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The Relationship between Internet Addiction and Cyberbullying Perpetration: A Moderated Mediation Model of Moral Disengagement and Internet Literacy

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ABSTRACT

Internet addiction and cyberbullying have emerged as significant global mental health concerns in recent years. Although previous studies have shown a close association between Internet addiction and cyberbullying, the underlying mechanisms connecting these two phenomena remain unclear. Therefore, this study aimed to reveal the mechanisms involved between Internet addiction and cyberbullying perpetration from the perspective of cognition function. This study recruited 976 Chinese youth through online survey, using the short version of Internet Addiction Test (s-IAT), Chinese Cyberbullying Intervention Project Questionnaire (C-CIPQ), Cyberbullying Moral Disengagement Scale (CMDS), and Internet Literacy Questionnaire (ILQ) to investigate the relationship between Internet addiction, moral disengagement, Internet literacy and cyberbullying perpetration. The key findings of this study were as follows: after controlling gender and age, (1) Internet addiction had a significant positive predictive effect on cyberbullying perpetration; (2) moral disengagement acted as a mediator between Internet addiction and cyberbullying perpetration; and (3) Internet literacy played a moderating role between moral disengagement and cyberbullying perpetration. In conclusion, there was a moderated mediating effect between Internet addiction and cyberbullying perpetration, contributing to a better understanding of the relationship between these two phenomena.

KEYWORDS

Internet addiction; cyberbullying; cyberbullying perpetration; moral disengagement; internet literacy

Introduction

In the digital age, the Internet has become an essential "habitat" for citizens worldwide. According to the 2021 Internet World Statistics, the number of global Internet users reached 5.16 billion by March 31, 2021. In China, there were 1.032 billion netizens by December 2021, according to the latest report from the Chinese Internet Network Information Center. Although the Internet provides tremendous convenience for interpersonal communication, information seeking, and entertainment in our daily life, various online problem behaviors have also emerged inevitably with its continuous popularization [1,2].

Internet addiction and cyberbullying are critical online problem behaviors that have become widespread worldwide in recent years. According to a meta-analysis that reviewed studies from 31 nations across seven world regions, the global occurrence of Internet addiction was approximately 6% [3], and had increased exponentially during the COVID-19 pandemic [4,5]. Meanwhile, a meta-analysis based on 80 international studies showed that the incidence of cyberbullying had reached about 15% [6]. More specifically,

the prevalence of cyberbullying perpetration varied from 7% to 26.8% in Europe [7] and ranged from 17.6% to 58.7% in China [8,9], and was still increasing year by year [10–12].

According to the problem behavior theory [13,14], individuals who exhibit one problematic behavior are likely to engage in other risky behaviors [15]. Therefore, this study aims to explicate the relationship between Internet addiction and cyberbullying perpetration while unveiling the underlying mechanisms from a cognitive function perspective.

Internet addiction and cyberbullying perpetration
Internet addiction, also known as problematic Internet use [16,17], involves a loss of control over Internet usage that might lead to the development and maintenance of addictive symptomatology, specifically causing physical, emotional, social, or even functional impairments [18,19]. Cyberbullying, meanwhile, is an aggressive behavior that intentionally and repeatedly conducted through electronic means, such as email, blogs, instant messages, and text messages, to harm others who cannot easily defend themself [20–22]. The main forms of cyberbullying include sending insulting or threatening messages, displaying embarrassing graphics or pictures, spreading rumors on the Internet, excluding someone from online communication, disclosure of privacy, and online disguised identity [23–25]. There are three main roles in cyberbullying: cyberbullying perpetration, victimization, and bystanders. Cyberbullying perpetration refers to actively engaging in bullying behavior through electronic communication platforms or online spaces. Cyberbullying victimization, on the other hand, refers to the experience of being bullied through electronic means. Cyberbullying bystanders are individuals who witness or are aware of cyberbullying incidents taking place but are not directly involved as either the victim or the perpetrator [21]. Compared to cyberbullying victimization and bystanders, cyberbullying perpetration involves active behaviors that intentionally harm others and can lead to serious negative consequences. Therefore, this study specifically focuses on the examination of cyberbullying perpetration.

A growing body of prior research has demonstrated that Internet addiction can result in poor academic performance, strained family and peer relations, depression, and even more serious mental health problems [26–29]. These negative results caused by Internet addiction may serve as risk factors for cyberbullying perpetration. For instance, individuals who prefer online communication without being fully aware of the risks of sharing personal information may be more susceptible to engaging in cyberbullying [30]. Additionally, the cognitive distortion arising from excessive, impulsive or addictive use of Internet could increase the likelihood of cyberbullying incidents [31]. Moreover, interpersonal conflicts derive from Internet addiction may also contribute to cyberbullying behaviors [32]. Empirical studies have also proved that individuals with Internet addiction are more likely to experience cyberbullying problems [33–37]. To be more specific, research results have shown a significant positive correlations between problematic Internet use and cyberbullying perpetration among Chinese adolescents [2]. Similarly, a longitudinal study conducted over six months also found that Internet addiction could significantly predict increasing cyberbullying perpetration among Spanish adolescents [15]. Therefore, we proposed the following hypothesis:

Hypothesis 1 (H1): Internet addiction will positively affect cyberbullying perpetration.

The mediating role of moral disengagement
Moral disengagement is a cognitive restructuring process that allows individuals to disassociate themselves from their internal moral standards and engage in unethical behaviors. It enables individuals redefine their cognitive-behavioral tendencies, reducing feelings of guilt and shame toward victims [38]. More specifically, moral disengagement includes eight mechanisms: moral justification, euphemistic labeling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, dehumanization, and attribution of blame [39]. Given the characteristics of cyberspace, which is public, invisible, and shareable, with no spatial and temporal boundaries [40], individuals may view it as an emotional outlet and even ignore the social norms and social pressures from the real world [41]. Consequently, the virtual online world becomes a crucial social environment for moral disengagement [38,39], and individuals addicted to the Internet may show higher levels of moral disengagement compared to others. Accordingly, the following hypothesis was proposed:

Hypothesis 2 (H2): Internet addiction will positively affect moral disengagement.

Meanwhile, previous studies have also suggested moral disengagement as a significant predictor of cyberbullying behavior [42,43]. For instance, Gini et al. (2014) conducted a meta-analysis to examine the relationship between moral disengagement and aggressive behavior among children and youth, revealing that moral disengagement was positively associated with aggression behavior with medium effect sizes ($r = 0.27$), bullying ($r = 0.25$), and cyberbullying ($r = 0.31$) [10]. Similarly, Zhao et al. (2021) conducted a review of 38 studies ($N = 38,425$) investigating the relationship between moral disengagement and cyberbullying in adolescents and adults, concluding that there was a positive correlation with medium intensity ($r = 0.341$) [44]. Hence, this study hypothesized that:

Hypothesis 3 (H3): Moral disengagement will positively affect cyberbullying perpetration.

The moderating role of internet literacy
Internet literacy refers to individuals' specific knowledge, skills, and competencies in using the Internet functionally [1,45]. It is also known as information literacy [46], digital literacy [47], or new media literacy [48]. Stodt et al. (2016) proposed a four-dimension concept of Internet literacy, including technical expertise, reflection and critical analysis, production and interaction, and self-regulation [1]. Apart from technical expertise in handling Internet applications and relevant software, this concept emphasizes individuals' ability to evaluate online information critically, use media interactively, become an active producer of online content, and self-regulate online behavior [1,49]. Obviously, Internet

literacy involves a series of cognitive processes and would greatly impact individuals' functional Internet use. Given that moral disengagement is a process of cognitive restructuring, individuals' Internet literacy levels and moral disengagement may be related and interact with each other. Specifically, individuals with lower Internet literacy may have difficulties in critical thinking and self-regulation in online communication, and are likely to demonstrate higher moral disengagement levels, resulting in a more serious cyberbullying perpetration problem. On the contrary, individuals with higher Internet literacy can evaluate online content critically and control themselves effectively. In this case, they are less likely to involve in moral disengagement, thus reducing cyberbullying perpetration behaviors. Hence, this study expected that Internet literacy acted as a moderator between moral disengagement and cyberbullying perpetration. We hypothesized that:

Hypothesis 4 (H4): Internet literacy will moderate the association between moral disengagement and cyberbullying perpetration.

Drawing on the literature review and research questions, we proposed the following research model (see Fig. 1).
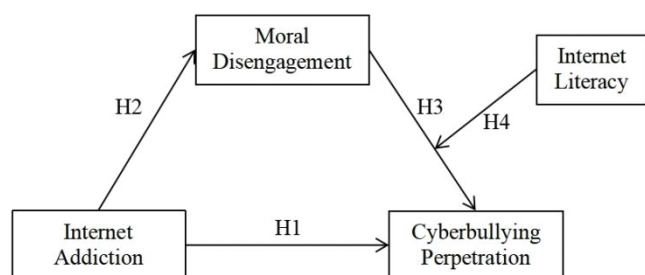

FIGURE 1. Proposed moderated-mediation model of relationship between internet addiction and cyberbullying perpetration.

Material and Methods

Participants and procedures
The participants were recruited through an online survey using convenience sampling method. The study was introduced briefly at the beginning of the survey, emphasizing the anonymity of the questionnaire and its sole use for academic research purposes. Written consents were obtained from all individual participants who took part in the data collection process. A total of 1045 questionnaires were collected. To ensure data quality, all collected data were carefully screened, and invalid samples were eliminated from the study. For example, questionnaires completed within 90 s were excluded from the analysis as it was deemed that such short completion times might not allow participants sufficient time to provide accurate responses to the questions. Additionally, questionnaires completed by participants aged below 15 or above 25 were excluded, as the focus of the study was on youth aged between 15 and 25. Moreover, samples with irregular responses, such as providing the same answer for all questions, were also considered invalid and excluded from the analysis. After the screening process, the final sample consisted of 976 participants, resulting in a response rate of 93.04%. Among

these participants, 450 were males (46.10%) and 526 were females (53.90%). Regarding age distribution, 640 participants were aged from 15 to 17 years old (65.60%), while 336 participants were aged from18 to 24 years old (34.40%).

Measures
The short version of internet addiction test (s-IAT)
Internet Addiction was measured using the s-IAT [50], which was a short version of Young's (1998) original Internet Addiction Test [51]. The s-IAT consists of two sub-scales, namely "loss of control/time management" and "craving/social problems", with 6 items in each sub-scale. A sample item from the "loss of control/time management" is "I tried to reduce the amount of time I spent online but failed." The participants were invited to evaluate their experiences and symptoms of excessive Internet use in their daily life. Items were rated on a 5-point Likert scale ranging from 1 (never) to 5 (very often), with a higher score indicating a higher level of Internet addiction symptoms. The reliability of the scale in the study was $\alpha = 0.926$.

The Chinese cyberbullying intervention project questionnaire (C-CIPQ)
The C-CIPQ, which was adapted and validated by Zhu et al. (2022), was applied in this study [52]. The C-CIPQ includes two sub-scales, including cyberbullying perpetration and cyberbullying victimization. The 7-item cyberbullying perpetration sub-scale was used to assess individuals' engagement in cyberbullying perpetration behaviors (e.g., "I spread rumors about someone on the Internet"). Each item was rated on a 5-point Likert scale (1 = never to 5 = very often), with higher scores indicating more frequent involvement in cyberbullying perpetration. The scale demonstrated excellent reliability in this study ($\alpha = 0.963$).

The cyberbullying moral disengagement scale (CMDS)
Moral disengagement was measured using the CMDS, an 8-item measure of moral disengagement designed specifically for the cyberbullying context [53]. Each of the eight items represented one of the eight moral disengagement mechanisms proposed by Bandura et al. (1996), including moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame, and dehumanizing [38]. For example, the item measuring the euphemistic language mechanism was "Sending a mean message about someone using mobile phones or the internet is just a way of joking around." Participants were asked to rate their level of agreement with each statement on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating greater tendencies to engage in moral disengagement. The reliability of the scale in the study was $\alpha = 0.921$.

The internet literacy questionnaire (ILQ)
The ILQ was applied to measure individuals' Internet literacy [1]. The ILQ consists of 18 items that indicate four dimensions of Internet literacy: technical expertise, reflection and critical analysis, production and interaction, and self-regulation. For

example, one of the items used to measure self-regulation ability in Internet use was "When I am online, I make sure that my Internet use does not negatively affect my private life." Participants were asked to rate each item on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). A higher score on ILQ indicated a higher level of Internet literacy. The scale had excellent reliability in this study, with a Cronbach's alpha of 0.960.

Data analysis

The data collected in this study were analyzed using SPSS 25.0 and PROCESS 3.5, a computational procedure for SPSS and SAS that implemented moderation or mediation analysis as well as their combination in an integrated conditional process model (i.e., mediated moderation and moderated mediation). Specifically, Harman's one-way test was initially conducted to prevent potential common method bias. Next, descriptive statistics were examined, and a correlation analysis was performed to explore the relationships between variables. To test for the mediating role of moral disengagement, Hayes's PROCESS macro (version 4.0) Model 4 was utilized. Finally, the moderated mediation model for Internet addiction and cyberbullying perpetration was tested using the PROCESS macro Model 14, followed by simple slope analysis. To examine the mediation and moderated mediation effects, bootstrap procedures were applied with a bias-corrected bootstrapping (n = 5,000) with 95% confidence intervals (CI). An effects was considered significant when the confidence intervals did not include zero. Additionally, gender and age, which have shown significant associations with both Internet addiction [54,55] and cyberbullying perpetration [10,25] in relevant studies, were used as control variables in the data analysis.

Results

Common method bias detection

Since this study relied on self-reported questionnaires to collect all data, it was important to control and test for common method bias. During the data collection phrase, we used an anonymous survey to control potential common method bias. After completing the data collection, Harman's one-way test was performed on the variables. The results of the test showed that six factors had eigenvalues greater than 1, and the interpretation rate of the first factor was 24.34%. This percentage was below the critical standard of 40%, indicating that there was no obvious common method bias in this study.

Descriptive statistics and correlation analysis

Table 1 showed the means and standard deviations of the variables, along with the correlations between them. According to Table 1, Internet addiction was positively correlated with moral disengagement (r = 0.192, $p < 0.001$) and cyberbullying perpetration (r = 0.316, $p < 0.001$). Furthermore, moral disengagement was positively correlated with cyberbullying perpetration (r = 0.380, $p < 0.001$). Besides, Internet literacy was positively correlated with moral disengagement (r = 0.075, $p < 0.05$), while it had no

TABLE 1

Means, Standard deviations, and Pearson's correlation coefficient between observed variables (N = 976)

Var	M	SD	IA	CP	MD	IL
IA	2.555	0.846	–			
CP	1.326	0.545	0.316***	–		
MD	1.330	0.599	0.192***	0.380***	–	
IL	3.268	0.841	0.028	−0.060	0.075*	–

Note: IA, Internet Addiction; CP, Cyberbullying Perpetration; MD, Moral Disengagement; IL, Internet Literacy. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

significant correlation with Internet addiction and cyberbullying perpetration.

Mediating effect test

We conducted the PROCESS macro Model 4 to examine the mediating effect of moral disengagement while controlling for gender and age, and the result was shown in Tables 2 and 3. According to Table 2, Internet addiction significantly predicted cyberbullying perpetration (β = 0.168, $t = 8.674$, $p < 0.001$) and moral disengagement (β = 0.139, $t = 6.087$, $p < 0.001$), thereby supporting Hypothesis 1 and Hypothesis 2. Additionally, moral disengagement significantly predicted cyberbullying perpetration (β = 0.303, $t = 11.375$, $p < 0.001$), supporting Hypothesis 3. Furthermore, based on the bootstrap procedure results shown in Table 3, there was a significant mediating effect of moral disengagement, as the CI at 95% [0.022, 0.065] did not include the zero. The direct effect (β = 0.261) and the indirect effect (β = 0.065) accounted for the total effect (β = 0.326) of 80.06% and 19.94%, respectively. Therefore, moral disengagement mediated the relationship between Internet addiction and cyberbullying perpetration.

Moderated mediating effect test

We tested the moderated mediation model of Internet addiction and cyberbullying perpetration with PROCESS macro Model 14, and further examined the simple slope. The results were presented in Tables 4, 5, and Fig. 2. As

TABLE 2

Mediating effect test of MD between IA and CP (N = 976)

| Variables | MD | | | CP | | |
	β	SE	t	β	SE	t
Constant	1.207	0.091	13.268***	0.750	0.082	9.128***
Gender	−0.172	0.037	−4.608***	−0.068	0.031	−2.176*
Age	0.024	0.041	0.601	−0.112	0.034	−3.324**
IA	0.139	0.023	6.087***	0.168	0.019	8.674***
MD				0.303	0.027	11.375***
R2	0.062			0.217		
F	21.441***			67.141***		

Note: IA, Internet Addiction; CP, Cyberbullying Perpetration; MD, Moral Disengagement; IL, Internet Literacy. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

TABLE 3

Mediating effect of MD between IA and CP (N = 976)

Influence path	Std. Effect	Effect	Boot SE	Boot LLCI	Boot ULCI	Percentage
Total effect of IA on CP	0.326	0.210	0.020	0.170	0.250	100%
Direct effect of IA on CP	0.261	0.168	0.019	0.130	0.206	80.06%
Indirect effect of IA on CP via MD	0.065	0.042	0.011	0.022	0.065	19.94%

Note: The standardized coefficients are listed, thus they can be compared to determine the relative strength of different influence path in the model. IA, Internet Addiction; CP, Cyberbullying Perpetration; MD, Moral Disengagement; IL, Internet Literacy.

TABLE 4

Moderated mediating effect test of MD between IA and CP (N = 976)

Variables	MD			CP		
	β	SE	t	β	SE	t
Constant	−0.123	0.091	−1.358	1.153	0.074	15.624***
Gender	−0.172	0.037	−4.608***	−0.067	0.031	−2.206*
Age	0.024	0.041	0.601	−0.117	0.033	−3.543***
IA	0.139	0.023	6.087***	0.173	0.019	9.150***
MD				0.358	0.027	13.207***
IL				−0.077	0.018	−4.240***
MD*IL				−0.182	0.028	−6.489***
R2	0.062			0.257		
F	21.441***			55.970***		

Note: IA, Internet Addiction; CP, Cyberbullying Perpetration; MD, Moral Disengagement; IL, Internet Literacy. *p < 0.05. **p < 0.01. ***p < 0.001.

presented in Table 4, while controlling for gender and age, Internet addiction had a significant influence on moral disengagement (β = 0.139, t = 6.087, p < 0.001) and cyberbullying perpetration (β = 0.173, t = 9.150, p < 0.001). What's more, moral disengagement significantly predicted cyberbullying perpetration (β = 0.358, t = 13.207, p < 0.001), and the interaction between moral disengagement and Internet literacy had a significant impact on cyberbullying perpetration (β = −0.182, t = −6.489, p < 0.001), supporting Hypothesis 4. Meanwhile, the index of moderated mediation was −0.025 with a 95% CI of [−0.044, −0.010]. Therefore, the conceptual model proposed in this study was supported. Specifically, the relationship between Internet addiction and cyberbullying perpetration was mediated by moral disengagement, and this indirect effect was further moderated by Internet literacy.

Fig. 2 depicted a visual representation of the interaction effect between moral disengagement and Internet literacy on cyberbullying perpetration. The figure revealed that moral disengagement positively affected cyberbullying perpetration no matter how Internet literacy differs. However, the impact was weaker when individuals' Internet literacy level was higher (simple slope = 0.205, t = 6.675, p < 0.001). Conversely, when individuals' Internet literacy level was lower, the impact was stronger (simple slope = 0.511, t = 12.597, p < 0.001), demonstrating that Internet literacy acted as a buffer in this process.

TABLE 5

Conditional indirect effects of IA on CBP via MD under different levels of IL (N = 976)

Levels of IL	Effect	BootSE	BootLLCI	BootULCI
Low (M-1SD)	0.071	0.018	0.039	0.111
Medium (M)	0.050	0.013	0.027	0.077
High (M+1SD)	0.028	0.010	0.011	0.050

Note: IA, Internet Addiction; CP, Cyberbullying Perpetration; MD, Moral Disengagement; IL, Internet Literacy.
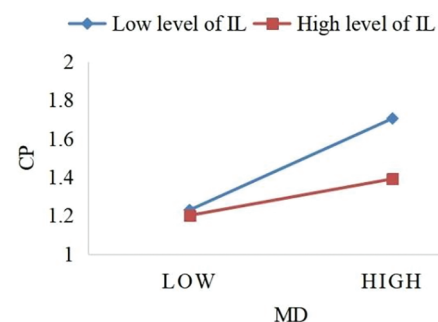

FIGURE 2. The moderating effect of IL (Internet Literacy) between MD (Moral Disengagement) and CP (Cyberbullying Perpetration).

Further comparing the indirect effects of Internet addiction on cyberbullying perpetration at different levels of moral disengagement (M−1SD, M, and M+1SD), Table 5 showed that the indirect effect was particularly significant for youth with low levels of Internet literacy (conditional indirect effect = 0.071, 95% CI = [0.039, 0.111]). The indirect effect was likewise significant for youth with high levels of Internet literacy, but was much weaker than the former (conditional indirect effect = 0.028, 95% CI = [0.011, 0.050]). It indicated that Internet literacy weakened the indirect effects of moral disengagement between Internet addiction and cyberbullying perpetration. In other words, individuals with higher Internet literacy were better equipped to resist the negative influence of moral disengagement on engaging in cyberbullying perpetration.

Discussion

Theoretical contributions

Today's youth are growing up in an increasingly digital world, where the Internet serves as a vital platform for social interaction and recreation. However, the social issues in the virtual world should not be neglected. Among these issues, Internet addiction and cyberbullying are two prevalent and concerning phenomena that have drawn great concern from researchers worldwide. This study tests the positive relationship between Internet addiction and cyberbullying, and further revealed the underlying cognition mechanisms between them.

First, we test the mediation effect of disengagement on the relationship between Internet addiction and cyberbullying perpetration. Previous literature has explored that media-related factors of Internet addiction may cause cyberbullying perpetration. For example, it has been reported that the exposure to violent media content significantly augments the risks of becoming a cyberbullying perpetrator, especially in males [56,57]. In addition, interpersonal conflicts derive from Internet addiction may result in cyberbullying [32]. Nevertheless, limited attention has been given to the cognitive-related factors of Internet addiction leading to cyberbullying perpetration. Our study highlights the significance of moral disengagement as a crucial mediating factor in this relationship. The findings of our study indicate that individuals with Internet addiction tend to exhibit higher levels of moral disengagement, which, in turn, increases their likelihood of perpetrating cyberbullying behaviors.

Furthermore, our study also reveals the moderating role of Internet literacy in the indirect effect of Internet addiction on cyberbullying perpetration, which is mediated by moral disengagement. According to Stodt et al. (2016), Internet literacy consists of four dimensions, including technical expertise, reflection and critical analysis, production and interaction, and self-regulation [1]. Previous studies have demonstrated that both Internet addiction and cyberbullying are associated with lower levels of Internet literacy among individuals [33], and cyberbullying perpetrators especially display weaker skills in reflecting on Internet content and self-regulation [1]. However, it is unclear how Internet literacy works in the cognitive process when youth involved in these phenomena. Our study reveals that Internet literacy moderated the indirect effects of moral disengagement between Internet addiction and cyberbullying perpetration and worked as a buffer in this process. In our findings, we observe that higher levels of Internet literacy weakens the impact of moral disengagement on cyberbullying perpetration, whereas lower levels of Internet literacy strengthen this relationship.

Practical implications

This study explores the relationship between Internet addiction and cyberbullying perpetration from a cognition perspective, providing a more comprehensive understanding of the underlying mechanisms between these two phenomena. The findings of this study carry significant implications for future research in the field of online behavior and mental health. Moreover, the implications of our study extend beyond academia to inform practical intervention strategies for various stakeholders, including parents, teachers, school administrators, and relevant government departments. Firstly, the study emphasizes the correlations of Internet addiction and cyberbullying perpetration, suggesting that both issues should be addressed simultaneously in prevention and intervention efforts. Secondly, this study sheds light on the crucial mediating role of moral disengagement between Internet addiction and cyberbullying perpetration. As such, interventions should target moral disengagement as a key factor influencing cyberbullying perpetration. Establishing and promoting norms within online communities become a vital strategy in this regard. By fostering a culture of moral self-discipline, individuals are encouraged to recognize the ethical implications of their actions in the digital realm, guiding them towards adopting healthy online behaviors and regulating problematic Internet use. Finally, the study finds that Internet literacy serves as a buffer that mitigates the negative influence of moral disengagement on cyberbullying perpetration. It suggests that individuals with higher Internet literacy are better equipped to critically evaluate online content and regulate their online behavior, which can help reduce the negative impact of moral disengagement on cyberbullying perpetration. This result highlights the importance of enhancing Internet literacy among youth as a preventive strategy to reduce the likelihood of engaging in cyberbullying perpetration. For example, we can incorporate reflective skills and self-regulative techniques into existing curricula of media competence, or developed targeted training programs to empower young individuals to think critically, self-regulate their behavior, and navigate online spaces responsibly. By considering these research findings, stakeholders can develop comprehensive strategies to address Internet addiction and cyberbullying perpetration effectively. These efforts will contribute to promoting healthy Internet use and fostering a safer and more responsible online environment for youth.

Limitations and Future Directions

This study offers valuable insights for understanding the cognitive process between Internet addiction and cyberbullying perpetration; however, it is essential to acknowledge its limitations and identify potential directions for future research. First of all, the study focused on Chinese youth aged between 15 and 25, which may limit the generalizability of the findings to other age groups or cultural contexts. Future research should consider a more diverse sample, including participants from different age groups and culture backgrounds, to enhance the external validity of the findings. Moreover, the study employs a cross-sectional design, which only captured data at a single point in time. Since the variables in this study may be influenced by time, it would contribute to a better understanding of the research model if conducting tracking studies in future research. Therefore, we suggest that future studies could adopt longitudinal or experimental designs to examine the temporal associations between the studied variables. Furthermore, our study includes age and gender as control variables because previous research has shown that they can influence both Internet addiction and cyberbullying perpetration. Nevertheless, there are other factors, such as education, crime-related characteristics, would related to both Internet addiction and cyberbullying perpetration [58]. Future research should take more control variables into consideration and conduct a more thorough analysis to explore the moderating effects of these variables.

Conclusion

This study constructs a moderated mediation model to examine the relationship between Internet addiction and cyberbullying perpetration, with the mediating role of moral disengagement and the moderating effect of Internet literacy. The results show that Internet addiction has a positive predictive effect on cyberbullying perpetration, in which moral disengagement plays a mediating role. In addition, Internet literacy has a moderating effect on the second half of the mediating path between Internet addiction and cyberbullying perpetration. Specifically, at a high level of Internet literacy, moral disengagement has a less significant positive predictive effect on cyberbullying perpetration. Overall, these findings contribute to the growing body of knowledge on the relationship between Internet addiction and cyberbullying perpetration and reveal the cognitive mechanisms under them.

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Availability of Data and Materials: The raw data supporting the conclusions of this article will be made available by the author, without undue reservation.

Ethics Approval: The studies involving human participants were reviewed and approved by the Ethics Committee in the College of Education Science and Technology at Nanjing University of Posts and Telecommunications. The participants provided their written informed consent to participate in this study.

Conflicts of Interest: The authors declare that they have no conflicts of interest to report regarding the present study.

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