = .27\*\*\*  Impulsive-Irresponsible = 39\*\*\* | | | NE |
| Goodboy & Martin (2015) | 227 | Cyberbullying (visual) | 51.85 female | 20.97  (18-40) | No | USA | Undergraduate students | Undergraduate students | 19[\*](https://www-sciencedirect-com.ezproxy.haifa.ac.il/science/article/pii/S0747563215001739" \l "tblfn2) | .34\*\*\* | .26\*\*\* | NE |
| Goodboy & Martin (2015) | 227 | Cyberbullying (text) | 51.85 female | 20.97  (18-40) | No | USA | Undergraduate students | Undergraduate students | .27\*\*\* | .38\*\*\* | .30\*\*\* | NE |
| Safaria et al. (2020) | 2407 | Cyberbullying | 50.1% female | 13  (12-18) | No | Indonesia | School adolescents | School adolescents | .126\*\*\* | .136\*\*\* | .175\*\*\* | NE |
| Pabian et al, (2015) | 324 | Cyber-aggression | 63.0% female | 16.05  (14-18) | No | Belgium | Adolescents from schools, scouting organizations & sports clubs | Adolescents from schools, scouting organizations & sports clubs | 0.29\*\*\* | 0.43\*\*\* | 0.30\*\*\* | NE |
| Wright et al. (2022) | 683 | Cyberbullying Perpetration | 46.7% female | 13 to 16 | No | China | School adolescents | School adolescents | NE | NE | Time 1=.30\*  Time 2=.31\* | NE |
| Wright et al. (2022) | 480 | Cyberbullying Perpetration | 50.1% female | 13 to 16 | No | Cyprus | School adolescents | School adolescents | NE | NE | Time 1=.26\*  Time 2=.26\* | NE |
| Wright et al. (2022) | 480 | Cyberbullying Perpetration | 46.5% female | 13 to 16 | No | India | School adolescents | School adolescents | NE | NE | Time 1=.31\*  Time 2=.31\* | NE |
| Wright et al. (2022) | 813 | Cyberbullying Perpetration | 50.2% female | 13 to 16 | No | USA | School adolescents | School adolescents | NE | NE | Time 1=.31\*  Time 2=.31\* | NE |
| Alavi et al. (2022). | 323 | Cyberbullying | 53.56 female | 18 to 26 | No | Malaysia | NR | NR | SEM=significant  relationship | SEM=significant  relationship | SEM=no relationship | SEM=significant  relationship |

Note: AT=Amazon Turk; NR= not reported; NE = not examined; GN = Grandiose narcissism; VN = Vulnerable narcissism; SNS =Social Networks Sites

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

Table 1 (continue)

*Summary of research findings*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Sample size | Type of behavior | Sample characteristics | | | | | | | Correlations | | | |
| Gender | Age  (Mean) | A.T. or similar | Country | Occupation | Education | Narcissists | | Psychopathy | Machiavellianism | Sadism |
| Gajda et al., (2022) | 251 | Cyberbullying | 72.6%  female | 28.54  (18–60) | No | Poland | NR | Secondary, vocational, or higher education. | .192\*\* | | .300\*\*\* | .273\*\*\* | .365\*\*\* |
| Gajda et al., (2022) | 251 | Cybervictimization | 72.6%  female | 28.54  (18–60) | No | Poland | NR | Secondary, vocational, or higher education. | .088 | | .166\*\* | .142\* | .180\*\* |
| Panatik et al., (2022) | 400 | Cyberbullying | 70.8%  female | 18-37 | No | Malaysia | Public universities students | Public universities students | 0.274\*\*\* | | 0.376\*\*\* | 0.417\*\*\* | NE |
| Nocera & Dahlen (2017, 2020). | 317 | Cyberbullying perpetration | 70%  female | Median age = 20 | No | USA | College student | College student | Pathological grandiosity =.24\*  Pathological vulnerability =.27\* | | .42\* | .27\* | .50\*\*\* |
| Nocera & Dahlen (2017, 2020). | 317 | Cyberbullying victimization | 70%  female | Median age = 20 | No | USA | College student | College student | Pathological grandiosity =.21\*  Pathological vulnerability =.25\* | | .37\* | .21\* | .47\*\*\* |
| Kircaburun et al., (2018a) | 761 | Cyberbullying | 64%  females | 20.70 | No | Turkey | Undergraduate students | Undergraduate students | 0.30\*\*\* | | 0.41\*\*\* | 0.46\*\*\* | 0.47\*\*\* |
| Zhang et al., (2022). | 501 | Cyber aggression | 49.10% female | 14.01  (11-20) | No | China | Junior high school students | Junior high school students | 0.22\*\*\* | | 0.31\*\*\* | 0.32\*\*\* | NE |
| Zerach (2016) | 347 | Cyberbullying victimization | 58.2%  female | NR | No | Israel | NR | NR | Vulnerability =.19∗∗∗  Grandiosity = .20\*\*  Pathological = .20\*\*\* | | NE | NE | NE |
| Zerach (2016) | 347 | Cyberbullying offending | 58.2%  female | NR | No | Israel | NR | NR | Vulnerability = .10  Grandiosity = .08  Pathological = .10 | | NE | NE | NE |
| Pineda et al., (2022) | 393 | Cyberbullying | 46.3%  female | 14.18  (12–18) | No | Spain | High school students | High school students | 0.05 | | 0.13\*\* | 0.05 | 0.19\*\* |

Note: AT=Amazon Turk; NR= not reported; NE = not examined; GN = Grandiose narcissism; VN = Vulnerable narcissism; SNS =Social Networks Sites

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001