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Perceived social adversity and online trolling in college students: Depressive symptoms mediation and perceived social support moderation

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Abstract: This study investigated the relation of perceived social adversity to online trolling in college students. Participants were 1047 Chinese university students (51.0% female; mean age = 19.93 years, *SD* = 1.38) who completed self-report questionnaires assessing perceived social adversity, depressive symptoms, online trolling, and perceived social support. Regression analyses controlling for gender, age, and grade indicated that perceived social adversity positively predicted online trolling. Further analyses showed that depressive symptoms accounted for this association, whereas perceived social support attenuated the direct effect only at lower levels of perceived social adversity. Consistent with the I^3 model, perceived social adversity and depressive symptoms increased the likelihood of online trolling, but perceived social support exerted a buffering effect only under specific conditions. Therefore, beyond platform governance, prevention should prioritize early identification of high-stress, high-depression individuals and provide tailored psychological resources and support.

Keywords: Perceived social adversity; online trolling; depressive symptoms; perceived social support

Introduction

Online trolling refers to the behaviour of individuals deliberately posting and disseminating offensive, inflammatory and destructive information on the internet for the purpose of causing controversy and conflict (Buckels et al., 2014). In contrast to other forms of online aggression, online trolling targets large numbers of internet users who do not know each other, with the purpose of creating chaos for fun or venting negative emotions caused by social pressure (Howard et al., 2019). As a widespread form of online aggression, online trolling is gradually becoming dominant in the online environment, which not only affects the mental health of victims, including increased depressive symptoms, self-harm, and suicidal behaviour (Akhtar & Morrison, 2019; Kapse & Gupta, 2023; Wilson & Seigfried-Spellar, 2023) but also leads to profound negative consequences such as group polarization, the deterioration of the public communication environment, and decreased social trust (Simchon et al., 2022; Goyanes et al., 2021; Tufekci, 2017). As individuals enter adulthood from adolescence, self-presentation becomes especially salient among college students. Their frequent involvement in online activities may, in turn, expose them to a greater likelihood of online trolling. Prior evidence has shown that this behavior is relatively prevalent in this group, with one study finding that 71.2% of college students reported engaging in online trolling at least weekly (Hong & Cheng, 2018).

However, many studies have not fully utilized the person–environment interactions perspective (Herrenkohl, 2013). They often focus on a single, direct association between environmental factors or personal traits and aggressive behavior outcomes, overlooking that online trolling often results from the joint influence of environmental and individual factors (Nitschinsk et al., 2023; Volkmer et al., 2023). In view of the fact that online trolling may lead to serious negative effects, this study chose to focus on how individuals subjectively perceive their social environment, namely the perceived social adversity, to examine its relationship and influence mechanism with online trolling among college students, which has important implications for improving the network environment and maintaining the mental health of college students.

Perceived social adversity and online trolling

Perceived social adversity refers to the extent to which an individual perceives threat or stress in the social environment (Zhang et al., 2017). According to the I^3 model, the perceived social adversity may serve as an *Instigation* for online trolling. When individuals experience long-term social adversity and psychological distress, they often seek a balance in terms of cognition, emotion, and behaviour through aggressive behaviour (Jin et al., 2020). Existing studies have indicated that individuals' perceptions of long-term and repeated social adversity are associated with aggressive behaviour (Jin et al., 2020; Liu et al., 2021). Furthermore, Individuals who perceive greater social adversity show a significantly greater likelihood of engaging in online aggression (Chen et al., 2024). Some studies have indicated that college students with high perceived social adversity may use online aggression as a way to vent stress and negative emotions (Ybarra & Mitchell, 2004; Hinduja & Patchin, 2014; Huang et al., 2025).

Higher perceived social adversity has also been associated with stronger negative emotional experiences and a greater tendency to seek psychological relief (Ding et al., 2018; Chen et al., 2024). Motivated by anonymity and avoidance of accountability, they may create controversy and post inflammatory remarks online to attract attention and interaction, thereby gaining a sense of presence and venting their emotions (Maltby et al., 2016; Wu et al., 2022). We speculate that higher perceived social adversity is associated with a greater likelihood of online trolling among college students.

Mediating role of depressive symptoms

Depressive symptoms refer to an emotional problem characterized by negative emotions such as pain and sadness (Tang & Zhang, 2022). The perceived social adversity may affect college students' online trolling through depressive symptoms. According to General Strain Theory, when individuals perceive long-term social adversity, they become tired and lose the sense of joy in life, which leads to the emergence of depressive symptoms, and depressive symptoms promotes aggression, thereby relieving the individual's psychological pressure (Agnew, 1992). A meta-analysis demonstrated that there is a significant positive association between perceived social adversity and depressive symptoms (Jin & Zhu, 2022). Other studies have identified perceived social adversity as a salient antecedent of depressive symptoms in college students (Kokou-Kpolou et al., 2021). Conversely, college students with more severe depressive symptoms are more likely to ruminate and dwell on negative emotions and experiences. With the help of the anonymity of the internet, they can release their pent-up negative emotions by attacking others in an attempt to relieve their inner pain and stress (Hong & Cheng, 2018). Existing findings suggest that depressive symptoms are positively related to cyberbullying (Alrajeh et al., 2021). We speculate that depressive symptoms as an intermediary mechanism linking perceived social adversity to online trolling.

Moderating role of perceived social support

Perceived social support refers to the extent of emotional satisfaction individuals experience when they feel supported and understood (Sarason et al., 1983). According to the buffering hypothesis of the social support mechanism, social support is regarded as a "buffer". When people face stress and frustration, they can ease their burden through social support and reduce the harm caused by stress to their body and mind (Cohen & Wills, 1985). Similarly, from the perspective of the I^3 model, perceived social support may also act as an *Inhibition*, playing a moderating role between *Instigation* and aggressive behavior. By providing resources and strengthening self-regulation and coping capacity, it can buffer adversity-related stress, reduce negative appraisals and emotions, and thereby curb aggressive venting (Wang, 2004; Mitchell et al., 1982). Prior findings indicate that perceived social support can buffer the effect of stress on depressive symptoms among college students (Shi, 2021), while also diminishing the association between stress and online aggression (Li et al., 2018). This kind of buffering effect is usually called the "helping-in-need" model, as shown in Figure 1.

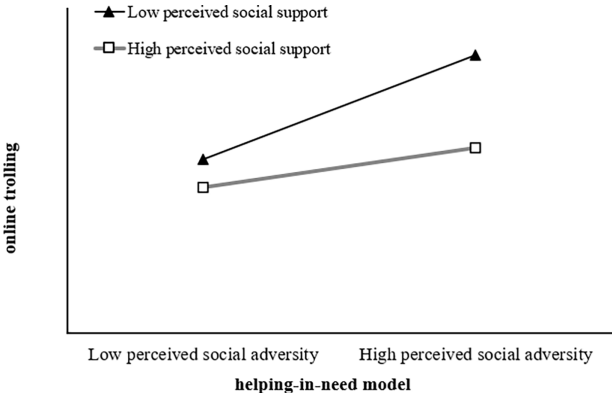

Figure 1. "Helping-in-need" model

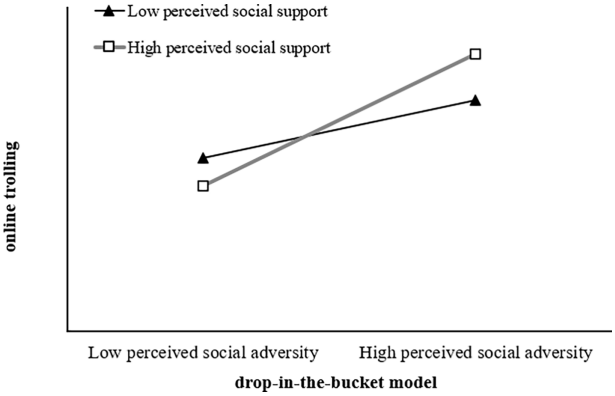

Figure 2. "Drop-in-the-bucket" model

However, according to previous research, perceived social support may exert different moderating effects under different levels of perceived stress (Stetz et al., 2006). Accordingly, this study also needs to consider the "a-drop-in-the-bucket" model, as shown in Figure 2. The drop-in-the-bucket model suggests that perceived social support may exacerbate the relationship between perceived social adversity and online trolling. Moreover, the stress vulnerability hypothesis supports the drop-in-the-bucket model. In high-pressure environments, individuals' positive resources lose their buffering effect (Rutter, 2006; Vanderbilt-Adriance & Shaw, 2008; Li et al., 2012). Prior evidence indicates that peer social support may be more beneficial for adolescents in lower-risk contexts (Wang et al., 2019). Therefore, the moderating role of perceived social support warrants further examination in this study.

Theoretical foundations

The I^3 model is a theoretical framework designed to explain the factors underlying aggressive behavior. According to the I^3 model, an individual's aggressive behaviour is the result of the combined effects of *Instigation, Impellance* and *Inhibition* (Zhang et al., 2021; Finkel, 2014). *Instigation* refers to external environmental factors that may directly trigger aggressive behavior (e.g., stressful life events, online anonymity) (Finkel, 2014). *Impellance* refers to individual characteristics or states that

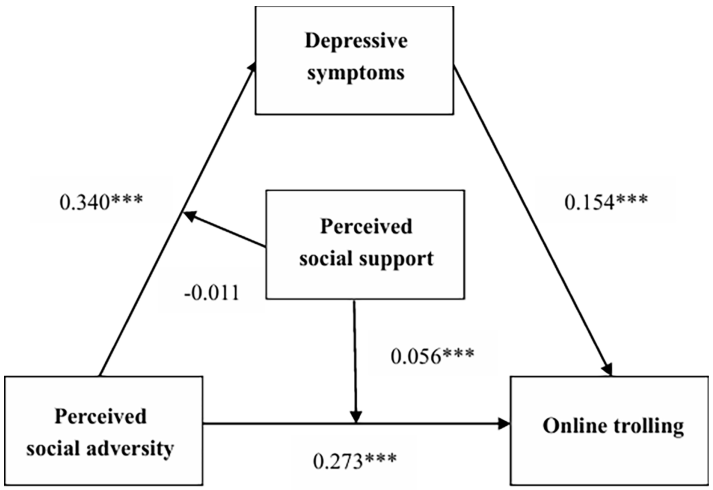

Figure 3. Moderated mediation model. *Note*. ***$p < 0.001$.

increase the likelihood of aggression (e.g., negative emotions, moral disengagement) (Finkel, 2007). In contrast, *Inhibition* refers to individual or environmental resources that reduce the likelihood of aggression (e.g., social support, collectivism) (Finkel, 2007, 2014). Prior research has typically conceptualized depressive symptoms as a negative emotional state that functions as a key *impellance* for aggressive behavior, whereas perceived social support plays an important *inhibition* in online aggression (Finkel, 2011; Yang et al., 2021). Accordingly, guided by the I^3 model, the present study conceptualizes perceived social adversity as an *Instigation*, depressive symptoms as an *Impellance*, and perceived social support as an *Inhibition*, to explore the mediating role of depressive symptoms in the relationship between perceived social adversity and online trolling, along with the moderating role of perceived social support.

Goal of the Study

Within the I^3 model framework, we developed a moderated mediation model integrating *Instigation* (perceived social adversity), *Impellance* (depressive symptoms), and *Inhibition* (perceived social support) to examine the mediating role of depressive symptoms in the association between perceived social adversity and online trolling, as well as the moderating mechanism of perceived social support, as shown in Figure 3. Specifically, we proposed three hypotheses:

Hypothesis 1: College students with higher perceived social adversity are more likely to engage in online trolling.

Hypothesis 2: Depressive symptoms will serve as a mediator in the association between perceived social adversity and online trolling. Specifically, higher perceived social adversity is associated with more severe depressive symptoms, which in turn increases the risk of online trolling.

Hypothesis 3: Perceived social support moderates both the direct and indirect pathways linking perceived social adversity to online trolling. Specifically, higher perceived social support weakens these associations.

Method

Participants and procedure

Using a convenience sampling method, this study collected data over a four-month period from March to June 2024. This study recruited 1047 students from universities across China. The participants' average age was 19.93 ± 1.38 years, and they included 513 male college students (49.00%) and 534 female college students (51.00%), as shown in Table 1.

Measures

Perceived social adversity

The Perceived Chronic Social Adversity Questionnaire (PCSAQ) compiled by Zhang et al. (2017) was used. The Likert 5-point scoring method is used, ranging from 1 (completely disagree) to 5 (completely agree). The higher the score is, the greater the individual's perceived social adversity is. For example, some of the items include: "I am always being abandoned." The results of the confirmatory factor analysis (CFA) suggested that the model fit the data well, with TLI = 0.916; CFI = 0.923; SRMR = 0.042; RMSEA = 0.057. Moreover, Cronbach's α was 0.95.

Depressive symptoms

The Chinese revised version of the Center for Epidemiological Studies Depression Scale (CES-D) compiled by Radloff was used to measure the subjects' depressive symptoms (Radloff, 1977). The Likert 4-point scoring method is used, ranging from 0 (occasionally or never) to 3 (most of the time or continuously). After the 4 reverse items are rescored, the higher the score is, the greater the degree of depressive symptoms is. For example, some of the items included: "I was bothered by things that usually don't bother me." The results of the CFA suggested that the model fit the data well, with TLI = 0.932; CFI = 0.941; SRMR = 0.040; RMSEA = 0.055. Moreover, the Cronbach's α was 0.86.

Online trolling

The Global Assessment of Internet Trolling Scale (GAIT) compiled by Sest & March was used. This study used the

Table 1. Descriptive statistics of demographic variable distribution (N = 1047)

Analysis items	Options	N	Percentage	M	SD
Gender	Male	513	49.0	1.51	0.50
	Female	534	51.0		
Age	17–19 years old	417	39.8	19.93	1.38
	20–22 years old	583	55.7		
	23–25 years old	47	4.5		
Grade	Freshman	327	31.2	2.16	1.04
	Sophomore	390	37.2		
	Junior	166	15.9		
	Senior	164	15.7		
Only child	Yes	326	31.1	1.69	0.46
	No	721	68.9		
Family location	Urban	565	54.0	1.46	0.50
	Rural	482	46.0		

Chinese version translated by Li et al. (2024). A 5-point Likert scoring method, ranging from 1 (strongly disagree) to 5 (strongly agree). Scores that are higher reflect a greater likelihood of engaging in online trolling. For example, some of the items included: "Although some people think my posts/comments are offensive, I think they are funny." The results of the CFA suggested that the model fit the data well, with TLI = 0.968; CFI = 0.976; SRMR = 0.026; RMSEA = 0.060. Moreover, the Cronbach's α was 0.77.

Perceived social support

The perceived social support Scale (PSS) compiled by the domestic scholar Jiang Qianjin was used (Jiang, 2001). It uses a 7-point scoring method ranging from 1 (strongly disagree) to 7 (strongly agree). The higher the score is, the greater the ability to perceive social support is. For example, some of the items included: "There is a special person who is around when I am in need." The results of the CFA suggested that the model fit the data well, with TLI = 0.964; CFI = 0.974; SRMR = 0.031; RMSEA = 0.056. Moreover, the Cronbach's α was 0.93.

Procedure

The entire research procedures followed the ethical standards of Sichuan Normal University (IRB NO. SCNU-240318). Before completing the questionnaire, all the subjects signed an informed consent statement and were advised that they could withdraw from the study at any time.

Data analysis

All statistical procedures were conducted in IBM SPSS Statistics 26.0. Harman's single-factor test was used to examine potential common method bias. The results showed that the largest factor accounted for 22.85% of the variance (below 40%), indicating no substantial common method bias. Multicollinearity was examined. The variance inflation factor (VIF) values for all predictors ranged from 1.00 to 1.84, far below the cutoff value of 5, and tolerances were all ≥0.54, suggesting no multicollinearity concerns. Hayes' PROCESS macro for SPSS was used to test the mediating role of depressive symptoms in the association between perceived social adversity and online trolling while controlling for gender, age, and grade (Model 4). The indirect effect was estimated with bootstrapping, and mediation was considered significant when the 95% confidence interval did not include zero. PROCESS Model 8 was further applied to examine the proposed moderated mediation model.

Results

Descriptive statistics and correlation analysis

Before conducting the relevant analyses, a normality test was performed on each variable. The results showed that the skewness [−0.725, 1.071] and kurtosis [0.504, 0.996] were within the commonly used empirical threshold range (West et al., 1995), and the overall normality assumption was satisfied (see Appendix I). The relevant analysis results showed that perceived social adversity was significantly positively correlated with online trolling ($r = 0.351$, $p < 0.001$), supporting Hypothesis1, as shown in Table 2. Perceived social adversity was significantly positively correlated with depressive symptoms ($r = 0.526$, $p < 0.001$), perceived social adversity was significantly negatively correlated with perceived social support ($r = -0.188$, $p < 0.001$), depressive symptoms were significantly positively correlated with online trolling ($r = 0.225$, $p < 0.001$), and perceived social support was significantly negatively correlated with online trolling ($r = -0.198$, $p < 0.001$).

Perceived social adversity effects on online trolling

As presented in Table 3, perceived social adversity remained a significant positive predictor of online trolling after gender, age, and grade were controlled for ($\beta = 0.290$, $p < 0.001$), thereby supporting Hypothesis 1.

Table 2. Correlations and significance among the variables

Variables	*M*	*SD*	1	2	3	4
1. PSA	2.15	0.71	1			
2. DS	0.83	0.46	0.526***	1		
3. OT	1.71	0.66	0.351***	0.225***	1	
4. PSS	4.82	1.27	−0.188***	−0.276***	−0.198***	1

Note. PSA = perceived social adversity; DS = depressive symptoms; OT = online trolling; PSS = perceived social support; *M* = mean; *SD* = standard deviation; ***$p < 0.001$.

Table 3. Linear regression analysis

Model	Dependent variable	Independent variable	R^2	Adjusted R^2	*F*	*β*	*t*
1	DS	Gender	0.286	0.284	104.516***	0.064	2.428*
		Age				0.078	2.204*
		Grade				−0.086	−2.436*
		PSA				0.526	20.102***
2	PSS	Gender	0.129	0.125	30.827***	−0.226	−7.689***
		Age				−0.008	−0.212
		Grade				0.001	0.015
		PSA				−0.044	−1.296
		DS				−0.267	−7.808***
3	OT	Gender	0.286	0.282	69.520***	−0.358	−13.094***
		Age				−0.101	−2.847**
		Grade				0.160	4.512***
		PSA				0.290	9.376***
		DS				0.095	2.967**
		PSS				−0.042	−1.483

Note. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; PSA = perceived social adversity; DS = depressive symptoms; OT = online trolling; PSS = perceived social support.

Table 4. Regression analysis results in the mediation model

	Regression equation	Coefficient significance		Fit index			95% CI	
Outcome variable	Predictor variables	*b*	*t*	*R*	R^2	*F*	*LLCl*	*ULCI*
DS	PSA	0.340	20.102***	0.535	0.286	104.516***	0.306	0.373
	Gender	0.059	2.428*				0.011	0.106
	grade	−0.038	−2.436*				−0.069	−0.007
	Age	0.063	2.204*				0.007	0.119
OT	PSA	0.273	9.438***	0.534	0.285	82.889***	0.216	0.330
	DS	0.154	3.410***				0.065	0.242
	Gender	−0.487	−13.806***				−0.556	−0.418
	grade	0.102	4.508***				0.058	0.147
	age	−0.118	−2.836**				−0.200	−0.036

Note. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; PSA = perceived social adversity; DS = depressive symptoms; OT = online trolling.

Table 5. Test of the mediating effect of depressive symptoms on the relationship between perceived social adversity and online trolling

	Effect	BootSE	BootLLCI	BootULCI
Total effect	0.325	0.025	0.277	0.373
Indirect effect	0.052	0.019	0.016	0.089
Direct effect	0.273	0.029	0.216	0.330

Mediating effect of depressive symptoms

As shown in the regression analysis results in Table 4, perceived social adversity significantly and positively predicted depressive symptoms ($b = 0.340$, $t = 20.102$, $p < 0.001$, 95% CI = [0.306, 0.373]), and depressive symptoms positively predicted online trolling ($b = 0.154$, $t = 3.410$, $p < 0.001$, 95% CI = [0.065, 0.242]). The results of the mediation effect analysis, as shown in Table 5 revealed a significant total effect ($b = 0.325$, 95% CI = [0.277, 0.373]) that is, perceived social adversity could significantly and positively predict online trolling. The indirect effect ($b = 0.052$, 95% CI = [0.016, 0.089]) indicated that depressive symptoms had a significant mediating effect on the relationship between perceived social adversity and online trolling, supporting Hypothesis 2.

Moderating effect of perceived social support

The results revealed that the interaction term between perceived social adversity and perceived social support significantly predicted online trolling ($b = 0.056$, $t = 3.551$, $p < 0.001$), indicating that perceived social support could moderate the direct path between perceived social adversity and online trolling, as shown in Table 6. However, the interaction between perceived social adversity and perceived social support did not significantly predict depressive symptoms, indicating that perceived social support did not moderate the association between perceived social adversity and depressive symptoms. Simple slope analyses further showed that perceived social adversity was positively associated with online trolling at both low and high levels of perceived social support. Specifically, under low perceived social support, perceived social adversity significantly predicted online trolling ($b = 0.201$, $t = 5.786$, $p < 0.001$, 95% CI = [0.133, 0.270]); under high perceived social support, this predictive effect remained significant and was stronger ($b = 0.344$, $t = 9.731$, $p < 0.001$, 95% CI = [0.275, 0.414]). As shown in Figure 4, the effect of perceived social adversity on online trolling varied as a function of perceived social support. At low levels of perceived social adversity, higher perceived social support was associated with less online trolling, suggesting that perceived social support served a protective role in this condition. However, this pattern did not hold when perceived social adversity was high. Under high-adversity conditions, lower perceived social support was associated with lower levels of online trolling, indicating that perceived social support failed to exert the expected buffering effect. Accordingly, the moderating hypothesis 3 was only partially supported.

Discussion

Results revealed a positive association between perceived social adversity and online trolling among college students, providing support for Hypothesis 1. From the perspective of the I^3 model, this result suggests that perceived social adversity, as an *Instigation*, on the one hand, depletes individuals' coping and self-regulation resources through prolonged stress. According to coping theory (Lazarus, 1984), when faced with stress, individuals deliberately mobilize their coping resources; when such resources are insufficient, individuals may turn to maladaptive coping strategies (Jin et al., 2020). College students with higher perceived social adversity often endure chronic stress from multiple sources, and their emotion regulation and stress-management capacities may gradually deteriorate (Ybarra & Mitchell, 2004; Hinduja & Patchin, 2014; Huang et al., 2025). As coping resources become depleted, they may engage in online trolling. This study further supports the frustration–aggression hypothesis (Dollard et al., 2013). As a form of frustrating experience, higher perceived social adversity is more likely to elicit online aggressive behavior (Chen et al., 2024). Moreover, unlike other forms of online aggression, trolling does not require a specific target; simply posting provocative or divisive remarks can quickly trigger reactions and provide short-term psychological compensation (Cheng et al., 2017), thereby temporarily alleviating psychological distress.

The mediation analysis showed that depressive symptoms mediated the association between perceived social adversity and online trolling, thereby supporting the proposed hypothesis. This finding is consistent with prior research and provides further support for General Strain Theory (Hay & Meldrum, 2010; Agnew, 1992). One possible explanation is that social adversity may evoke feelings of helplessness and frustration in college students, which subsequently give rise to negative emotional responses, with depressive symptoms representing one of the most common outcomes of this process (Jin & Zhu, 2022). Depressive symptoms can also reduce an individual's ability to regulate emotions, making it difficult for them to cope with stress and negative emotions in a positive way, and as a result, they choose an aggressive coping method (Hong & Cheng, 2018). Online trolling is also an anonymous, low-risk way to express anger and hostility (Wu et al., 2022; Buckels et al., 2014), making it a coping strategy for individuals with depressive symptoms.

Notably, the findings did not support a significant moderating role of perceived social support in the link between perceived social adversity and depressive symptoms. This result may be attributable, first, to the fact that perceived social support reflects a subjective perception that is readily influenced by personal characteristics, psychological status, and cognitive biases (Lakey & Orehek, 2011; Han et al., 2025). Second, depressive symptoms emerge from the interplay of biological, psychological, and social determinants, which may restrict the protective influence of social support (Kendler et al., 2002; Lakey & Orehek, 2011). Furthermore, depressive symptoms are commonly associated with maladaptive cognitions, including self-blame and negative self-evaluation, which may undermine individuals' willingness or ability to perceive and receive support, thereby attenuating the role of perceived social support (Ciarrochi et al., 2011; Esposito et al., 2024).

However, the present study showed that perceived social support strengthened, rather than buffered, the association between perceived social adversity and online trolling, thereby providing only partial support for Hypothesis 3. One possible interpretation is consistent with the drop-in-the-bucket model: perceived social support was associated with lower levels of online trolling only when perceived social adversity was relatively low, whereas this protective effect disappeared under high levels of

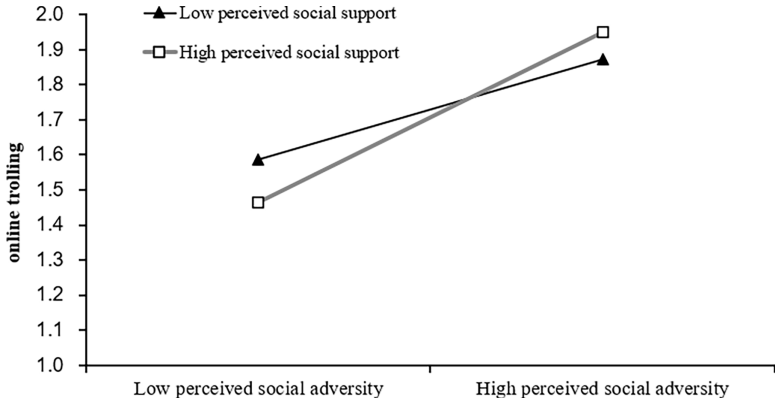

Figure 4. The moderating role of perceived social support in the relationship between perceived social adversity and online trolling

Table 6. Analysis of the moderating effect of perceived social support

Regression equation		Model fit index			Effect size and significance		95% CI	
Outcome variable	Predictor variables	*R*	R^2	*F*	*b*	*t*	*LLCI*	*ULCI*
DS	PSA	0.571	0.327	84.012***	0.314	18.772***	0.281	0.347
	PSS				−0.077	−7.820***	−0.096	−0.058
	Gender				0.098	4.050***	0.050	0.145
	Grade				−0.036	−2.370*	−0.066	−0.006
	Age				0.058	2.091*	0.004	0.113
	PSA × PSS				−0.011	−0.992	−0.032	0.010
OT	PSA	0.543	0.295	62.055***	0.273	9.489***	0.217	0.329
	DS				0.142	3.091**	0.052	0.233
	PSS				−0.009	−0.600	−0.039	0.021
	Gender				−0.471	−13.077***	−0.542	−0.400
	Grade				0.103	4.572***	0.059	0.147
	Age				−0.119	−2.871**	−0.200	−0.038
	PSA × PSS				0.056	3.551***	0.025	0.088

Note. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; PSA = perceived social adversity; DS = depressive symptoms; OT = online trolling; PSS= perceived social support.

adversity. This pattern is also broadly consistent with prior research showing that, when negative stressors become overwhelming, individuals' self-regulatory capacities may be compromised, limiting the protective role of social support (Rutter, 2006). In this sense, the present findings also accord with the stress vulnerability hypothesis, which posits that positive personal and contextual resources may lose their buffering function in high-stress environments (Vanderbilt-Adriance & Shaw, 2008; Li et al., 2012; Teng et al., 2025). Prior research suggests that under high levels of stress, the protective effects of positive psychological qualities may weaken or even disappear (Fu et al., 2012; Li et al., 2012; George-Levi et al., 2025). For example, adolescents with higher gratitude adapt better under low-stress life events, but under high-stress life events, maladjustment is more likely regardless of whether gratitude is high or low (Li et al., 2012). Similarly, our findings suggest that perceived social support may also operate as a stress vulnerability factor. Although the mechanisms were not directly tested, high perceived social adversity may deplete cognitive resources and reduce individuals' awareness of available support (Baumeister, 1997), and may also undermine their sense of control, making high levels of support more likely to be perceived as intrusive and thus eliciting psychological reactance. In this context, online trolling may provide a sense of dominance and control that fulfills emotional and self-identity needs, thereby leading to more online trolling (van Baak et al., 2023).

Implication for practice

This study provides some practical insights. First, at the individual level, online trolling should be viewed as an externalizing behavior produced through person–environment interaction. Interventions should enhance self-regulation through positive reappraisal and emotional awareness; perceived social support can serve as a daily resource under low stress, whereas under high stress greater emphasis should be placed on cognitive resource management, a sense of self-control, and self-identity. Secondly, at the school level, regular assessments and crisis screenings are used to identify students at high risk of stress and depressive symptoms early on. At the same time, relevant positive psychology knowledge, such as perceived social support, is integrated into class meetings, ideological and political education classes, and campus

culture to enhance psychological resilience and interpersonal trust. Finally, at the societal level, governance should go beyond deleting posts and blocking content by creating healthier channels for emotional expression through rules and content guidance. Platforms can raise the cost of posting aggressive content, curb algorithmic amplification of stigmatizing language, and increase the visibility of prosocial, mutual-aid, and positive-emotion content.

Limitations and future directions

Firstly, this study uses a cross-sectional design and regression-based mediation and moderation analysis, which prevents causal inference and ignores the influence of inter-structural relationships. Future research could use latent variable SEM and longitudinal studies to further examine its robustness and causal mechanisms within a more rigorous framework. Secondly, this study used convenience sampling, resulting in relatively limited sample coverage. Future studies could employ more random sampling methods to improve the robustness of the results. Furthermore, this study's depressive symptoms measure focused on negative affect, and self-reported assessment of trolling may have been affected by social desirability bias. Future research could adopt a more multidimensional instrument and use real platform posting scenarios to assess online trolling more directly. Finally, perceived social support is highly subjective and susceptible to various influences, such as cultural background. Future research could examine more readily operationalizable psychological resources (e.g., gratitude and mindfulness).

Conclusion

Most prior studies have examined online trolling primarily from an individual-level perspective. Extending this line of work, the present study investigated the association between perceived social adversity and online trolling, together with the mechanisms underlying this association. The findings indicate that perceived social adversity is an important risk factor for online trolling among college students, operating through both a direct pathway and an indirect pathway via depressive symptoms. In addition, perceived social support moderated the direct association between perceived social adversity and online trolling. Specifically, perceived social support was associated with lower levels of online trolling only when perceived social adversity was low; this protective effect was not observed under high levels of perceived social adversity. Accordingly, interventions aimed at reducing online trolling should go beyond platform content regulation and also emphasize the early identification of individuals experiencing elevated stress and depressive symptoms, followed by the provision of appropriate psychological resources and support.

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