

Problematic Social Media Use and Cyberbullying Perpetration in Unemployed University Students: Depression and Narcissistic Traits as Mediators and Social Connectedness as a Moderator

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Abstract

The aim of this study was not only to examine the relationship of problematic social media use with depression, narcissistic traits, social connectedness, and cyberbullying perpetration, but also to assess the mediating roles of depression and narcissistic traits, as well as the moderating role of social connectedness, between the predictor variable (problematic social media use) and the outcome variable (cyberbullying perpetration). The study employed a cross-sectional correlational design and a purposive sampling technique to collect data from 139 unemployed university students from Pakistan and Turkey, aged at least 18 years, including both genders. The following instruments were used: the Bergen Social Media Addiction Scale (BSMAS), the Narcissism Short Form 16-Item Scale (to measure narcissistic traits), the Beck Depression Inventory-II (BDI-II), the Perpetration Subscale of the Cyberbullying Perpetration and Victimization Questionnaire (to measure cyberbullying perpetration), and the Social Connectedness Scale-Revised (SCS-R). The results revealed that problematic social media use was significantly and positively associated with depression, narcissistic traits, and cyberbullying perpetration, while it was negatively—but not significantly—associated with social connectedness. Hayes Process 4.2, Model 4, indicated that narcissistic traits, but not depression, significantly mediated the relationship between problematic social media use and cyberbullying perpetration.

Keywords: Problematic Social Media Use, Depression, Narcissistic Traits, Social Connectedness, Cyberbullying Perpetration.

Introduction

The world is becoming increasingly technologized day by day. The advent of the smartphone has been a tremendous invention, making communication more convenient and easier, and also

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facilitating online relationships (Carayannis et al., 2011; Khan et al., 2024). However, the problematic use of smartphones—i.e., smartphone addiction—adversely affects psychological well-being (Astapova et al., 2016; Irfan et al., 2025). Smartphone use is closely associated with the use of social media apps, which serve various purposes, including communication, business, and education—for example, WhatsApp, Instagram, Facebook, TikTok, YouTube, and many more (Carrier, 2018). Although there are countless advantages, there are also disadvantages when individuals become addicted to these platforms. Previous studies have shown that problematic social media use is associated with depression—characterized by feeling upset most of the day nearly every day, experiencing negative thoughts, self-harm or suicidal ideation, hopelessness, worthlessness, and lack of pleasure in daily activities—as well as with cyberbullying perpetration, which refers to the intentional act of harming or harassing others through electronic means such as social media, text messages, or online forums (Awan et al., 2025; Batool et al., 2025; Lee et al., 2023; Shahid et al., 2024). Studies have shown a strong association between problematic social media use and cyberbullying, which involves sending, posting, or sharing negative, harmful, false, or mean content about someone else. It can also include sharing personal or private information that causes embarrassment or humiliation—in some cases, cyberbullying crosses into unlawful or criminal behaviour, particularly among young adults (Giumetti & Kowalski, 2022; Lee et al., 2023).

Research has also demonstrated a significant relationship between social media addiction and narcissistic traits, which are characterized by the belief that one is superior to others and can only relate to equally "special" people; being critical of and looking down on those perceived as unimportant; expecting special favours; and assuming others will comply without question. These traits often involve exploiting others to achieve personal goals. More broadly, narcissistic traits encompass an exaggerated sense of self-importance, a constant need for admiration, and a lack of empathy. Individuals with these traits may also exhibit entitlement, manipulative behaviours, and a tendency to exploit others (Andreassen et al., 2017; Sesva et al., 2022). A previous study examined how problematic social media use influences cyberbullying perpetration among Pakistani young adults through the mediating effect of narcissistic traits, finding a positive association between narcissism and cyberbullying among students (Zahra et al., 2025).

Social connectedness is defined as the subjective feeling of being connected to others or a larger community, involving a sense of closeness, understanding, and shared identity (Wickramaratne et al., 2022; Van Bel et al., 2009). A recent study on Pakistani young adults found that social media addiction directly and significantly affects aggression, and this effect is significantly moderated by social connectedness. The authors emphasised the importance of socialising young adults to mitigate the effects of social media addiction on aggression (Shahid et al., 2024). However, research is limited concerning the effect of social media problematic use, particularly on cyberbullying via depression, the gap needs to be filled to provide implications for society.

Problematic social media use has been associated with various harmful online behaviours, including cyberbullying perpetration. However, there is limited research examining this relationship within the contexts of Pakistan and Turkey, particularly about the mediating roles of narcissistic traits and depression, and the moderating role of social connectedness. This study focuses specifically on unemployed university students, who may have more free time than their employed peers, potentially leading to higher engagement in social media and, consequently, problematic use. By investigating how problematic social media use predicts cyberbullying perpetration; while considering the mediating influences of depression and narcissistic traits and the moderating effect of social connectedness, this research aims to fill a critical gap in the literature. The findings are expected to provide valuable implications for

developing targeted strategies to reduce problematic social media use and cyberbullying perpetration among unemployed university students in Pakistan and Turkey.

Hypotheses

1. Problematic social media use is likely to be positively and significantly associated with depression, narcissistic traits, and cyberbullying perpetration among unemployed university students.
2. Depression and narcissistic traits are likely to significantly mediate the relationship between problematic social media use and cyberbullying perpetration among unemployed university students.
3. Social connectedness is likely to moderate the relationship between problematic social media use and cyberbullying perpetration among unemployed university students.

Methodology

The study adopted a cross-sectional correlational design and utilized a purposive sampling technique to collect data from 139 university students from Turkey and Pakistan. Participants were aged 18 years or older, had been using social media for at least one year, and had been unemployed for the same duration. Data were collected using six questionnaires: the Bergen Social Media Addiction Scale (BSMAS), the Narcissism Short Form 16-Item Scale (to measure narcissistic traits), the Beck Depression Inventory-II (BDI-II), the Perpetration Subscale of the Cyberbullying Perpetration and Victimization Questionnaire (to measure cyberbullying perpetration), and the Social Connectedness Scale Revised (SCS-R) to measure social connectedness.

The BSMAS, a six-item Likert scale (1–5) developed by Andreassen et al. (2016), demonstrated an internal consistency of 0.80. The Narcissism Shorter Version 16-Item Scale, developed by Ames et al. (2006), employs a Likert scale ranging from 0 to 1 and measures narcissistic traits, with a Cronbach's alpha of 0.72. Depression severity was measured using the Beck Depression Inventory–Second Edition (BDI-II), a 21-item Likert scale developed by Beck and Steer in 1984, which demonstrated a reliability coefficient of 0.88. The Cyberbullying Perpetration Subscale of the Cyberbullying Perpetration and Victimization Questionnaire, comprising 20 items on a 5-point Likert scale, was used to measure cyberbullying perpetration and demonstrated an internal consistency of 0.93 (Lee et al., 2017). The Social Connectedness Scale–Revised, comprising 20 items on a Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree), demonstrated an internal consistency of 0.87 (Lee & Robbins, 1995).

The study adhered to the APA 7th edition ethical standards. Permission was first obtained from the authors to use the questionnaires. Before data Collection, informed consent was obtained, clearly stating that participants could withdraw from the study at any time without facing adverse consequences. Participation was entirely voluntary, and participants took approximately 20 to 35 minutes to complete the questionnaires. They were thanked upon completion. Data analysis was analysed using SPSS version 26.

Results

Table 1: Characteristics of Respondents (N=139)

Characteristics	Frequency	Percentage	Mean	SD
Ethnicity				
Turkish Students	92	66		
Pakistani Students	47	34		
Gender				
Men	107	76		
Women	33	24		
Age			23.04	2.63
Educational Level				
Bachelor	63	45		
Master	62	45		
PhD	14	10		

Note: SD= Standard Deviation

The table above depicts that most of the participants are of Turkish ethnicity ($n = 92$, 66%), while the minority are Pakistani ($n = 47$, 34%). The majority of the participants are men ($n = 107$, 76%), whereas women represent the minority ($n = 33$, 24%). The mean age of the participants is 23.04, with a standard deviation of 2.63. Regarding educational level, most participants are bachelor's students ($n = 63$, 45%), followed by master's students ($n = 62$, 45%), while only a small proportion are PhD students ($n = 14$, 10%).

Table 2: Correlational Analysis (N=139)

Characteristics	1	2	3	4	5
1.Problematic Social Media Use	-	.18*	.20*	-.15	.66**
2.Depression		-	.03	-.03	.25**
3.Narcissistic Traits			-	-.03	.57**
4.Social Connectedness				-	-.20**
5.Cyberbullying Perpetration					-

Note: * $p < .05$, ** $p < .01$

The above table depicts that problematic social media use is significantly and positively associated with depression, narcissistic traits, and cyberbullying perpetration, while it is negatively—but not significantly—associated with social connectedness. Furthermore, depression is positively associated with narcissistic traits and negatively associated with social connectedness; however, these relationships are not statistically significant. In contrast, the relationship between depression and cyberbullying perpetration is statistically significant and positive. Narcissistic traits are negatively—but not significantly—associated with social connectedness, and positively and significantly associated with cyberbullying perpetration. Additionally, social connectedness is negatively and significantly associated with cyberbullying perpetration.

Table 3: Mediation Analysis (N=139)

					Consequences			
					Depression (M)		CP (Y)	
Antecedents		β	SE	P		β	SE	P
PSMU (X)	a	.46	.21	.03	c'	1.54	.15	.001
Depression (M)	-				b	.12	.06	.03
Constant	I	7.08	3.58	.05	I			
$R^2=.03, F(1, 137) = 4.76$					$R^2=.25, F(2, 136) =107.33$			
* $p<.05$					*** $p<.001$			

Note: * $p < .05$, *** $p < .001$, PSMU= Problematic Social Media Use, CP= Cyberbullying Perpetration

According to the table above, there is a positive significant direct effect of problematic social media use on depression ($\beta = .46^*$, $SE = .21$, $*p < .05$). Furthermore, direct effect of problematic social media use is also significantly positive on cyberbullying perpetration ($\beta = 1.54^{***}$, $SE = .15$, $***p < .001$) and the effect of depression on cyberbullying perpetration is also significantly positive ($\beta = .12^{**}$, $SE = .06$, $*p < .05$).

Table 4: Indirect Effect (N=139)

Indirect Path	Standardized Effect	Effect	LLCI	ULCI
Depression	.05	.02	-.004	.07

Indirect effects depicts that depression did not significantly mediate the relationship of predictor problematic social media use and outcome, cyberbullying perpetration.

Table 5: Mediation Analysis (N=139)

Consequences								
Narcissistic Traits (M)					CP (Y)			
Antecedents		β	SE	P		β	SE	P
PSMU (X)	a	.16	.06	.01	c'	1.37	.12	.001
Narcissistic Traits (M)	-				b	1.40	.15	.001
Constant	I	9.86	1.11	.000	I	17.15	2.60	.001
$R^2=.04, F(1, 137) = 6.12$					$R^2=.64, F(2, 136) = 122.09$			
** $p<.01$					*** $p<.001$			

Note: *** $p < .001$, PSMU= Problematic Social Media Use, CP= Cyberbullying Perpetration

According to the table above, there is a positive significant direct effect of problematic social media use on narcissistic traits ($\beta = .16^{**}$, $SE = .06$, $**p < .01$) and cyberbullying perpetration ($\beta = 1.37^{***}$, $SE = .12$, $***p < .001$) and the effect of narcissistic traits on cyberbullying perpetration is also significantly positive ($\beta = 1.40$, $SE = .15$, $***p < .001$).

Table 6: Indirect Effect (N=139)

Indirect Path	Standardized Effect	Effect	LLCI	ULCI
Narcissistic Traits	.23	.09	.03	.15

Indirect effects depicts that narcissistic traits significantly mediate the relationship of predictor problematic social media use and outcome, cyberbullying perpetration.

Table 7: Moderation Analysis (N=139)

Variables	β	SE	P	R^2	F	LLCI	ULCI
				.45	36.95		
PSMU	1.79	.71	.01			.37	3.21
SC	-.02	.18	.90			-.39	.35
PSMU X SC	-.004	.02	.74			-.02	.01

Note: ** $p < .01$, PSMU= Problematic Social Media Use, SC=Social Connectedness

Hayes' Process 4.2, Model 1 was employed to investigate the moderating role of social connectedness in the relationship between problematic social media use and cyberbullying perpetration. According to the table above, there is a significant direct effect of problematic social media use on cyberbullying perpetration ($\beta = 1.79^{**}$, $SE = .71$, $^{**}p < .01$). Furthermore, social connectedness is not significantly predicting cyberbullying perpetration ($\beta = -.02$, $SE = .18$, $p > .05$). The combined effect of problematic social media use and social connectedness on cyberbullying perpetration is not significant ($\beta = -.004$, $SE = .02$, $p > .05$), indicating that social connectedness does not significantly moderating the impact of problematic social media use on cyberbullying perpetration.

Discussion

There is substantial literature regarding problematic social media use and cyberbullying perpetration among young adults; however, there remains a gap in understanding the mediating role of narcissistic traits and depression, as well as the moderating role of social connectedness—particularly among unemployed university students in Turkey and Pakistan. Unemployment among university students may amplify problematic social media use due to increased free time, lack of structured daily routines, and the need for online social validation. These factors can also contribute to greater vulnerability to narcissistic tendencies and engagement in cyberbullying perpetration. Therefore, the present study aimed to explore these mechanisms among unemployed young adults enrolled in universities in Pakistan and Turkey. The first hypothesis of the study was substantially supported by Pearson's product-moment correlation analysis, which revealed that problematic social media use was significantly associated with depression, narcissistic traits, and cyberbullying perpetration; however, it had a negative but non-significant relationship with social connectedness. Shahid & Faiqa (2025) stated that online PUBG game addiction has a significant relationship with aggression among young adults aged 18 to 25. Another similar study, conducted by Shahid et al. (2025), reported a positive and significant relationship between Clash of Clans, an online game, and aggression among students. These results align with previous findings showing that problematic social media use is significantly and positively associated with cyberbullying perpetration among high school students (Kircaburun et al., 2020). Similarly, Giancola et al. (2025) found that problematic social media use was positively and significantly associated with narcissism among youth. The present findings also correspond with Shahid et al. (2024), who reported that social media addiction was positively associated with depression and aggression among young adults, particularly students. Likewise, Shahid et al. (2025) reported that online gaming addiction has a significant relationship with cyberbullying perpetration and narcissistic traits among young adults. However, our results contradict Shahid et al. (2024), who found a positive association between social media addiction and social connectedness among young adults. One possible explanation is that unemployed university students may rely on online interactions as a substitute for offline social engagement; however, these connections may be superficial and lack emotional depth, thereby failing to foster genuine social connectedness. Furthermore, the anonymity and reduced Accountability offered by social media platforms can encourage

dominance-seeking behaviour, reinforce narcissistic tendencies and foster cyberbullying perpetration, especially among individuals already exhibiting such traits.

The second hypothesis proposed that depression and narcissistic traits would significantly mediate the relationship between problematic social media use and cyberbullying perpetration. Hayes' PROCESS Macro 4.2 (Model 4) partially supported this hypothesis: narcissistic traits significantly mediated the relationship, whereas depression did not, as its indirect effect was not significant. This finding contrasts with Shahid et al. (2024), who reported that depression significantly mediated the relationship between social media addiction and aggression among young adults. However, our findings align with Zahra et al. (2025), who found that narcissistic traits significantly and positively mediated the relationship between problematic social media use and cyberbullying perpetration. In another study, Shahid et al. (2024) found that negative emotion did not significantly mediate the relationship between online Ludo game addiction and aggression among young adults—a result consistent with the non-significant mediation of depression in our study.

One possible explanation for depression not emerging as a significant mediator is that, among unemployed university students, the pathway from problematic social media use to cyberbullying perpetration may be driven more by narcissistic self-presentation and the pursuit of social dominance rather than by emotional distress. In such contexts, depression may influence other behavioural outcomes (e.g., withdrawal or low self-esteem) rather than aggressive online conduct.

The third hypothesis, which stated that social connectedness would moderate the relationship between problematic social media use and cyberbullying perpetration, was not supported. This contradicts previous findings by Shahid et al. (2024), who reported that social connectedness significantly moderated the relationship between social media addiction and aggression among young adults. In our study, the lack of moderation may be due to the quality rather than the quantity of social connections. Unemployed students may have limited access to enriching offline networks, and their online connections might not offer sufficient emotional or social support to buffer against problematic behaviours such as cyberbullying perpetration.

Conclusion

The correlational quantitative study concluded that problematic social media use was significantly and positively associated with depression, narcissistic traits, and cyberbullying perpetration, while it was negatively—but not significantly—associated with social connectedness. Hayes Process 4.2, Model 4, indicated that narcissistic traits, but not depression, significantly mediated the relationship between problematic social media use and cyberbullying perpetration. Furthermore, Hayes Process 4.2, Model 1, showed that social connectedness did not significantly moderate the relationship between problematic social media use and cyberbullying perpetration. The implications are based on the correlational analysis results and the partially supported mediation findings.

Implications

The findings have practical implications for addressing problematic social media use and cyberbullying perpetration among unemployed university students in Pakistan and Turkey. Universities should implement targeted programs that promote healthy online behaviour, digital literacy, and self-regulation skills. Mental health professionals can contribute by offering counselling, workshops, and awareness campaigns that highlight the negative impacts of narcissistic traits and cyberbullying. Parents should be encouraged to foster supportive home environments that nurture empathy and resilience, while government law enforcement agencies should strengthen legal measures and awareness initiatives against cyberbullying. The government should also encourage university students' employment by providing paid

internship opportunities, helping them productively utilize their time and reduce excessive engagement with social media. Special attention should be directed toward unemployed students, as their increased exposure to unstructured time and online environments may heighten the risks identified in this study.

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