Psychology Research and Behavior Management

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

The Effects of Covert Narcissism on Chinese College Students Cyberbullying: The Mediation of Hostile Attribution Bias and the Moderation of Self-Control

Xiaohong Fang[1], Kai Zhang[1], Jie Chen[1], Meitao Chen[1], Yanyan Wang[1], Jianping Zhong[2]

[1]School of Education, Huaibei Normal University, Huaibei, People's Republic of China; [2]School of Humanities and Education, Foshan University, Foshan, People's Republic of China

Correspondence: Kai Zhang, School of Education, Huaibei Normal University, Huaibei, Anhui, 235000, People's Republic of China, Tel +86 15856116221, Email zhangkaitop@163.com

Psychology Research and Behavior Management downloaded from https://www.dovepress.com/
For personal use only.

Purpose: The prevalence of cyberbullying has increased along with the growth of social media, which has brought about many adverse effects on individual development. The current study aimed to explore the connection between covert narcissism and cyberbullying and to test the roles of hostile attribution bias and self-control in the relationship between covert narcissism and cyberbullying.

Materials and Methods: A total of 672 Chinese college students filled up questionnaires measuring covert narcissism, cyberbullying, hostile attribution bias, and self-control.

Results: The results indicated that covert narcissism positively and significantly predicted cyberbullying. Hostile attribution bias partially mediated the relationship between covert narcissism and cyberbullying. Additionally, self-control moderated the relationship between covert narcissism and cyberbullying. Specifically, the positive predictive effect of covert narcissism on cyberbullying gradually weakened as self-control improved.

Conclusion: This study explored the underlying mechanism of cyberbullying and found that covert narcissism could affect cyberbullying through hostile attribution bias. Self-control moderated the relationship between covert narcissism and cyberbullying. The results have significant implications for the intervention and prevention of cyberbullying and additional evidence for the relationship between covert narcissism and cyberbullying.

Keywords: covert narcissism, cyberbullying, hostile attribution bias, self-control, college students

Introduction

People's online lives are getting increasingly affluent as the Internet becomes more popular, which gives rise to a new phenomenon known as cyberbullying. Cyberbullying is the term for a group or individuals who routinely and persistently use electronic tools like mobile phones or the Internet to engage in aggressive and hostile behavior,[1] which is about spreading untrue information about others, sending obscene text messages, and using derogatory language. Compared with conventional bullying, cyberbullying is a more recent research topic, whose incidence surged drastically between 2015 and 2019.[2] More importantly, researchers cannot ignore the consequences of cyberbullying on people's mental health.[3] Cyberbullying has a wide range of adverse consequences on individuals, such as anxiety, depression,[4,5] suicidal tendencies, and suicidal behaviors.[6,7] A literature review summarized that cyberbullying is related to various adverse outcomes, comprising psychological health issues, drug abuse, melancholy, stress, autism spectrum disorders, developmental disorders, obesity, and asthma.[8] Therefore, intervention and prevention of cyberbullying have become crucial due to the severe consequences of cyberbullying in modern society. The current study attempted to provide more references for preventing cyberbullying.

According to the 51st Statistical Report on China's Internet Development released by the China Internet Network Information Center (CNNIC),[9] as of December 2022, Chinese Internet users have increased by 35.49 million compared

Received: 13 April 2023
Accepted: 22 June 2023
Published: 27 June 2023

© 2023 Fang et al. This work is published and licensed by Dove Medical Press Limited. The full terms of this license are available at https://www.dovepress.com/terms.php and incorporate the Creative Commons Attribution – Non Commercial (unported, v3.0) License (http://creativecommons.org/licenses/by-nc/3.0/). By accessing the work you hereby accept the Terms. Non-commercial uses of the work are permitted without any further permission from Dove Medical Press Limited, provided the work is properly attributed. For permission for commercial use of this work, please see paragraphs 4.2 and 5 of our Terms (https://www.dovepress.com/terms.php).

with December 2021. As the scale of netizens continues to expand, the phenomenon of cyberbullying among Chinese groups may become more and more serious, especially among college students. First, college students depend heavily on the Internet in their studies and daily lives. Long-term exposure to the Internet may impact their cognition. Second, anonymous online communication allows college students to talk freely without fear of punishment, providing more chances to bully others online. Furthermore, research indicated that college students are more prone than younger people to bully others online regularly,[2,10] because they frequently exhibit more impulsivity, lack of sympathy, and may even be more aggressive and antisocial.[11] Although cyberbullying has become one of the research hotspots worldwide, there is relatively little empirical evidence concerning Chinese people. Most studies in China have focused on cyberbullying of teenagers[12,13] and paid less attention to cyberbullying among college students.[14] Therefore, this study mainly investigated cyberbullying among college students to enrich the literature.

Previous research has explored many factors that influence cyberbullying, including the anonymity of cyberspace,[15] family factors,[16] school factors,[17] childhood experiences,[18] personalities,[19] cognition,[20] and others. However, very few studies (especially research on Chinese people) have examined the impact of narcissism on cyber behavior, particularly covert narcissism. Consequently, the purpose of this study was to investigate how covert narcissism and cyberbullying are related. For the first time, we developed a model that took into account both the mediating role of hostile attribution bias and the moderating role of self-control. In addition, previous research has demonstrated that gender has a significant role in cyberbullying.[21] Generally, males are more inclined to value aggression than females due to gender role socialization,[22] so males are more likely to become cyberbullies than females.[23,24] Therefore, this study will consider gender differences in cyberbullying to more clearly explore the relationship between cyberbullying and other variables.

Covert Narcissism and Cyberbullying

Researchers have had a long-standing interest in narcissism, and many have investigated the links between distinct narcissistic traits and diverse social behaviors. However, few have linked covert narcissism to cyberbullying. Covert narcissism refers to depression, shame, sensitivity, shyness, low tolerance for others' attention, high sensitivity to criticism or failure, and more passiveness in society.[25] Compared with overt narcissism, covert narcissism is usually associated with psychological abnormalities.[26] Consequently, examining the impact of covert narcissism on cyberbullying is more helpful in understanding the occurrence mechanism of cyberbullying.

Covert narcissism and aggression are related. The psychodynamic mask model of narcissism proposes that the exquisite appearance of narcissists may be a representation to cover up their potential sense of insecurity and inferiority.[27,28] Then, under external stimuli, the repressed negative emotions of narcissists are very likely to transform into aggressive behavior. According to the threatened egotism theory,[29] narcissists may confront threats with anger rather than sadness or anxiety when encountering situations inconsistent with their mindset. The exaggeration and self-righteousness of narcissists quickly make them attribute mistakes to others and rarely reflect on themselves, resulting in anger. Therefore, narcissists may become aggressive and manipulate others to reach their goals if they feel they have not received the expected recognition or appreciation.[30,31] In addition to theoretical explanations, relevant research has proved that covert narcissism could predict aggression.[32,33]

As one of the manifestations of aggressive behavior, cyberbullying may also be closely related to covert narcissism. First, covert narcissists show potentially low self-esteem and empathy,[25] which may affect cyberbullying. When they receive evaluations that fall short of their expectations, they do not directly show anger and hostility like overt narcissists. They are more likely to vent negative emotions subtly or indirectly, such as attacking others online.[34] Second, the anonymity of cyberspace also provides convenience for covert narcissists.[35] Covert narcissists skilled at masking themselves[27,28] are inclined to release their suppressed negative feelings on social network sites. Although few studies exist on the association between covert narcissism and cyberbullying, one study taking Chinese teenagers as the research object proved that covert narcissism could positively predict cyberbullying.[36] Hence, we may conclude from the analysis above that covert narcissists frequently employ indirect assaults and that cyberbullying is likewise an indirect attack.

Hostile Attribution Bias as a Mediator

Cognitive factors are crucial in the study of aggression. As one of the factors influencing aggressive behavior, hostile attribution bias is the propensity to interpret vague social information as a threat or hostility.[37] Prior research has linked hostile attribution bias and aggressive behavior,[38,39] but few studies have discussed its mediating effect in the association between covert narcissism and cyberbullying. This study will conduct a preliminary theoretical analysis and literature review of the mediating role of hostile attribution bias.

First, hostile attribution bias and cyberbullying may be positively correlated. There is theoretical support for the relationship between hostile attribution bias and aggressive behavior, which may also apply to cyberbullying. The General Aggression Model (GAM)[40] suggests that individuals' hostile attributions to situational cues may induce aggressive behavior; the Social Information Processing Model (SIPM)[41] suggests that individuals' aggressive behavior results from hostile attributions of others' behavior during the cue-encoding phase. Combining these two theories, we can conclude that individuals may attack others when they make hostile attributions to a situation or cue. These theories may apply to research on cyberbullying.[42,43] Due to the virtuality and decentralization of the network environment, individuals may be unable to obtain more clues from other people's body movements and speech, resulting in a one-sided understanding of the network environment. Thus, in online environments with ambiguous cues, individuals are inclined to make false or hostile attributions to the cues they receive.[41] And the anonymity of cyberspace also creates conditions for cyberbullies.[15] Existing research has also found that hostile attribution bias boosted cyberbullying.[44,45] However, some scholars suggests that bullying is an unprovoked and active attack, which means that hostile attribution bias is not associated with cyberbullying.[46] Therefore, more research needs to explain their relationship.

Second, hostile attribution bias may also relate to narcissism and mediate the relationship between covert narcissism and cyberbullying. The threatened egotism theory[29] proposes that narcissists will interpret social circumstances with more hostility when there is ambiguity,[27] resulting in hostile behavior and anger.[47,48] Furthermore, narcissists frequently exhibit improper emotional and behavioral responses during social interactions and frequently display hostility without a threat.[26] Previous research indicated that covert narcissists tend to have hostile attribution bias more than overt narcissists.[49,50] Specifically, covert narcissists exhibit heightened sensitivity, as do individuals with high degrees of hostile attribution bias.[51] Baumeister also proposed that narcissism may affect aggressive behavior through hostile attribution bias.[52] In particular, the oversensitivity of covert narcissists makes them easy to misunderstand others, and after forming a hostile attribution bias, they may indirectly attack others in hidden places. Hence, this study infers that covert narcissism may affect cyberbullying through hostile attribution bias. Nevertheless, empirical studies also show that narcissism and hostile attribution bias are unrelated.[47,53] It is required to conduct further study on the connections between aggression, hostile attribution bias, and narcissism.

Self-Control as a Moderator

The impact of covert narcissism on cyberbullying may vary due to individual self-control. The ability to withstand, harness, and regulate one's emotions and impulses is known as self-control.[54] This study examined whether self-control could moderate the mediation and direct pathways of covert narcissism and cyberbullying.

First, self-control may affect individual behavior. The self-control theory[55] suggests that individuals who lack self-control frequently engage in aggressive behaviors, while those with great self-control typically exhibit little antisocial behavior.[56,57] Individuals who lack self-control are typically selfish, indifferent, and primarily concerned with their immediate needs.[58] When they encounter conflicts, they may impulsively make aggressive behaviors immediately. Prior studies have also concluded that self-control and aggression are associated: individuals with high levels of self-control show less aggressive behavior;[59,60] low self-control can predict cyberbullying.[61–64] Moreover, a recent study has found that self-control moderated the association of narcissism with antisocial tendencies.[65] That is, high narcissists who lack self-control are predisposed to aggression,[66] whereas narcissists with moderate to high self-control should have low antisocial tendencies.[67] Thus, we speculate that self-control may mediate the direct pathways of covert narcissism and cyberbullying.

Second, self-control may affect individual cognition. According to the risk-buffering model,[68] protective variables have the potential to reduce or even neutralize the negative impacts of risk factors. The protective effect of self-control can reduce the degree of personal hostility.[69] Existing research suggested that high levels of effortful control may help individuals suppress hostile attribution bias,[70] and poor self-control and high degrees of hostile attribution bias are related.[71] Individuals may use self-control to reduce hostility or suppress the impulse to do certain behaviors[69] after the formation of hostile attribution bias. Thus, self-control may mediate the relationship between hostile attribution bias and cyberbullying.

The Current Study

Based on existing theories and research, this study aimed to explore the connection between covert narcissism and cyberbullying, the mediating effect of hostile attribution bias, and the moderating effect of self-control. Hence, the current study constructed a moderated mediation model (Figure 1) and presented the following hypotheses:

Hypothesis 1. Covert narcissism would positively predict cyberbullying.

Hypothesis 2. Hostile attribution bias would mediate the association between covert narcissism and cyberbullying.

Hypothesis 3. Self-control would moderate the direct relationship and the second path of the indirect relationship between covert narcissism and cyberbullying.

Materials and Methods

Participants and Procedure

Through the convenient sampling, 734 college students from a university in Anhui province, China, filled out the questionnaire. Ultimately, the final sample comprised 672 valid data (91.55% out of the original 734). Some students fill in the questionnaire through the questionnaire collection website (https://www.wjx.cn/), and other parts of students fill in the questionnaire in the classroom. Before conducting the questionnaire survey, we guaranteed the informed consent and the right to withdraw from the survey freely for all participants. Table 1 is the descriptive statistics of demographic variables.

Measurement

Covert Narcissism

We measured covert narcissism using a 15-item scale suitable for the Chinese cultural background compiled by Zheng and Huang[72] based on previous scales.[73] The scale has three dimensions: privilege, self-admiration, and susceptibility. College students rated the items (eg, "I often feel useless") on the 5- point Likert type from 1 (very nonconforming) to 5 (very conforming), with higher values indicating higher degrees of covert narcissism. The Cronbach's alpha in this research was 0.878.

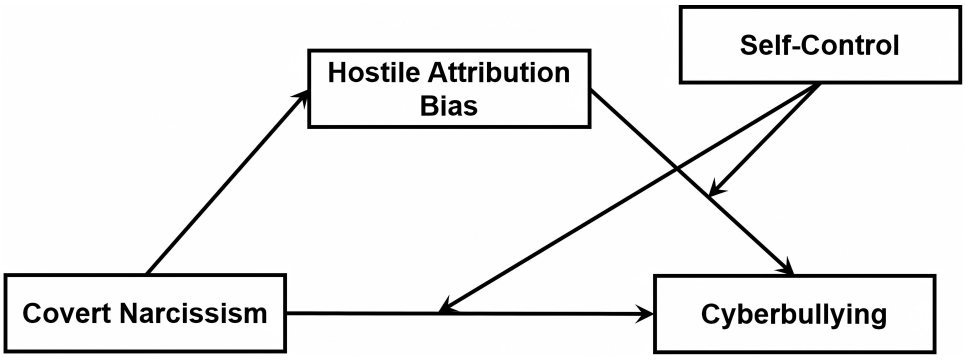

Figure 1 Hypothesized moderated mediation model.

Table 1 Descriptive Statistics of the Demographic Variables

Variables	Groups	Frequency	Percentage (%)
Gender	Male	235	35.0%
	Female	437	65.0%
RS	Urban	289	43.0%
	Rural	383	57.0%
Grade	Freshmen	142	21.1%
	Sophomore	210	31.3%
	Junior	218	32.4%
	Senior	102	15.2%

Abbreviation: RS, registered residence.

Cyberbullying

A 12-item cyberbullying scale for college students compiled by Çetin and his colleagues[74] and revised by Xu[75] was adopted. The scale includes two dimensions: direct and indirect bullying. For each item (eg, "I have used abusive language online"), college students rated on a 4-point Likert scale ranging from 1 (never) to 4 (always), with higher values indicating higher frequencies of cyberbullying. The Cronbach's alpha in this research was 0.901.

Hostile Attribution Bias

The hostile attribution bias scale was partially back-translated from the Social Information Processing-Attribution Bias Questionnaire[76] recomposed by Li.[77] The scale includes four dimensions: direct hostile attribution, indirect hostile attribution, neutral attribution, and instrumental attribution. College students graded the questions on a 4-point Likert scale, with higher values indicating higher degrees of hostile attribution bias. The Cronbach's alpha in this research was 0.863.

Self-Control

The brief self-control scale compiled by Tangney and his colleagues[78] was employed. The scale has 13 items in total, including 9 reverse-scoring questions. College students rated the items (eg, "I can resist temptation very well") on the 4-point Likert scale ranging from 1 (very nonconforming) to 4 (very conforming), with higher values indicating higher degrees of self-control. The Cronbach's alpha in this research was 0.846.

Data Analysis

We used SPSS 23.0 and PROCESS 4.1 to analyze the data statistically. First, we used the independent-samples *t*-test to assess demographic differences in continuous variables. Second, we tested correlation analysis on research variables. Finally, using Hayes' PROCESS macro program Model 4 and Model 15,[79] we examined the mediating effect of hostile attribution bias and the moderating effect of self-control. All analyses adopted the bootstrap method (N=5000) and used standardized variables. Given that the existing research revealed that gender and registered residence could affect individuals' cyberbullying,[23,80] we regarded gender and registered residence as covariates in this study.

Results

Common Method Bias Test

According to Harman's single-factor test findings,[81] this study did not show a significant common method bias, with the total variance explanation rate of the first common factor being 21.48% (<40%).

Demographic Difference Analyses

We used the independent samples *t*-test to analyze the difference in demographic variables. As shown in Table 2, there are only gender differences in covert narcissism, self-control, and cyberbullying ($t = -3.03$, $p < 0.01$; $t = 2.41$, $p < 0.05$;

Table 2 Demographic Difference Analysis

Variables	Groups	CN	HAB	SC	CB
Gender	Male	2.44±0.79	2.20±0.59	2.87±0.64	1.50±0.57
	Female	2.63±0.71	2.32±0.59	2.74±0.61	1.33±0.38
	t	−3.03**	−2.62	2.41*	4.16***
RS	Urban	2.55±0.79	2.27±0.60	2.80±0.65	1.41±0.49
	Rural	2.58±0.71	2.29±0.58	2.77±0.60	1.37±0.44
	t	−0.51	−0.34	0.61	1.16

Notes: *$p<0.05$; **$p<0.01$; ***$p<0.001$.
Abbreviations: CN, covert narcissism; HAB, hostile attribution bias; SC, self-control; CB, cyberbullying; RS, registered residence.

$t = 4.16$, $p < 0.001$): females displayed higher levels of covert narcissism than males; males perpetrated cyberbullying more frequently than females; males had higher levels of self-control than female.

Correlational Analyses of the Main Variables

We performed the correlation analysis for all main variables. Table 3 shows that cyberbullying was positively correlated with covert narcissism ($r = 0.43$, $p < 0.01$) and hostile attribution bias ($r = 0.33$, $p < 0.01$). Covert narcissism was positively correlated with hostile attribution bias ($r = 0.52$, $p < 0.01$) but negatively correlated with self-control ($r = -0.18$, $p < 0.01$); hostile attribution bias was negatively correlated with self-control ($r = -0.14$, $p < 0.01$).

Mediation Test of Hostile Attribution Bias

Based on the analysis of differences in demographic variables, we took gender as a covariate. The results of the mediation effect analysis are shown in Table 4 and Figure 2, which indicated that covert narcissism positively predicted cyberbullying, $\beta = 0.46$, $p < 0.001$ (path c); covert narcissism significantly and positively predicted hostile attribution bias, $\beta = 0.51$, $p < 0.001$ (path a);

Table 3 Means, Standard Deviations, and Correlations of the Main Variables (N=672)

Variables	M	SD	1	2	3	4
1. CN	2.57	0.74	1			
2. CB	1.39	0.46	0.43**	1		
3. HAB	2.28	0.59	0.52**	0.33**	1	
4. SC	2.79	0.62	−0.18**	−0.14**	−0.14**	1

Note: **$p<0.01$.
Abbreviations: CN, covert narcissism; CB, cyberbullying; HAB, hostile attribution bias; SC, self-control.

Table 4 Testing the Mediating Effect of Hostile Attribution Bias on Cyberbullying

Predictors	Cyberbullying		Hostile Attribution Bias		Cyberbullying	
	β	t	*β*	t	*β*	t
Gender	−0.23	−6.82***	0.04	1.17	−0.24	−7.07***
CN	0.46	13.44***	0.51	15.44***	0.38	9.61***
HAB					0.16	4.02***
R^2	0.24		0.27		0.26	
F	104.08***		123.78***		76.35***	

Note: ***$p<0.001$.
Abbreviations: CN, covert narcissism; HAB, hostile attribution bias.

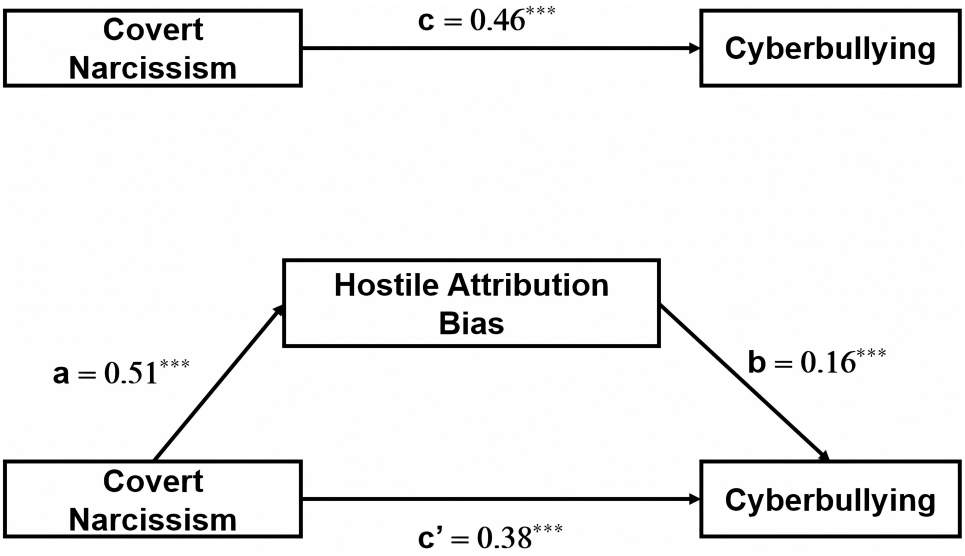

Figure 2 Mediation model. c is the total effect of covert narcissism on cyberbullying, a is the effect of covert narcissism on hostile attribution bias, b is the effect of hostile attribution bias on cyberbullying and c' is the direct effect of covert narcissism on cyberbullying. ***p<0.001.

hostile attribution bias significantly positively predicted cyberbullying, $\beta = 0.16$, $p < 0.001$ (path b). Hostile attribution bias partially mediated the relationship between covert narcissism and cyberbullying: $ab = 0.08$, $SE = 0.02$, 95% $CI = [0.04, 0.12]$. The mediating effect accounted for 17.66% of the total effect. After adding the mediating variable, the direct effect of covert narcissism on cyberbullying was significant, $\beta = 0.38$, $p < 0.001$ (path c'). Hence, Hypothesis 1 and Hypothesis 2 were verified.

Moderation Test of Self-Control

As shown in Table 5, self-control moderated the relationship between covert narcissism and cyberbullying ($\beta = -0.07$, $p < 0.05$) but did not moderate the relationship between hostile attribution bias and cyberbullying ($\beta = 0.02$, $p > 0.05$). The final model of this study is shown in Figure 3.

We conducted the simple slope test to explain further the moderating effect of self-control in the relationship between covert narcissism and cyberbullying. As shown in Figure 4, under low levels of self-control, covert narcissism predicted cyberbullying positively and significantly ($\beta_{simple} = 0.26$, $t = 10.38$, $p < 0.001$); under high levels of self-control, the predictive effect of covert narcissism on cyberbullying was diminished ($\beta_{simple} = 0.21$, $t = 10.21$, $p < 0.001$). Accordingly, the positive predictive effect of covert narcissism towards cyberbullying steadily diminished as self-control increased.

Table 5 Testing the Moderated Mediation Effect of Self-Control of Covert Narcissism on Cyberbullying

Predictors	Hostile Attribution Bias		Cyberbullying	
	β	*t*	*β*	*t*
Gender	0.05	1.17	−0.24	−7.19***
CN	0.41	15.44***	0.23	9.47***
HAB			0.13	4.06***
SC			−0.04	−1.57
CN × SC			−0.07	−2.01*
HAB×SC			0.02	0.45
R^2	0.27		0.27	
F	123.78***		40.27***	

Notes: *p<0.05; ***p<0.001.
Abbreviations: CN, covert narcissism; HAB, hostile attribution bias; SC, self-control.

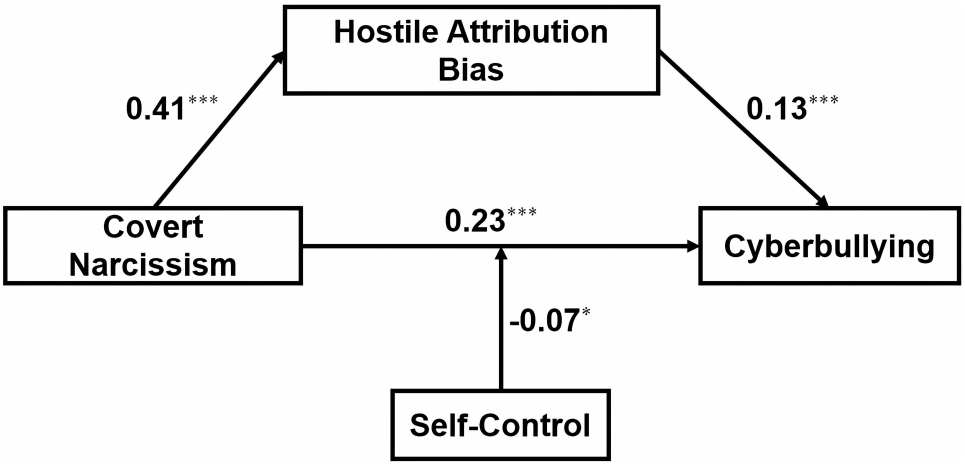

Figure 3 The final model of this study. *p<0.05; ***p<0.001.

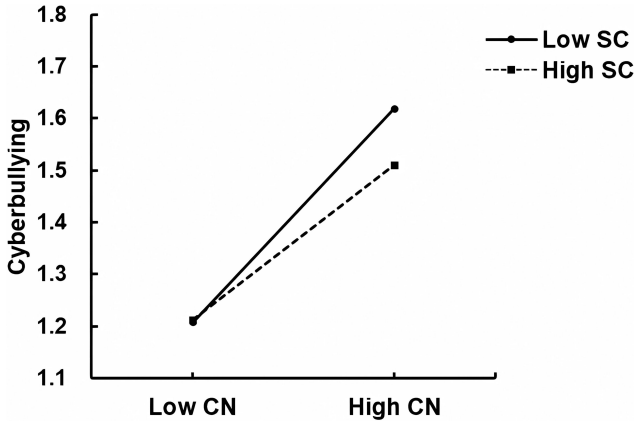

Figure 4 Moderating effect of self-control on the relationship between covert narcissism and cyberbullying.
Abbreviations: CN, covert narcissism; SC, self-control.

Discussion

While many studies have revealed the connection between narcissism and aggressiveness, very few have examined the connection between covert narcissism and cyberbullying. It is essential to study the occurrence mechanism of cyberbullying from the personality perspective. This study is the first to propose a model with hostile attribution bias as a mediator and self-control as a moderator. The results revealed that covert narcissism predicted cyberbullying positively and significantly, despite in part through hostile attribution bias; self-control was a moderator of the connection between covert narcissism and cyberbullying.

Covert Narcissism and Cyberbullying

This study showed that covert narcissism positively predicted cyberbullying, consistent with Hypothesis 1 and previous studies.[36] Individuals with covert narcissistic personalities are likely to engage in cyberbullying. First, covert narcissists tend to make indirect attacks to cover up their potential inferiority complex and anger.[27] The anonymity of cyberspace also provides convenience for them.[15] Second, some covert narcissists are more active online than in real life and expect compliments from others online to satisfy their narcissistic needs. If these expectations are unmet, they could become irritated and hurt others through cyberbullying. Furthermore, covert narcissists may bully others online to control others and establish dominance by proving their importance and authority.[82] The findings of this study also corroborate the threatened egotism theory. When individuals with higher levels of covert narcissism interpret social situations, they

perceive more hostility and anger, which increases aggression.[29] Thus, covert narcissists with low self-esteem and low empathy who always feel threatened are likelier to engage in cyberbullying behaviors in anonymous cyberspaces than in real life. Furthermore, covert narcissists among college students are the focus of future research. They spend more time using electronic media online and have easier access to the Internet, leading to a higher frequency of cyberbullying.[83]

In addition, there was no significant difference in cyberbullying by registered residence, consistent with previous research.[84,85] The difference in Internet access between rural and urban of China is gradually decreasing,[9] and college students have long been influenced by campus culture. Thus, the effect of registered residence on college students cyberbullying is relatively small and did not reach a significant level in this study. However, this study found that women have more covert narcissism than men but exhibit fewer cyberbullying behaviors. The possible explanation is that women behave as if they may have more latent narcissism, rage, and hostility than men.[86] However, they may subtly satisfy their narcissistic demands and behave less aggressively due to societal and individual expectations around gender roles.[87] It is worth mentioning that Field[82] believes that the characteristics of cyber victimization include shyness, anxiety, and inferiority, which are similar to those of covert narcissism. Therefore, there may also be a relationship between covert narcissism and cyber victimization. Future research can explore the influencing factors and occurrence mechanism of cyberbullying from the victims' perspective.

Mediation of Hostile Attribution Bias

Evidence from this study indicating hostile attribution bias mediated the relationship between covert narcissism and cyberbullying supported Hypothesis 2. That is, cognitive factors can mediate between personality and cyberbullying. Nonetheless, hostile attribution bias only accounts for a portion of the association between covert narcissism and cyberbullying. Future studies can consider additional mediating factors.

Divide the mediation pathway in this study into two sections to explain. First, covert narcissism positively predicted hostile attribution bias, which supports previous studies.[49,50] Explained by the threatened egotism theory,[29] because of their inherent sensitivity, repression, and shame, covert narcissists tend to see situations or clues as threatening, which triggers anger. That is, covert narcissists are likely to make mistakes during the online coding phase,[41] making hostile attributions of others' intentions. Therefore, while covert narcissists are highly concerned about themselves, they are also susceptible to the evaluation of others. Their underlying low self-esteem may make them more inclined to make aggressive assumptions about the intentions of others, especially in unclear circumstances. Moreover, the information given by the network environment is one-sided and lacks verbal, physical, or practical cues, which increases the possibility of hostile attribution bias for covert narcissists. Contrary to the views of this study, Law and Falkenbach[53] suggest that narcissists are too selfish and do not care about the intentions of others, so they will not show hostile attribution bias. Notably, this study investigated the characteristics of covert narcissism, which is different from other forms of narcissism (eg, state narcissism and overt narcissism). Unlike overt narcissists, who are exaggerated and arrogant, covert narcissists are introverted, have low self-esteem, and are overly sensitive and vigilant to others' judgments.[26] Immersed in their world, they can quickly become hostile towards others when something does not meet their expectations, which is also why the mental health level of covert narcissists is relatively low.[26] However, more empirical evidence is needed to draw clear conclusions about the relationship between covert narcissism and hostile attribution bias.

Second, this study discovered that hostile attribution bias predicted cyberbullying, consistent with previous research.[44,45] When covert narcissists develop a hostile attribution bias, they will likely engage in aggressive behavior. Due to the anonymity of the Internet,[15] covert narcissists are more likely to translate their emotions and hostile attribution tendencies into actual behaviors, leading to cyberbullying. However, previous research suggested that the victim rather than the bully is related to hostile attribution bias.[46] That is, victims may develop negative beliefs about the motives of others after experiencing multiple injuries. Nevertheless, it is worth discussing whether the victim will transform cognition into action after forming a hostile attribution bias and then attack others. If victims tend to make hostile attributions and develop the attribution style, they may attack others and become bullies. Then whether it is a victim or a bully is related to hostile attribution bias. Hence, future studies can examine the mechanism of cyberbullying from both the perspective of the victim and the bully to provide more evidence and literature support.

In conclusion, this study interpreted the mediation model of covert narcissism and cyberbullying as a path of "personality → cognition → behavior", revealing the formation process of cyberbullying by narcissists in the information age.

Moderation of Self-Control

The association between covert narcissism and cyberbullying was moderated by self-control, in line with the research hypothesis and previous findings.[66,67] In particular, the positive predictive effect of covert narcissism on cyberbullying dwindled as the degree of self-control rose. Hence, via self-control, covert narcissists can control their cyberbullying behavior. First, the self-control theory[55] suggests that individuals with poor self-control exhibit more antisocial actions, implying that self-control is negatively associated with cyberbullying, consistent with the result of this study. Second, individuals with low self-control exhibit deficits such as self-centeredness, short tempers, impulsiveness, and poor control. Narcissists lack self-control, are prone to impulsiveness,[67] and are more prone to be cyber bullies. However, to satisfy narcissistic needs, some individuals may enhance self-control and reduce their bad behavior to obtain external praise. Covert narcissists, in particular, fear negative evaluation[88] and may use self-control to overcome their aggressive tendencies to avoid social exclusion. Therefore, as self-control increases, the cyberbullying behavior of covert narcissists can be controlled to a certain extent.

Inconsistent with research hypothesis, the current study found that self-control did not moderate the relationship between hostile attribution bias and cyberbullying. Although the results revealed that self-control was negatively correlated with hostile attribution bias and cyberbullying, which is consistent with previous studies,[64,71] this correlation cannot explain the role of self-control in the mediation pathway of covert narcissism and cyberbullying. Covert narcissists have hypersensitivity to hostility,[89] and once they feel hostility from the outside world, it is not easy to regulate their emotions or behavior.[90] For covert narcissists, it is feasible to improve their self-control ability to suppress cyberbullying behavior. However, it is difficult to overcome this bias through self-control to change their behavior tendency after forming a hostile attribution bias. Existing studies suggest that self-control can suppress personal hostility,[69–71] but covert narcissists' low tolerance[25] makes it difficult to suppress potential cognition by improving self-control. Regardless, the connection between self-control, covert narcissism, hostile attribution bias, and cyberbullying needs further study.

Implications and Limitations

Although existing research has examined many influencing factors of cyberbullying, there is relatively little evidence of covert narcissism and hostile attribution bias. This study explained the mechanism of covert narcissism in cyberbullying from the perspective of bullies and proved the role of hostile attribution bias and self-control among the pathways, which provide new evidence for the research field and contribute to cyberbullying prevention and intervention. Based on this study, educators should pay attention to their personality development and cognitive behavior when educating college students, which requires the joint efforts of families, schools, and society to cultivate their wholesome personalities and form correct attribution; educators should help students strengthen their self-control ability and prevent them from indulging in cyberbullying.

In addition, this study also has some things that could be improved. First, making causal inferences about the complex links between research variables is difficult because the study is cross-sectional. Second, this study adopted the self-report method, and social desirability may influence the participants. Future research can adopt various research methods to examine the mechanism of cyberbullying.

Conclusion

The current study makes an effort to look at how covert narcissism links cyberbullying and other influencing factors from the viewpoint of bullies. The results of this study discovered that covert narcissism could affect cyberbullying through hostile attribution bias. Self-control moderated the relationship between covert narcissism and cyberbullying. More importantly, this study has significant implications for the intervention and prevention of cyberbullying and additional evidence for the relationship between covert narcissism and cyberbullying.

Data Sharing Statement

All data included in the current study can be obtained from the corresponding author through their email address upon reasonable request.

Ethics Approval and Informed Consent

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethical Committee of Huaibei Normal University (protocol code: ET2022089; approval date: 30 July 2022).

Acknowledgments

We would like to thank all the investigators for collecting data and acknowledge all the participants in our study. The authors are grateful for the reviewers' helpful recommendations.

Funding

This work was funded by the Key Project of Humanities and Social Science of Anhui Provincial Education Department, grant number SK2021A0313; Innovation Fund for Postgraduates of Huaibei Normal University, grant number CX2023010; Anhui Provincial High-level University Excellent Scientific Research and Innovation Team Project-Integration of Educational Models and Governance Systems under Technical Environment, grant number 2022AH010031.

Disclosure

The authors report no conflicts of interest in this work.

References

1. Smith PK, Mahdavi J, Carvalho M, Fisher S, Russell S, Tippett N. Cyberbullying: its nature and impact in secondary school pupils. *J Child Psychol Psychiatry*. 2008;49(4):376–385. doi:10.1111/j.1469-7610.2007.01846.x
2. Zhu C, Huang S, Evans R, Zhang W. Cyberbullying among adolescents and children: a comprehensive review of the global situation, risk factors, and preventive measures. *Front Public Health*. 2021;9:634909. doi:10.3389/fpubh.2021.634909
3. Raskauskas J, Huynh A. The process of coping with cyberbullying: a systematic review. *Aggress Violent Behav*. 2015;23:118–125. doi:10.1016/j.avb.2015.05.019
4. Sourander A, Klomek AB, Ikonen M, et al. Psychosocial risk factors associated with cyberbullying among adolescents: a population-based study. *Arch Gen Psychiatry*. 2010;67(7):720–728. doi:10.1001/archgenpsychiatry.2010.79
5. Simmons J, Bauman S, Ives J. Cyber-aggression among members of college fraternities and sororities in the United States. In: Cowie H, Myers C, editors. *Bullying Among University Students*. Routledge; 2015:93–109.
6. Hinduja S, Patchin JW. Connecting adolescent suicide to the severity of bullying and cyberbullying. *J Sch Violence*. 2019;18(3):333–346. doi:10.1080/15388220.2018.1492417
7. Eyuboglu M, Eyuboglu D, Pala SC, et al. Traditional school bullying and cyberbullying: prevalence, the effect on mental health problems and self-harm behavior. *Psychiatr Res*. 2021;297:113730. doi:10.1016/j.psychres.2021.113730
8. Dorol O, Mishara BL. Systematic review of risk and protective factors for suicidal and self-harm behaviors among children and adolescents involved with cyberbullying. *Prev Med*. 2021;152:106684. doi:10.1016/j.ypmed.2021.106684
9. China Internet Network Information Center. China: the 51st Statistical Report on China's Internet Development; 2023. Available from:https://www.cnnic.cn/n4/2023/0303/c88-10757.html. Accessed March 2, 2023.
10. Muneer A, Fati SM. A comparative analysis of machine learning techniques for cyberbullying detection on Twitter. *Futur Internet*. 2020;12(11):187. doi:10.3390/fi12110187
11. Martínez I, Murgui S, Garcia OF, García F. Parenting in the digital era: protective and risk parenting styles for traditional bullying and cyberbullying victimization. *Comp Hum Behav*. 2019;90:84–92. doi:10.1016/j.chb.2018.08.036
12. Chen J-K, Chen L-M. Cyberbullying among adolescents in Taiwan, Hong Kong, and Mainland China: a cross-national study in Chinese societies. *Asia Pac J Soc*. 2020;30(3):227–241. doi:10.1080/02185385.2020.1788978
13. Li J, Hesketh T. Experiences and perspectives of traditional bullying and cyberbullying among adolescents in Mainland China-implications for policy. *Front Psychol*. 2021;12:2688. doi:10.3389/fpsyg.2021.672223
14. Huang J, Zhong Z, Zhang H, Li L. Cyberbullying in social media and online games among Chinese college students and its associated factors. *Int J Environ Res Public Health*. 2021;18(9):4819. doi:10.3390/ijerph18094819
15. Sticca F, Perren S. Is cyberbullying worse than traditional bullying? Examining the differential roles of medium, publicity, and anonymity for the perceived severity of bullying. *J Youth Adolesc*. 2013;42:739–750. doi:10.1007/s10964-012-9867-3
16. López-Castro L, Priegue D. Influence of family variables on cyberbullying perpetration and victimization: a systematic literature review. *Soc Sci*. 2019;8(3):98. doi:10.3390/socsci8030098

17. Bevilacqua L, Shackleton N, Hale D, et al. The role of family and school-level factors in bullying and cyberbullying: a cross-sectional study. *BMC Pediatr*. 2017;17:1–10. doi:10.1186/s12887-017-0907-8
18. Kircaburun K, Jonason P, Griffiths MD, et al. Childhood emotional abuse and cyberbullying perpetration: the role of dark personality traits. *J Interpers Violence*. 2021;36(21–22):NP11877–NP11893. doi:10.1177/0886260519889930
19. van Geel M, Goemans A, Toprak F, Vedder P. Which personality traits are related to traditional bullying and cyberbullying? A study with the Big Five, Dark Triad and sadism. *Pers Indiv Diff*. 2017;106:231–235. doi:10.1016/j.paid.2016.10.063
20. Chen L, Ho SS, Lwin MO. A meta-analysis of factors predicting cyberbullying perpetration and victimization: from the social cognitive and media effects approach. *New Media Soc*. 2017;19(8):1194–1213. doi:10.1177/1461444816634037
21. Li Q. Cyberbullying in Schools:A Research of Gender Differences. *Sch Psychol Int*. 2006;27(2):157–170. doi:10.1177/0143034306064547
22. Jung JH. Religious Attendance, Stress, and Happiness in South Korea: do Gender and Religious Affiliation Matter? *Soc Indic Res*. 2014;118 (3):1125–1145. doi:10.1007/s11205-013-0459-8
23. Wang P, Wang X, Lei L. Gender Differences Between Student–Student Relationship and Cyberbullying Perpetration: an Evolutionary Perspective. *J Interpers Violence*. 2021;36(19–20):9187–9207. doi:10.1177/0886260519865970
24. Zsila Á, Urbán R, Griffiths MD, Demetrovics Z. Gender Differences in the Association Between Cyberbullying Victimization and Perpetration: the Role of Anger Rumination and Traditional Bullying Experiences. *Int J Ment Health Addict*. 2019;17(5):1252–1267. doi:10.1007/s11469-018-9893-9
25. Ronningstam E. Narcissistic personality disorder: facing DSM-V. *Psychiatr Ann*. 2009;39(3):111–121. doi:10.3928/00485713-20090301-09
26. Miller JD, Maples J. Trait personality models of narcissistic personality disorder, grandiose narcissism, and vulnerable narcissism. In: Keith Campbell W, Miller JD, editors. *The Handbook of Narcissism and Narcissistic Personality Disorder: Theoretical Approaches, Empirical Findings, and Treatments*. John Wiley & Sons Inc; 2011:71–88.
27. Kernberg OF. *Borderline Conditions and Pathological Narcissism*. Jason Aronson; 1975.
28. Kohut H. Forms and transformations of narcissism. *J Am Psychoanal Assoc*. 1966;14(2):243–272. doi:10.1177/000306516601400201
29. Bushman BJ, Baumeister RF. Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence? *J Pers Soc Psychol*. 1998;75(1):219–229. doi:10.1037/0022-3514.75.1.219
30. Emmons RA. Narcissism: theory and measurement. *J Pers Soc Psychol*. 1987;52(1):11–17. doi:10.1037//0022-3514.52.1.11
31. Brown RP, Budzek K, Tamborski M. On the meaning and measure of narcissism. *Personal Soc Psychol Bull*. 2009;35(7):951–964. doi:10.1177/0146167209335461
32. Lambe S, Hamilton-Giachritsis C, Garner E, Walker J. The role of narcissism in aggression and violence: a systematic review. *Trauma Violence Abuse*. 2018;19(2):209–230. doi:10.1177/1524838016650190
33. Kjærvik SL, Bushman BJ. The link between narcissism and aggression: a meta-analytic review. *Psychol Bull*. 2021;147(5):477–503. doi:10.1037/bul0000323
34. Lapsley DK, Aalsma MC. An empirical typology of narcissism and mental health in late adolescence. *J Adolesc*. 2006;29(1):53–71. doi:10.1016/j.adolescence.2005.01.008
35. Notar CE, Padgett S, Roden J. Cyberbullying: a review of the literature. *Univer J Educ Res*. 2013;1(1):1–9. doi:10.13189/ujer.2013.010101
36. Fan C-Y, Chu X-W, Zhang M, Zhou Z-K. Are narcissists more likely to be involved in cyberbullying? Examining the mediating role of self-esteem. *J Interpers Violence*. 2019;34(15):3127–3150. doi:10.1177/0886260516666531
37. Nasby W, Hayden B, DePaulo BM. Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *J Abnorm Psychol*. 1980;89(3):459–468. doi:10.1037/0021-843X.89.3.459
38. Tuente SK, Bogaerts S, Veling W. Hostile attribution bias and aggression in adults-A systematic review. *Aggress Violent Behav*. 2019;46:66–81. doi:10.1016/j.avb.2019.01.009
39. Quan F, Yang R, Zhu W, et al. The relationship between hostile attribution bias and aggression and the mediating effect of anger rumination. *Pers Indiv Diff*. 2019;139:228–234. doi:10.1016/j.paid.2018.11.029
40. Anderson CA, Bushman BJ. Human aggression. *Annu Rev Psychol*. 2002;53(1):27–51. doi:10.1146/annurev.psych.53.100901.135231
41. Crick NR, Dodge KA. A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychol Bull*. 1994;115(1):74–101. doi:10.1037/0033-2909.115.1.74
42. Kokkinos CM, Antoniadou N. Cyber-bullying and cyber-victimization among undergraduate student teachers through the lens of the General Aggression Model. *Comp Hum Behav*. 2019;98:59–68. doi:10.1016/j.chb.2019.04.007
43. Espelage DL, Rao MA, Craven RG. *Theories of Cyberbullying. Principles of Cyberbullying Research*. Routledge; 2012:49–67.
44. Wei H, Liu M. Loving your parents and treating others well: the effect of filial piety on cyberbullying perpetration and its functional mechanism among Chinese graduate students. *J Interpers Violence*. 2022;37(11–12):NP8670–NP8695. doi:10.1177/0886260520978182
45. Wright MF. Adolescents' emotional distress and attributions for face-to-face and cyber victimization: longitudinal linkages to later aggression. *J Appl Dev Psychol*. 2017;48:1–13. doi:10.1016/j.appdev.2016.11.002
46. Pornari CD, Wood J. Peer and cyber aggression in secondary school students: the role of moral disengagement, hostile attribution bias, and outcome expectancies. *Aggress Behav*. 2010;36(2):81–94. doi:10.1002/ab.20336
47. Li C, Sun Y, Ho MY, You J, Shaver PR, Wang Z. State narcissism and aggression: the mediating roles of anger and hostile attributional bias. *Aggress Behav*. 2016;42(4):333–345. doi:10.1002/ab.21629
48. Zeigler-Hill V, Myers EM, Clark CB. Narcissism and self-esteem reactivity: the role of negative achievement events. *J Res Pers*. 2010;44 (2):285–292. doi:10.1016/j.jrp.2010.02.005
49. Hansen-Brown AA, Freis SD. Assuming the worst: hostile attribution bias in vulnerable narcissists. *Self Identity*. 2021;20(2):152–164. doi:10.1080/15298868.2019.1609574
50. Bodecka-Zych M, Jonason PK, Zajenkowska A. Hostile attribution biases in vulnerable narcissists depends on the socio-relational context. *J Individ Diff*. 2021;43(2):70–78. doi:10.1027/1614-0001/a000354
51. Laue C, Griffey M, Lin P-I, et al. Eye gaze patterns associated with aggressive tendencies in adolescence. *Psychiatr Q*. 2018;89(3):747–756. doi:10.1007/s11126-018-9573-8
52. Baumeister RF, Smart L, Boden JM. Relation of threatened egotism to violence and aggression: the dark side of high self-esteem. *Psychol Rev*. 1996;103(1):5–33. doi:10.1037/0033-295x.103.1.5

53. Law H, Falkenbach DM. Hostile attribution bias as a mediator of the relationships of psychopathy and narcissism with aggression. *Int J Offender Ther Comp Criminol*. 2018;62(11):3355–3371. doi:10.1177/0306624X17742614
54. Van Reijswoud BE, Debast I, Videler AC, et al. Severity indices of personality problems–short form in old-age psychiatry: reliability and validity. *J Pers Assess*. 2021;103(2):174–182. doi:10.1080/00223891.2020.1743710
55. Gottfredson MR, Hirschi T. *A General Theory of Crime. A General Theory of Crime*. Stanford University Press; 1990.
56. DeWall CN, Finkel EJ, Denson TF. Self-control inhibits aggression. *Soc Personal Psychol*. 2011;5(7):458–472. doi:10.1111/j.1751-9004.2011.00363.x
57. Tehrani HD, Yamini S. Parenting practices, self-control and anti-social behaviors: meta-analytic structural equation modeling. *J Crim Justice*. 2020;68:101687. doi:10.1016/j.jcrimjus.2020.101687
58. Externbrink K, Diestel S, Krings M. When do those high in trait self-control suffer from strain? The interplay of trait self-control and multiple stressors. *J Pers Psychol*. 2019;18(1):23–33. doi:10.1027/1866-5888/a000218
59. Lei H, Chiu MM, Quan J, Zhou W. Effect of self-control on aggression among students in China: a meta-analysis. *Child Youth Serv Rev*. 2020;116:105107. doi:10.1016/j.childyouth.2020.105107
60. Vazsonyi AT, Mikuška J, Kelley EL. It's time: a meta-analysis on the self-control-deviance link. *J Crim Justice*. 2017;48:48–63. doi:10.1016/j.jcrimjus.2016.10.001
61. Kowalski RM, Limber SP, McCord A. A developmental approach to cyberbullying: prevalence and protective factors. *Aggress Violent Behav*. 2019;45(45):20–32. doi:10.1016/j.avb.2018.02.009
62. Stults BJ, You M. Self-control, cyberbullying, and the moderating effect of opportunity. *Deviant Behav*. 2021;43(10):1267–1284. doi:10.1080/01639625.2021.1985928
63. Hoareau N, Bagès C, Guerrien A. Cyberbullying, Self-control, Information, and Electronic Communication Technologies: do Adolescents Know How to Exercise Self-control on the Internet? *Int J Bullying Prev*. 2021;1–11. doi:10.1007/s42380-021-00099-2
64. Zhao L, Wu Y, Huang X, Zhang L. Network Anonymity and Cyberbullying among Chinese Adolescents: a Moderated Mediation Model. *Int J Environ Res Public Health*. 2022;19(2):637. doi:10.3390/ijerph19020637
65. Fatfouta R, Rogoza R, Brud PP, Rentzsch K. Too tempting to resist? Self-control moderates the relationship between narcissism and antisocial tendencies. *J Res Pers*. 2022;96:104156. doi:10.1016/j.jrp.2021.104156
66. Larson M, Vaughn MG, Salas-Wright CP, Delisi M. Narcissism, low self-control, and violence among a nationally representative sample. *Crim Justice Behav*. 2015;42(6):644–661. doi:10.1177/0093854814553097
67. Vazire S, Funder DC. Impulsivity and the self-defeating behavior of narcissists. *Pers Soc Psychol Rev*. 2006;10(2):154–165. doi:10.1207/s15327957pspr1002_4
68. Hollister-Wagner GH, Foshee VA, Jackson C. Adolescent aggression: models of resiliency 1. *J App Soc Psychol*. 2001;31(3):445–466. doi:10.1111/j.1559-1816.2001.tb02050.x
69. Lian H, Brown DJ, Ferris DL, Liang LH, Keeping LM, Morrison R. Abusive supervision and retaliation: a self-control framework. *Acad of Manag J*. 2014;57(1):116–139. doi:10.5465/amj.2011.0977
70. Choe DE, Lane JD, Grabell AS, Olson SL. Developmental precursors of young school-age children's hostile attribution bias. *Dev Psychol*. 2013;49(12):2245–2256. doi:10.1037/a0032293
71. Nelson JA, Perry NB. Emotional reactivity, self-control and children's hostile attributions over middle childhood. *Cogn Emot*. 2015;29(4):592–603. doi:10.1080/02699931.2014.924906
72. Zheng Y, Huang L. Overt and Covert Narcissism: a Psychological Exploration of Narcissistic Personality. *Psychol Sci*. 2005;28(5):1259–1262. doi:10.16719/j.cnki.1671-6981.2005.05.064
73. Wink P, Gough HG. New narcissism scales for the California Psychological Inventory and MMPI. *J Pers Assess*. 1990;54(3–4):446–462. doi:10.1080/00223891.1990.9674010
74. Çetin B, Yaman E, Peker A. Cyber victim and bullying scale: a study of validity and reliability. *Comput Educ*. 2011;57(4):2261–2271. doi:10.1016/j.compedu.2011.06.014
75. Xu X. An Analysis of the Mediating Role of Self esteem in College Students' Cyber Bullying and Alienation. *J Camp Life Ment Health*. 2016;14(06):408–410.
76. Coccaro EF, Noblett KL, McCloskey MS. Attributional and emotional responses to socially ambiguous cues: validation of a new assessment of social/emotional information processing in healthy adults and impulsive aggressive patients. *J Psychiatr Res*. 2009;43(10):915–925. doi:10.1016/j.jpsychires.2009.01.012
77. Li X. *The Influence of Alexithymia and Hostile Attribution Bias on Aggression of College Students. Dissertations*. Shanghai, China: Shanghai Normal University; 2018.
78. Tangney JP, Boone AL, Baumeister RF. High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. In: Baumeister RF, editor. *Self-Regulation and Self-Control*. Routledge; 2018:173–212.
79. Hayes AF. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. Guilford publications; 2017.
80. Li J, Sidibe AM, Shen X, Hesketh T. Incidence, risk factors and psychosomatic symptoms for traditional bullying and cyberbullying in Chinese adolescents. *Child Youth Serv Rev*. 2019;107:104511. doi:10.1016/j.childyouth.2019.104511
81. Malhotra NK, Schaller TK, Patil A. Common method variance in advertising research: when to be concerned and how to control for it. *J Advert*. 2017;46(1):193–212. doi:10.1080/00913367.2016.1252287
82. Field T. Cyberbullying: a narrative review. *J Addict Ther Res*. 2018;2(1):10–27. doi:10.29328/journal.jatr.1001007
83. Finn J. A survey of online harassment at a university campus. *J Interpers Violence*. 2004;19(4):468–483. doi:10.1177/0886260503262083
84. Saleem S, Khan NF, Zafar S. Prevalence of cyberbullying victimization among Pakistani Youth. *Technol Soc*. 2021;65:101577. doi:10.1016/j.techsoc.2021.101577
85. Zhou S. Status and Risk Factors of Chinese Teenagers' Exposure to Cyberbullying. *SAGE Open*. 2021;11(4):21582440211056626. doi:10.1177/21582440211056626
86. Czarna AZ, Zajenkowski M, Maciantowicz O, Szymaniak K. The relationship of narcissism with tendency to react with anger and hostility: the roles of neuroticism and emotion regulation ability. *Curr Psychol*. 2021;40(11):5499–5514. doi:10.1007/s12144-019-00504-6

87. Navarro R. Gender issues and cyberbullying in children and adolescents: from gender differences to gender identity measures. In: Navarro R, Yubero S, Larrañaga E, editors. *Cyberbullying Across the Globe*. Springer; 2016:35–61.
88. Hart W, Adams JM, Tortoriello G. Narcissistic responses to provocation: an examination of the rage and threatened-egotism accounts. *Pers Indiv Diff*. 2017;106:152–156. doi:10.1016/j.paid.2016.10.049
89. Wink P. Two faces of narcissism. *J Pers Soc Psychol*. 1991;61(4):590–597.
90. Zhang H, Wang Z, You X, Lü W, Luo Y. Associations between narcissism and emotion regulation difficulties: respiratory sinus arrhythmia reactivity as a moderator. *Biol Psychol*. 2015;110:1–11. doi:10.1016/j.biopsycho.2015.06.014

Psychology Research and Behavior Management Dovepress

Publish your work in this journal

Psychology Research and Behavior Management is an international, peer-reviewed, open access journal focusing on the science of psychology and its application in behavior management to develop improved outcomes in the clinical, educational, sports and business arenas. Specific topics covered in the journal include: Neuroscience, memory and decision making; Behavior modification and management; Clinical applications; Business and sports performance management; Social and developmental studies; Animal studies. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit http://www.dovepress.com/testimonials.php to read real quotes from published authors.

Submit your manuscript here: https://www.dovepress.com/psychology-research-and-behavior-management-journal