## ORIGINAL ARTICLE

WILEY

# Functional and dysfunctional impulsivity mediates the relationships between 'Dark Triad' traits and cyberbullying perpetration

Miriam Sang-Ah Park[1,2] | Joël Billieux[3,4] | Sanjana Raj[1,5] |
Mei Chee Lee[1] | Dianne Shaneeta Geoffrey[1] | Filip Nuyens[2]

[1]Department of Psychology, Monash University Malaysia, Bandar Sunway, Malaysia

[2]Department of Psychology, Nottingham Trent University, Nottingham, UK

[3]Institute of Psychology, University of Lausanne, Lausanne, Switzerland

[4]Centre for Excessive Gambling, Addiction Medicine, Lausanne University Hospitals (CHUV), Lausanne, Switzerland

[5]Faculty of Social and Behavioural Sciences, Utrecht University, Utrecht, The Netherlands

**Correspondence**
Miriam Sang-Ah Park, 50 Shakespeare Street, Nottingham NG1 4FQ, UK.
Email: miriam.park@ntu.ac.uk

## Abstract

**Background:** Cyberbullying perpetration and victimisation have been associated with psychological distress, including depression and suicidal ideation. Prior studies have shown that the 'Dark Triad' personality traits (narcissism, Machiavellianism, and psychopathy) are associated with greater likelihood of perpetration, yet there is a research gap regarding potential mediators of this relationship.

**Aims:** To test whether functional and dysfunctional impulsivity act as mediators between Dark Triad traits and cyberbullying perpetration.

**Methods:** A cross-sectional online study was conducted, in which a sample of 141 university students (63% male) from Malaysia were recruited by online and local poster advertising inviting them to complete a questionnaire containing a series of psychometric scales, including measures of 'Dark Triad' personality traits, impulsivity and cyberbullying perpetration.

**Results:** A relationship between cyberbullying perpetration and higher psychopathy scale scores was mediated by dysfunctional, but not functional, impulsivity. The relationship between cyberbullying and narcissism scores was not mediated by impulsivity. Higher Machiavellianism scores

were similarly associated with cyberbullying, but there was no correlation at all between Machiavellianism and impulsivity scores.

**Conclusion:** Our findings add to the literature by showing that not only Dark Triad scale scores are associated with cyberbullying, but that difficulty in refraining from or controlling impulsive behaviours (dysfunctional impulsivity) may be a key component in this relationship. Given that our sample was of generally well-functioning people, our findings may not extend to those with serious cyberbullying problems. Yet, they provide avenues for identifying people at risk of such behaviours before problems become well-established and call for more nuanced approaches towards understanding and intervening with problematic cyberbullying.

## 1 | INTRODUCTION

With more than 3 billion people using the internet worldwide (Statista, 2021), problematic online behaviours, such as cyberbullying, have emerged as potential public health concerns. The field of cyberbullying research is still relatively new, with the earliest papers having been published in 2006 (see Chisholm, 2006; Thomas, 2006). To date, there is no consensus regarding the definition and measurement of cyberbullying (Patchin & Hinduja, 2015; Peter & Petermann, 2018). Initial conceptualisations of cyberbullying recycled the 'traditional' definition of bullying, which might have resulted in neglecting the unique features of cyberbullying. For the present study, we decided to adopt the definition proposed by Peter and Petermann (2018) based on their review of 24 different definitions across studies published between 2012 and 2017. According to these authors, cyberbullying can be defined as 'using information and communication technologies to repeatedly and intentionally harm, harass, hurt and/or embarrass a target' (p. 358).

Previous research has shown that all parties involved in cyberbullying (perpetrators, victims, perpetrator–victims or bystanders) are susceptible to experiencing a wide range of negative consequences. Existing evidence suggests that the experience of cyberbullying is associated with elevated levels of depression (Bottino et al., 2015), suicidal ideation and suicide attempts (Klomek et al., 2010; Suzuki et al., 2012) and social anxiety (Coelho & Romão, 2018). Moreover, it has been suggested that the negative experiences associated with cyberbullying might be more severe than those associated with traditional bullying (Aboujaoude et al., 2015), which further calls for cyberbullying-centred research. Previous research identified specific sociodemographic and psychological risk factors for cyberbullying perpetration and victimisation. Being male significantly increases the odds of cyberbullying perpetration, whereas being female increases the risk of becoming a victim (Aboujaoude et al., 2015). Data also show that cyberbullying mostly affects young people—children, adolescents and young adults (Wang et al., 2019). In the present study, we particularly focused on factors associated with cyberbullying perpetration, as deeper knowledge about it would allow future studies to focus on prevention and interventions to reduce the rate and incidence of cyberbullying.

Previous research has also shown that specific personality traits constitute risk factors for cyberbullying perpetration (e.g. Big Five traits: Alonso & Romero, 2017). One set of personality traits that has been extensively studied in relation to cyberbullying perpetration is the 'Dark Triad', namely narcissism, Machiavellianism and psychopathy. Individuals with these personality traits share a common tendency to be self-focused, exploitive of others and aggressive. Existing studies have generally shown consistent associations between these traits and cyberbullying perpetration (e.g. Brown et al., 2019; Kırcaburun et al., 2019; Moor & Anderson, 2019). Yet, van Geel et al. (2017) found that when the Big Five traits are considered together with the Dark Triad, only narcissism and psychopathy remain significant predictors of cyberbullying perpetration. Narcissism is a trait defined by feelings of grandiosity and superiority, as well as a sense of entitlement (Rauthmann, 2011). It is further characterised by a tendency towards the exploitation of others for personal gains and difficulties in learning from mistakes (Campbell et al., 2004, 2016). Narcissism has been shown to have a positive relationship with the odds of cyberbullying perpetration (Fan et al., 2019; Tanrikulu & Erdur-Baker, 2021), although this effect was restricted to covert narcissism (i.e. unconscious feelings of grandeur; Wink, 1991). Psychopathy is characterised by impaired capacity for empathy, thus apparent emotional callousness, and poor impulse control (Newman et al., 1987). Hoareau et al. (2019) showed that high psychopathy is related to cyberbullying perpetration, although Orue and Calvete (2019) showed that this link is restricted to emotional callousness when the multifaceted nature of psychopathy is considered. Machiavellianism, a tendency to achieve one's goals through manipulative strategies without ethical consideration (Christie & Geis, 1970), has not been related to cyberbullying perpetration.

Another personality construct that might be of interest in the study of cyberbullying perpetration is impulsivity. Indeed, impulsivity is a robust predictor of traditional bullying (van Geel et al., 2017), antisocial behaviours (Maneiro et al., 2017) and aggressive behaviours (Johnson et al., 2017). Impulsivity is also relevant to Dark Triad traits, as it constitutes a core characteristic of psychopathy measures (Newman et al., 1987) and has been found to correlate with narcissism (Jonason & Tost, 2010; Malesza & Ostaszewski, 2016; Vazire & Funder, 2006) and Machiavellianism (Jonason & Tost, 2010; Szabó & Jones, 2019). It is worth noting that these associations may depend on the type of assessment approach. For instance, a recent study by Malesza and Kalinowski (2021), capitalising on ecological momentary assessment, showed that self-reported impulsivity strongly correlated with psychopathy and narcissism but appeared unrelated to Machiavellianism. They also showed that impulsivity as in 'saying things without thinking' could directly affect propensity to bully another individual.

Although the corpus of evidence is currently insignificant, a few studies have shown an association between impulsivity and both cyberbullying perpetration and victimisation (i.e. Fanti et al., 2012; Gámez-Guadix et al., 2014). Yet, previous studies generally failed to account for the multifaceted nature of impulsivity, thus limiting their scope and implications. Of particular interest is how impulsivity has been divided into functional and dysfunctional types by Dickman (1990). Dysfunctional impulsivity is generally defined as a tendency to make quick short-term decisions without considering their delayed and potentially negative consequences. Conversely, functional impulsivity is defined as the ability to react quickly and efficiently under pressure when there is necessarily no time for more careful and deliberative thinking (Burnett-Heyes et al., 2012; Dickman, 1990). To our knowledge, only one study has investigated the link between the Dark Triad and the functional/dysfunctional impulsivity constructs. In that study, Jones and Paulhus (2011) showed that narcissism is related to functional impulsivity, whereas psychopathy relates to dysfunctional impulsivity. This dissociation echoes the scientific evidence that links psychopathy to diminished impulse control and narcissism to efficient short-term social interactions (Vazire & Funder, 2006).

In the present study, we aimed to test the potential mediating role of impulsivity, both functional and dysfunctional, on links between Dark Triad traits and cyberbullying perpetration, using mediation models based on Jones and Paulhus' (2011) grounded theory. Using a cross-sectional approach, we cannot, however, directly test or confirm any causal relationships. The following research hypotheses were formulated:

1. Cyberbullying is positively related to both types of impulsivity and the Dark Triad traits of narcissism, Machiavellianism and psychopathy.

2. Functional impulsivity mediates the link between narcissism and cyberbullying.

3. Dysfunctional impulsivity mediates the link between psychopathy and cyberbullying.

4. Machiavellianism could be positively mediated by functional and/or dysfunctional impulsivity. A more precise hypothesis regarding Machiavellianism cannot be formulated, as related evidence from the literature is lacking.

## 2 | METHODS

### 2.1 | Ethics

Ethical approval was obtained from the Monash University Human Research Ethics Committee prior to data collection.

### 2.2 | Participants and procedure

The study was conducted at Monash University Malaysia. The study was advertised for 8 weeks through repeated calls both online (e.g. on university-related websites and social networks) and on campus (e.g. flyers and posters). Towards the end of the university term the response rate dropped, so recruiting was stopped accordingly. Participants were selected for full time university student status, inclusion criteria being 18–30 years of age, matching the estimated period of emerging adulthood according to Arnett (2000). Only participants who understand the English language were included, as the survey was administered in English.

Informed consent was obtained before participants accessed the online surveys. The surveys themselves took approximately 25 min to complete and all responses were kept anonymous. Upon participation, students were offered a chance to win one of six prizes (online shopping vouchers worth approximately $10) by voluntarily providing their email addresses. Some questionnaires included in the online data collection did not pertain to the present study and are not described here. No other study has been published that was based on the current data set.

### 2.3 | Measures

*Demographic Information.* Participants were asked about their age, gender and full-time student status at the time that they agreed to participate in the study.

*Dark Triad Personality Traits* were measured with the Short Dark Triad (SD3; Jones & Paulhus, 2014). This 27-item scale comprises three, 9-item subscales that measure narcissism (e.g. '*I have been compared to famous people*'), Machiavellianism (e.g. '*It's wise to keep track of information that you can use against people later*') and psychopathy (e.g. '*It's true that I can be mean to others*'). The SD3 uses a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) with higher scores, indicating more pronounced Dark Triad traits. According to Jones and Paulhus (2014), the subscales have acceptable internal reliability (Machiavellianism, $\alpha$ = 0.71; psychopathy, $\alpha$ = 0.77; narcissism, $\alpha$ = 0.74) and show strong concurrent validity with previously validated measures of the Dark Triad ($r$ ranging from 0.68 to 0.78).

*Functional and Dysfunctional Impulsivity* dimensions were measured with Dickman's Impulsivity Inventory (DII; Dickman, 1990), comprising of 23 items. It has two subscales, one assessing functional impulsivity (11 items; e.g. '*I am good at taking advantage of unexpected opportunities, where you have to do something immediately or lose your chance*') and the other assessing dysfunctional impulsivity (12 items; e.g. '*I frequently buy things without thinking about whether or not I can really afford them*'). The items on the DII were rated as true or false, with a greater number of 'true' items indicating greater impulsivity. According to Dickman (1990), both subscales have good internal reliability (functional impulsivity, $\alpha$ = 0.83; dysfunctional impulsivity, $\alpha$ = 0.86). Validity of the two subscales has been demonstrated by relating it to scales measuring only dysfunctional impulsivity (Claes et al., 2000) or laboratory task assessing inhibitory control (Brunas-Wagstaff et al., 1994).

*Cyberbullying Perpetration* was assessed with the perpetration subscales of the Cyber-Bullying/Victimisation Experiences Questionnaire (Antoniadou et al., 2016), which is composed of 12 items (e.g. '*Have you said bad things about someone on the Internet in order to make her/his friends un-friend, "block" or dislike her/him?*') scored on a 4-point Likert scale from 0 (*never*) to 4 (*5 or more times*). Higher scores indicate a tendency for cyberbullying perpetration. The original validation of this scale by Antoniadou et al. (2016) showed good internal consistency (i.e. *α* varying between 0.75 and 0.83); its validity was established through convergence with assessment tools measuring traditional bullying (*r* = 0.46).

## 2.4 | Planned analyses

Prior to running the mediation analyses, Pearson two-tailed correlation test was conducted to ensure that the assumptions for computing a mediation analysis are respected. Nonsignificant correlations between the mediators (functional and dysfunctional impulsivity), the personality traits and cyberbullying perpetration would, indeed, render the mediation analysis impossible. However, a lack of relationship between the personality traits and the cyberbullying would not per se impact the feasibility of a mediation analysis (Hayes, 2018). If the correlation observed allows for it, mediations analyses will be computed using the *lavaan* package (version 0.6-9) on *Rstudio* (version 3.6.2), as depicted in Figures 1 and 2. Due to the uncertainty surrounding the relationship between Machiavellianism and both functional and dysfunctional impulsivities, no a priori mediation model was created regarding this specific Dark Trait. The data and analytic codes used for the mediation analyses are available from the Open Science Framework: https://osf.io/p6vks/.

Since the sample was not as large as anticipated, we had to compute an a posteriori power analysis using G*Power (Faul et al., 2009) to ensure that we could compute the planned mediation models. Given the limited evidence for effect sizes in similar studies, the parameters for a minimum detectable effect were established at $F^2(v) = 0.35$, with an alpha level of $α = 0.05$, resulting in a total sample of 222 participants to achieve $1 − β = 0.95$ power. The hypothesised models are shown in Figures 1 and 2.
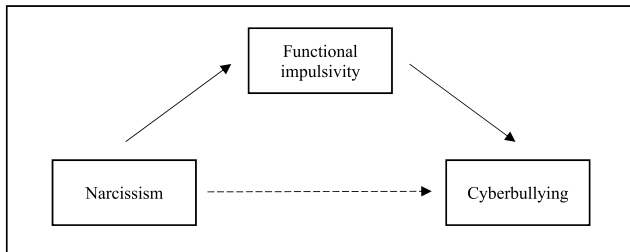


**FIGURE 1**  Hypothesised mediation model for the second research question—mediating effect of functional impulsivity on any relationship between narcissism and cyberbullying.
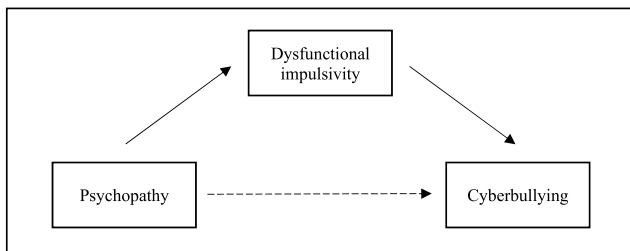


**FIGURE 2**  Hypothesised mediation model for the third research question—mediating effect of dysfunctional impulsivity on any relationship between psychopathy and cyberbullying.

## 3 | RESULTS

One hundred and forty-one participants (89 men) were recruited who matched the age, student and language criteria. Most participants were of Chinese heritage (56% of the male participants, 63% of females), followed by Indians (13, 15%) and Malays (11, 13%). The remaining participants were of other ethnicities or did not indicate their ethnic background. Table 1 shows the distribution of the scale scores for cyberbullying and the Dark Triad and impulsivity scores. Although cut-offs indicative of pathology are not widely accepted regarding the Dark Triad scale, 26 participants exceeded the suggested cut-off score for Machiavellianism and 7 for narcissism. Also, less than a third of the participants ($N$ = 42) seemed to report none to minimal behaviours indicative of cyberbullying.

The data were checked for normal distribution prior to any further analyses. Only the cyberbullying measure showed kurtosis and skewness outside what is expected in a normal distribution. As Table 1 indicates, the internal reliability of most scales used in the study was good (Cronbach's $\alpha$ > 0.70) or excellent (Cronbach's $\alpha$ > 0.80). Psychopathy and narcissism scales scores showed slightly lower but still acceptable internal consistency (Cronbach's $\alpha$ = 0.69 and 0.67, respectively). Overall, scale scores were centred around the mid-range value, apart from the psychopathy and cyberbullying subscales with scores below the mid-point value.

The a priori Pearson correlation analysis showed that cyberbullying is significantly correlated with all other scales (see Table 2). In contrast, as Machiavellianism is not correlated with any of the impulsivity measures, no mediation analysis was tested regarding this trait. Furthermore, functional impulsivity was found to correlate with psychopathy and was thus added to as a potential mediator in the second model.

As Figure 3 shows, the model's total effect reached significance with a coefficient of 0.18 (confidence interval [CI] 0.02–0.34); however, its indirect effect through functional impulsivity failed to reach significance with a coefficient of 0.07 (CI 0.01–0.14).

The second model, depicted in Figure 4, shows three main findings. First, the total effect of the model reached significance with a coefficient of 0.28 (CI 0.12–0.44). Secondly, the first indirect effect (i.e. mediating effect of dysfunctional impulsivity) also reached significance with a coefficient of 0.09 (CI 0.02–0.16). However, as expected, the second indirect effect, the mediating effect of functional impulsivity, did not reach significance with a coefficient

**TABLE 1** Cyberbullying, Dark Triad personality and impulsivity scale scores among 141 Malaysian university students.

| Variables | Min | Max | Mean | *SD* | Skewness | Kurtosis | Alpha |
|---|---|---|---|---|---|---|---|
| Machiavellianism | 14.00 | 43.00 | 29.06 | 5.46 | −0.04 | 0.10 | 0.76 |
| Narcissism | 13.00 | 38.00 | 24.06 | 5.05 | 0.26 | −0.06 | 0.69 |
| Psychopathy | 9.00 | 30.00 | 19.78 | 5.07 | 0.01 | −0.81 | 0.67 |
| Cyberbullying | 0.00 | 25.00 | 3.82 | 5.08 | 2.01 | 4.06 | 0.85 |
| Functional impulsivity | 12.00 | 22.00 | 17.67 | 2.65 | −0.35 | −0.96 | 0.70 |
| Dysfunctional impulsivity | 14.00 | 24.00 | 21.34 | 2.64 | −1.00 | 0.04 | 0.77 |

**TABLE 2** Pearson's correlations between cyberbullying, personality and impulsivity scores.

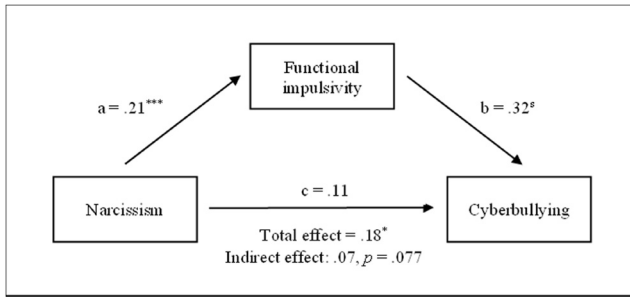| | Narcissism | Psychopathy | Cyberbullying | Functional impulsivity | Dysfunctional impulsivity |
|---|---|---|---|---|---|
| Machiavellianism | 0.265** | 0.510** | 0.180* | 0.056 | 0.122 |
| Narcissism | | 0.248** | 0.177* | 0.403** | 0.051 |
| Psychopathy | | | 0.279** | 0.174* | 0.258** |
| Cyberbullying | | | | 0.212* | 0.401** |
| Functional impulsivity | | | | | 0.053 |

*$p$ < 0.05, **$p$ < 0.01.

**FIGURE 3**  Mediation model of the relationship between narcissism scores and cyberbullying perpetration allowing for functional impulsivity. $^{s}p = 0.08$, $^{*}p < 0.05$, $^{***}p < 0.001$.
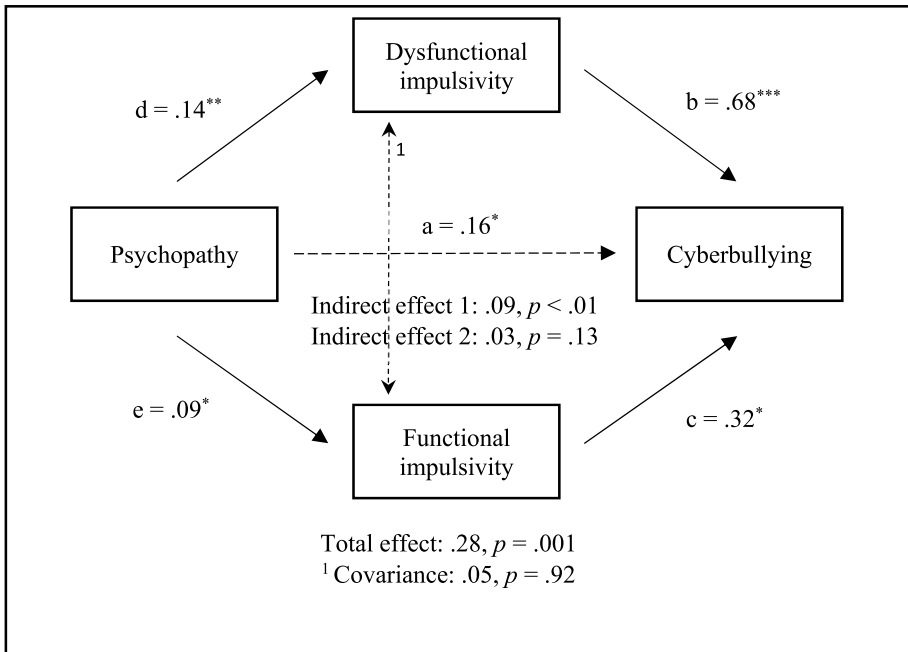


**FIGURE 4**  Mediation model of the relationship between psychopathy and cyberbullying perpetration allowing for dysfunctional and functional impulsivity. $^{*}p < 0.01$, $^{**}p < 0.01$, $^{***}p < 0.001$.

of 0.03 (CI 0.01–0.07). It is noteworthy that the covariance between the two types of impulsivity did not reach significance and therefore did not impact on the two mediations.

## 4 | DISCUSSION

The present study tested three mediation models of relationships between Dark Triad traits and cyberbullying with functional and dysfunctional impulsivity as the possible mediator, based on a priori hypotheses. Although the first model testing total effect of narcissism and functional impulsivity on cyberbullying was significant, the indirect effect (the mediation) was not; however, there was a trend towards its significance ($p < 0.077$). The second model similarly showed a significant total effect of psychopathy, functional and dysfunctional impulsivity as independent variables, with cyberbullying as the dependent variable, and a non-significant mediating effect of functional

impulsivity between psychopathy and cyberbullying. By contrast, dysfunctional impulsivity significantly mediated the link between psychopathy and cyberbullying. Although Machiavellianism was related to cyberbullying, there was no relationship between Machiavellianism and impulsivity of any kind, so no mediation analysis was attempted.

These results are consistent with those of Jones and Paulhus (2011) to the extent that they observed an association between functional impulsivity and narcissism on the one hand and an association between dysfunctional impulsivity and psychopathy on the other. However, we found that although psychopathy correlated with both functional and dysfunctional aspects of impulsivity, only dysfunctional impulsivity mediated the psychopathy-cyberbullying perpetration relationship. This type of impulsivity is marked by the inability to carefully think about an action and its potential (negative) consequences. It can thus be concluded from our findings that those individuals with higher psychopathy scores are more likely to engage in cyberbullying perpetration at least in part because of poor impulse control.

The distinct form of cyberbullying perpetration that is internet 'trolling' may be particularly relevant to consider in relation to this specific finding. Trolling can be generally defined as a deliberate provocation and abuse of others for enjoyment, and it takes the form of responsive and fast-paced harassment on social networking sites, such as Facebook or X, formerly Twitter (Bishop, 2014; Craker & March 2016). Previous research has implicated dysfunctional impulsivity as a predictor of trolling in psychopathy-prone individuals, but not in narcissism- and Machiavellianism-prone individuals (March et al., 2017). This pattern of results might be explained by the fact that the self-interest of narcissism and the manipulation efforts of Machiavellianism work in counterpoint to this particular form of cyberbullying perpetration, whereas people with a tendency towards dysfunctional impulsivity and psychopathy traits may be more susceptible to this fast-paced form of harassment (Craker & March 2016; March et al., 2017).

Functional impulsivity was more pronounced in individuals who scored highly on narcissism, characterised by a feeling of grandiosity and by the exploitation of others. As suggested in earlier studies (Burnett-Heyes et al., 2012; Dickman, 1990), individuals with heightened functional impulsivity have a high sense of adaptability and could thus capitalise on this capacity to charm others in short-term social interactions (Vazire & Funder, 2006). Therefore, it is conceivable that psychopathy-prone individuals act on impulse, without further motives, whereas narcissism-prone individuals have a strategic approach to cyberbullying, where they make use of opportunities to cyberbully their victims. However, this interpretation is to be considered with caution as the mediation was close to significance but ultimately did not reach the statistical threshold adopted.

Our findings also resonate with previous research that linked narcissism and Machiavellianism (but not psychopathy) to the online behaviour known as 'catfishing': the creation of a false online identity to lure an individual into a relationship (Bjornsen, 2018). In comparison to spur-of-the-moment trolling, catfishing requires elaborate lies and deliberate intention to maintain a false identity. Thus, it can be expected that dysfunctional impulsivity, which involves poor inhibitory control and myopia towards delayed consequences of actions, would hinder the efficient maintenance of a comprehensive false identity. In contrast, marked functional impulsivity, and the related adaptability and ability to act under pressure, would promote catfishing through increased reactivity to occasions and opportunities that would allow for reinforcement and maintenance of the deception of the victim.

## 4.1 | Limitations and suggestions for future research

The present study is not without limitations. The most important limitation is that the sample is self-selected through online advertising and thus is not necessarily representative of Monash University Malaysia's students nor of the young Malaysian population as we recruited in a private and English-speaking university only. Future studies of cyberbullying should include larger and more representative sample of young Malaysians and potentially examine a wider age range of participants.

Secondly, we note that our sample is small and may lack statistical power. A related consequence is that the moderating effect of gender on the current mediation models could not be tested. This is unfortunate as previous

literature highlighted the importance of gender in the association between impulsivity and the Dark Triad (Jonason & Tost, 2010; Malesza & Ostaszewski, 2016; Szabó & Jones, 2019). Due to this potential statistical power issue, the results of this study are to be taken with caution as some smaller effects may not have been detected (i.e. Type II error).

Thirdly, our cross-sectional study design does not allow for causal statement, although our models were based on pre-established hypotheses (Jones & Paulhus, 2011).

Fourthly, our measures were not designed to identify pathological levels of the various traits examined; indeed, it may be argued that it would be unlikely that many young people with problematic levels in the assessed variables would have succeeded through the various requirements to engage with study and regular assessments of progress. That said, our findings, if used appropriately, may thus have greater preventive application in that mere tendencies towards such traits may indicate high risk of problematic online behaviours.

Fifthly, we are concerned that we did not explore impulsivity as fulsomely as would be ideal. We recommend a more comprehensive assessment of impulsivity in future studies to include impulsivity-related constructs not measured here, such as emotionally laden impulsivity or 'urgency' (Billieux, 2017), as this would refine our understanding about the relationships between the multi-faceted impulsivity constructs and cyberbullying perpetration.

Finally, we also highlight that the current COVID-19 context and the associated social distancing measures could have increased the risk of problematic online behaviours (Dong et al., 2020; Király et al., 2020), which further necessitates research contributing to a better understanding of cyberbullying and developing adapted policies and preventive actions from a public and mental health perspective.

## 5 | CONCLUSIONS

We found evidence that different types of impulsivity mediate associations between cyberbullying and higher scores on different Dark Personality trait measures, although the mediation effect was significant only between psychopathy and functional impulsivity scores. Given that our sample was of generally well-functioning people, our findings may not extend to those with serious cyberbullying problems. Yet, they provide avenues for identifying people at risk of such behaviours before problems become well-established and call for nuanced approaches towards understanding and intervening with problematic cyberbullying.

### DATA AVAILABILITY STATEMENT
The data and analytic codes used for the mediation analyses are available from the Open Science Framework: https://osf.io/p6vks/.

### ORCID
*Miriam Sang-Ah Park* https://orcid.org/0000-0002-1269-6856

### REFERENCES
Aboujaoude, E., Savage, M. W., Starcevic, V., & Salame, W. O. (2015). Cyberbullying: Review of an old problem gone viral. *Journal of Adolescent Health*, *57*(1), 10–18. https://doi.org/10.1016/j.jadohealth.2015.04.011

Alonso, C., & Romero, E. (2017). Aggressors and victims in bullying and cyberbullying: A study of personality profiles using the Five-Factor Model. *Spanish Journal of Psychology*, *20*, E76. https://doi.org/10.1017/sjp.2017.73

Antoniadou, N., Kokkinos, C. M., & Markos, A. (2016). Development, construct validation and measurement invariance of the Greek Cyber-Bullying/Victimization Experiences Questionnaire (CBVEQ-G). *Computers in Human Behavior*, *65*, 380–390. https://doi.org/10.1016/j.chb.2016.08.032

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the early twenties. *American Psychologist*, *55*(5), 469–480. https://doi.org/10.1037//0003-066x.55.5.469

Billieux, J. (2017). Urgency. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of personality and individual differences*. Springer. https://doi.org/10.1007/978-3-319-28099-8_2132-1

Bishop, J. (2014). Representations of 'trolls' in mass media communication: A review of media-texts and moral panics relating to 'internet trolling'. *International Journal of Web Based Communities*, *10*(1), 7–24. https://doi.org/10.1504/ijwbc.2014.058384

Bjornsen, C. (2018). Social media use and emerging adulthood. In M. Zupančič & M. Puklek Levpušček (Eds.), *Prehod v odraslost: Sodobni trendi in raziskave* (pp. 193–223). Znanstvena zalozba Filozofske fakultete.

Bottino, S. M. B., Bottino, C. M. C., Regina, C. G., Correia, A. V. L., & Ribeiro, W. S. (2015). Cyberbullying and adolescent mental health: Systematic review. *Cadernos de Saúde Pública*, *31*(3), 463–475. https://doi.org/10.1590/0102-311x00036114

Brown, W. M., Hazraty, S., & Palasinski, M. (2019). Examining the dark tetrad and its links to cyberbullying. *Cyberpsychology, Behavior, and Social Networking*, *22*(8), 552–557. https://doi.org/10.1089/cyber.2019.0172

Brunas-Wagstaff, J., Bergquist, A., & Wagstaff, G. F. (1994). Cognitive correlates of functional and dysfunctional impulsivity. *Personality and Individual Differences*, *17*(2), 289–292. https://doi.org/10.1016/0191-8869(94)90033-7

Burnett-Heyes, S., Adam, R., Urner, M., van der Leer, L., Bahrami, B., Bays, P. M., & Husain, M. (2012). Impulsivity and rapid decision-making for reward. *Frontiers in Psychology*, *3*, 153. https://doi.org/10.3389/fpsyg.2012.00153

Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement: Interpersonal consequences and validation of a self-report measure. *Journal of Personality Assessment*, *83*(1), 29–45. https://doi.org/10.1207/s15327752jpa8301_04

Campbell, W. K., Bush, C. P., Brunell, A. B., & Shelton, J. (2016). Understanding the social costs of narcissism: The case of the tragedy of the commons. *Personality and Social Psychology Bulletin*, *31*(10), 1358–1368. https://doi.org/10.1177/0146167205274855

Chisholm, J. F. (2006). Cyberspace violence against girls and adolescent females. *Annals of the New York Academy of Sciences*, *1087*(1), 74–89. https://doi.org/10.1196/annals.1385.022

Christie, W. K., & Geis, F. (1970). *Studies in Machiavellianism*. Academic Press.

Claes, L., Vertommen, H., & Braspenning, N. (2000). Psychometric properties of the Dickman Impulsivity Inventory. *Personality and Individual Differences*, *29*(1), 27–35. https://doi.org/10.1016/s0191-8869(99)00172-5

Coelho, V. A., & Romão, A. M. (2018). The relation between social anxiety, social withdrawal and (cyber)bullying roles: A multilevel analysis. *Computers in Human Behavior*, *86*, 218–226. https://doi.org/10.1016/j.chb.2018.04.048

Craker, N., & March, E. (2016). The dark side of Facebook®: The Dark Tetrad, negative social potency, and trolling behaviours. *Personality and Individual Differences*, *102*, 79–84. https://doi.org/10.1016/j.paid.2016.06.043

Dickman, S. J. (1990). Functional and dysfunctional impulsivity: Personality and cognitive correlates. *Journal of Personality and Social Psychology*, *58*(1), 95–102. https://doi.org/10.1037/0022-3514.58.1.95

Dong, H., Yang, F., Lu, X., & Hao, W. (2020). Internet addiction and related psychological factors among children and adolescents in China during the coronavirus disease 2019 (COVID-19) epidemic. *Frontiers in Psychiatry*, *11*. https://doi.org/10.3389/fpsyt.2020.00751

Fan, C., Chu, X., Zhang, M., & Zhou, Z. (2019). Are narcissists more likely to be involved in cyberbullying? Examining the mediating role of self-esteem. *Journal of Interpersonal Violence*, *34*(15), 3127–3150. https://doi.org/10.1177/0886260516666531

Fanti, K. A., Demetriou, A. G., & Hawa, V. V. (2012). A longitudinal study of cyberbullying: Examining risk and protective factors. *European Journal of Developmental Psychology*, *9*(2), 168–181. https://doi.org/10.1080/17405629.2011.643169

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Gámez-Guadix, M., Villa-George, F., & Calvete, E. (2014). Psychometric properties of the Cyberbullying Questionnaire (CBQ) among Mexican adolescents. *Violence & Victims*, *29*(2), 232–247. https://doi.org/10.1891/0886-6708.VV-D-12-00163R1

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (methodology in the social sciences)* (2nd ed.). The Guilford Press.

Hoareau, N., Bagès, C., Allaire, M., & Guerrien, A. (2019). The role of psychopathic traits and moral disengagement in cyberbullying among adolescents. *Criminal Behaviour and Mental Health*, *29*(5–6), 321–331. https://doi.org/10.1002/cbm.2135

Johnson, S. L., Tharp, J. A., Peckham, A. D., Carver, C. S., & Haase, C. M. (2017). A path model of different forms of impulsivity with externalizing and internalizing psychopathology: Towards greater specificity. *British Journal of Clinical Psychology*, *56*(3), 235–252. https://doi.org/10.1111/bjc.12135

Jonason, P. K., & Tost, J. (2010). I just cannot control myself: The Dark Triad and self-control. *Personality and Individual Differences*, *49*(6), 611–615. https://doi.org/10.1016/j.paid.2010.05.031

Jones, D. N., & Paulhus, D. L. (2011). The role of impulsivity in the Dark Triad of personality. *Personality and Individual Differences*, *51*(5), 679–682. https://doi.org/10.1016/j.paid.2011.04.011

Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment*, *21*(1), 28–41. https://doi.org/10.1177/1073191113514105

Király, O., Potenza, M. N., Stein, D. J., King, D. L., Hodgins, D. C., Saunders, J. B., Griffiths, M. D., Gjoneska, B., Billieux, J., Brand, M., Abbott, M. W., Chamberlain, S. R., Corazza, O., Burkauskas, J., Sales, C. M. D., Montag, C., Lochner, C., Grünblatt, E., Wegmann, E., & Demetrovics, Z. (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Comprehensive Psychiatry*, *100*, 152180. https://doi.org/10.1016/j.comppsych.2020.152180

Kırcaburun, K., Kokkinos, C. M., Demetrovics, Z., Király, O., Griffiths, M. D., & Çolak, T. S. (2019). Problematic online behaviors among adolescents and emerging adults: Associations between cyberbullying perpetration, problematic social media use, and psychosocial factors. *International Journal of Mental Health and Addiction*, *17*(4), 891–908. https://doi.org/10.1007/s11469-018-9894-8

Klomek, A. B., Sourander, A., & Gould, M. (2010). The association of suicide and bullying in childhood to young adulthood: A review of cross-sectional and longitudinal research findings. *Canadian Journal of Psychiatry*, *55*(5), 282–288. https://doi.org/10.1177/070674371005500503

Malesza, M., & Kalinowski, K. (2021). Dark Triad and impulsivity—An ecological momentary assessment approach. *Current Psychology*, *40*(8), 3682–3690. https://doi.org/10.1007/s12144-019-00320-y

Malesza, M., & Ostaszewski, P. (2016). Dark side of impulsivity—Associations between the Dark Triad, self-report and behavioral measures of impulsivity. *Personality and Individual Differences*, *88*, 197–201. https://doi.org/10.1016/j.paid.2015.09.016

Maneiro, L., Gomez-Fraguela, J. A., Cutrin, O., & Romero, E. (2017). Impulsivity traits as correlates of antisocial behaviour in adolescents. *Personality and Individual Differences*, *104*, 417–422. https://doi.org/10.1016/j.paid.2016.08.045

March, E., Grieve, R., Marrington, J., & Jonason, P. K. (2017). Trolling on Tinder® (and other dating apps): Examining the role of the Dark Tetrad and impulsivity. *Personality and Individual Differences*, *110*, 139–143. https://doi.org/10.1016/j.paid.2017.01.025

Moor, L., & Anderson, J. R. (2019). A systematic literature review of the relationship between dark personality traits and antisocial online behaviours. *Personality and Individual Differences*, *144*, 40–55. https://doi.org/10.1016/j.paid.2019.02.027

Newman, J. P., Patterson, C. M., & Kosson, D. S. (1987). Response perseveration in psychopaths. *Journal of Abnormal Psychology*, *96*(2), 145–148. https://doi.org/10.1037/0021-843X.96.2.145

Orue, I., & Calvete, E. (2019). Psychopathic traits and moral disengagement interact to predict bullying and cyberbullying among adolescents. *Journal of Interpersonal Violence*, *34*(11), 2313–2332. https://doi.org/10.1177/0886260516660302

Patchin, J. W., & Hinduja, S. (2015). Measuring cyberbullying: Implications for research. *Aggression and Violent Behavior*, *23*, 69–74. https://doi.org/10.1016/j.avb.2015.05.013

Peter, I.-K., & Petermann, F. (2018). Cyberbullying: A concept analysis of defining attributes and additional influencing factors. *Computers in Human Behavior*, *86*, 350–366. https://doi.org/10.1016/j.chb.2018.05.013

Rauthmann, J. F. (2011). The Dark Triad and interpersonal perception: Similarities and differences in the social consequences of narcissism, Machiavellianism, and psychopathy. *Social Psychological and Personality Science*, *3*(4), 487–496. https://doi.org/10.1177/1948550611427608

Statista. (2021). Number of video gamers worldwide in 2021, by region. https://www.statista.com/statistics/293304/number-video-gamers/

Suzuki, K., Asaga, R., Sourander, A., Hoven, C. W., & Mandell, D. (2012). Cyberbullying and adolescent mental health. *International Journal of Adolescent Medicine and Health*, *24*(1), 27–35. https://doi.org/10.1515/ijamh.2012.005

Szabó, E., & Jones, D. N. (2019). Gender differences moderate Machiavellianism and impulsivity: Implications for Dark Triad research. *Personality and Individual Differences*, *141*, 160–165. https://doi.org/10.1016/j.paid.2019.01.008

Tanrikulu, I., & Erdur-Baker, Ö. (2021). Motives behind cyberbullying perpetration: A test of uses and gratifications theory. *Journal of Interpersonal Violence*, *36*(13–14), NP6699–NP6724. https://doi.org/10.1177/0886260518819882

Thomas, S. P. (2006). From the editor—The phenomenon of cyberbullying. *Issues in Mental Health Nursing*, *27*(10), 1015–1016. https://doi.org/10.1080/01612840600943762

van Geel, M., Goemans, A., Toprak, F., & Vedder, P. (2017). Which personality traits are related to traditional bullying and cyberbullying? A study with the Big Five, Dark Triad and sadism. *Personality and Individual Differences*, *106*, 231–235. https://doi.org/10.1016/j.paid.2016.10.063

Vazire, S., & Funder, D. C. (2006). Impulsivity and the self-defeating behavior of narcissists. *Personality and Social Psychology Review*, *10*(2), 154–165. https://doi.org/10.1207/s15327957pspr1002_4

Wang, M.-J., Yogeeswaran, K., Andrews, N. P., Hawi, D. R., & Sibley, C. G. (2019). How common is cyberbullying among adults? Exploring gender, ethnic, and age differences in the prevalence of cyberbullying. *Cyberpsychology, Behavior, and Social Networking*, *22*(11), 736–741. https://doi.org/10.1089/cyber.2019.0146

Wink, P. (1991). Two faces of narcissism. *Journal of Personality and Social Psychology*, *61*(4), 590–597. https://doi.org/10.1037/0022-3514.61.4.590