



Prevalence, motivation, psychological distress, and gender differences of problematic social media use among Chinese college students

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ABSTRACT

Problematic social media use (PSMU) presents a substantial public health concern due to its pervasive negative impacts. While psychological distress and specific social media use motives have been implicated as risk factors, prevalence rates and the nuanced role of gender have shown inconsistent findings globally. Crucially, these complex interrelationships between PSMU, use motives (i.e., coping, conformity, enhancement, and social), distress symptoms, and gender differences remain largely underexplored in Chinese college student populations. To address this, our anonymous, web-based, cross-sectional study recruited 788 Chinese college students (mean age = 20.92 ± 2.74 years, 23.52 % male) to examine PSMU prevalence and its associations with the aforementioned factors. We found that 26.6 % of participants met criteria for PSMU. Multiple regression analysis demonstrated that more severe PSMU was significantly associated with higher daily active and passive social media engagement, as well as elevated coping, conformity, and enhancement motives, and increased stress symptoms. Moreover, greater social media use for enhancement purposes was linked to PSMU only in women. These findings highlight coping motives, conformity motives, gender-specific enhancement motives, and psychological distress as potential critical influencing factors for PSMU, offering actionable targets for interventions.

1. Introduction

The use of social media as a pastime has become nearly ubiquitous in college students' everyday lives. Research supports the notion that appropriate utilization of social media may facilitate the expansion of one's perspective, the strengthening and stabilization of interpersonal connections, and the acquisition of social support (Kuss and Griffiths, 2017). However, excessive use may result in adverse psychological and social effects (Weinstein, 2022).

Some scholars have defined problematic social media use (PSMU) as "the excessive use and habitual monitoring of social media, manifested in compulsive usage that comes at the expense of other activities" (Jeri-Yabar et al., 2018) with symptoms mirroring behavioral addiction, such as mood fluctuations, tolerance, withdrawal effects, and

interpersonal conflict (Griffiths, 2009). Similarly, PSMU encompasses the dysfunctional use of platforms to the degree that it impairs psychological health and daily well-being, leading to social media addiction at its most extreme (Huang et al., 2023). This dual conceptualization highlights PSMU as a spectrum of behavior, ranging from compulsive engagement that disrupts daily priorities to clinically significant addiction with measurable impacts on mental and social functioning. PSMU has emerged as a significant public health concern, with accumulating evidence linking it to a range of negative psychological outcomes. Research has demonstrated the independent positive relationship between PSMU and psychological distress, and its negative effects on sleep quality, individuals' work, academic performance, interpersonal relationships (Hormes, 2016; Langlais et al., 2025; Lee et al., 2012; Muench et al., 2015; Tung et al., 2025). Recent research has

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expanded PSMU's clinical relevance by linking it to weight-related self-stigma (WRSS) among university students, where PSMU acts as a mediator of the relationship between mental distress and WRSS (Gan et al., 2025). This aligns with the Interaction of Person-Affect-Cognition-Execution (I-PACE) model, which posits that emotional dysregulation drives maladaptive social media engagement, creating a reinforcing cycle of psychological harm.

Research related to PSMU has been on the rise but challenges persist. One such challenge is the lack of an official diagnostic standard at present (Brand et al., 2025; Moretta et al., 2022). Consequently, there is a large terminological variability in the field of PSMU with terms such as social networking addiction (Griffiths, 2012), social media addiction (Andreassen et al., 2017), social media disorder (van den Eijnden et al., 2016), etc. Notably, recent scholarly consensus suggests that PSMU is increasingly adopted as the preferred term, as it encompasses a spectrum of maladaptive behaviors without prematurely implying addiction classification (Brand et al., 2025; Moretta and Wegmann, 2025; Wu et al., 2024). This terminology aligns with contemporary dimensional approaches to behavioral excesses and avoids the potentially stigmatizing connotations of “addiction” labels while maintaining clinical utility (Wu et al., 2024).

Obtaining an accurate measure of the prevalence of PSMU in the general population is challenging due to regional, cultural, and methodological variations. For instance, in Ghanaian youths, Ahorsu (2024) reported a PSMU prevalence of 12.3 % using the Bergen Social Media Addiction Scale (BSMAS). A meta-analysis included 504 studies covering 2,123,762 individuals from 64 countries reported the global pooled prevalence estimate was 17.4 % (Meng et al., 2022) while a recent meta-analysis by Casale et al. (2023) synthesizing data from 23 countries found a significantly higher prevalence in low-income countries. In the U.S., Kennard and colleagues (2025) found that 40.3 % of Texas adolescents exhibited PSMU using 10-item Social Media Use Integration Scale (SMUIS; Jenkins-Guarnieri et al., 2013), which was linked to higher depression and suicide ideation. Zhou and colleagues (2023) reported 2.5 % in Chinese college students using a strict BSMAS cutoff (≥ 25). Jafarkarimi et al. reported problematic Facebook use in 47 % of the local collegiate population (Jafarkarimi et al., 2016). While these studies were not on identical populations, such a large discrepancy raises the concern that the current prevalence estimate in the Chinese college student population is not accurate. Complicating the matter, there is no consensus yet on the gender differences in the prevalence of PSMU. Prior single studies exhibited conflicting evidence (Andreassen, 2015; Aparicio-Martínez et al., 2020; Ryan et al., 2014) and recent meta-analyses found that the prevalence did not vary depending on gender (Casale et al., 2023; Cheng et al., 2021; Meng et al., 2022).

Research also suggests that mental health problems, including affective and addiction-related disorders, are prevalent in college students (Stronge et al., 2019; Vannucci et al., 2017; Woods and Scott, 2016). College students are in a transitional age, young adulthood, which is associated with several stressors and during which many psychopathologies often first occur (Jiang et al., 2016). Regarding PSMU, college students are rapidly adjusting to new experiences and challenges (Jeri-Yabar et al., 2018; Pedrelli et al., 2015), often turning to social media to manage their moods. As in other populations, PSMU in college students has a detrimental impact on academic performance, time management, interpersonal relationships, and social responsibilities (Jiang et al., 2016).

While college students may use social media to manage their mood, their specific motivations for social media use may influence whether their social media engagement becomes problematic (Kardefelt-Winther, 2014; Meng et al., 2020). One study indicated that using social media because of coping, conformity, and enhancement motives were positively associated with PSMU, while social motives had no significant effect (Chen et al., 2017). Additionally, motivation varies by gender: for women, social media use appears to be more driven by internal motives, while for men, it seems to be more influenced by

external motives (Chen et al., 2017).

Psychological vulnerability may also play a significant role in the occurrence and development of PSMU (Wongpakaran et al., 2021). Numerous studies have demonstrated that PSMU is associated with anxiety (Vannucci et al., 2017; Woods and Scott, 2016), depression (Woods and Scott, 2016), lower self-esteem (Woods and Scott, 2016), loneliness (Mitropoulou, 2024), and psychological distress (Stronge et al., 2019). One systematic review has also provided evidence of a moderate association between PSMU and self-harming thoughts and behaviors (Nesi et al., 2021).

Though research focusing on PSMU have been increasing during the past 2 decades, it is still relatively limited compared to the extensive literature investigating gaming disorder and internet addiction because of the lack of diagnostic criteria, long-term studies, and official measurement tools (Moretta and Wegmann, 2025; Paschke et al., 2021; Pellegrino et al., 2022; Zendle and Bowden-Jones, 2019). For instance, in the DSM-5, Internet Gaming Disorder was included in Section 3 for further research, while PSMU has not received similar extensive study in the context of mainstream diagnostic frameworks. China has approximately one-fifth of the world's total population, the majority of which have access to one or more forms of social media. Furthermore, the number of social media users in China is steadily increasing, especially among young adults, including college students (Dong et al., 2025). Given its negative consequences (Jiang et al., 2016), it is therefore crucial to investigate the prevalence and gender differences of PSMU in a sample of college students in China. Given the considerable discrepancies in estimates of PSMU's prevalence across different demographic groups, this study seeks to elucidate the prevalence of PSMU, motivations for social media use, potential risk factors of PSMU's development (i.e., psychological distress), and gender differences in severity and prevalence of PSMU among Chinese college students. The ultimate aim of the current project is to yield results that can inform educational policies and family education while also providing a theoretical basis for further scientific research and targeted interventions.

2. Method

2.1. Participants

This anonymous, web-based, cross-sectional study was conducted via QR code and website link delivery through WeChat, QQ Zone, and Douban. To be considered for inclusion, participants had to be college students, use social media, and provide web-based informed consent. Respondents whose answer selection indicated obvious contradictions in socio-demographic characteristics, identical answer selections for all questionnaires, or who completed all questionnaires in under 120 s were excluded.

A total of 788 college students were included for analyses after a comprehensive manual review of the data. Descriptive statistics of the sample are reported in Table 1. Study participants were predominantly female, single, and had a medium family income.

2.2. Measures

All participants were prompted to complete a series of questionnaires pertaining to demographics, the most frequently used social media platforms, and the amount of time of daily active (e.g., for entertainment) and passive (e.g., for work) use of social media.

The Bergen Social Media Addiction Scale (BSMAS), which was widely used in various languages with good psychometric properties (Bottaro et al., 2025), was employed to assess PSMU. The BSMAS comprises six items based on the six core components of PSMU (i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse) (Andreassen et al., 2017; Bottaro et al., 2025; Griffiths, 2000, 2009). In this scale, the frequency of symptoms related to PSMU over the past year is evaluated on a Likert scale ranging from 1 (very rarely) to 5

Table 1
Socio-demographic characteristics of all participants and factors associated with problematic social media use, stratified by gender.

Mean ± SD/n (%)	Total sample (n = 788)		<i>p</i> ^a	Problematic users (n = 210)		Non-problematic users (n = 578)		<i>p</i> ^b
	Women (n = 605)	Men (n = 183)		Women (n = 178)	Men (n = 32)	Women (n = 427)	Men (n = 151)	
Age (years)	20.88 ± 2.46	21.03 ± 3.52	0.52	20.60 ± 2.18	21.78 ± 3.24	21.00 ± 2.56	20.87 ± 3.63	0.38
Years of education	15.74 ± 2.39	15.26 ± 3.27	0.03	15.85 ± 2.35	15.72 ± 3.00	15.46 ± 2.48	15.17 ± 3.32	0.17
Marital status								0.53
Single	596 (98.5 %)	179 (94.7 %)		176 (98.9 %)	32 (100 %)	420 (98.4 %)	147 (97.4 %)	
Married	9 (1.5 %)	4 (5.3 %)		2 (1.1 %)	0 (0 %)	7 (1.6 %)	4 (2.6 %)	
Monthly family income (CNY)								0.58
≤5000	48 (26.2 %)	174 (28.7 %)		45 (25.3 %)	8 (25.0 %)	129 (30.2 %)	40 (26.5 %)	
5000-10000	90 (49.2 %)	266 (44.0 %)		80 (44.9 %)	17 (53.1 %)	186 (43.6 %)	73 (48.3 %)	
10000-50000	40 (21.9 %)	147 (24.3 %)		48 (27.0 %)	7 (21.9 %)	99 (23.2 %)	33 (21.9 %)	
≥50000	5 (2.7 %)	18 (3.0 %)		5 (2.8 %)	0 (0 %)	13 (3.0 %)	5 (3.3 %)	
BSMAS	16.87 ± 4.17	14.69 ± 4.19	<0.001					
Social media use time								
active	4.77 ± 3.01	2.88 ± 2.05	<0.001	5.58 ± 2.75	3.66 ± 2.67	4.43 ± 3.06	2.72 ± 1.86	<0.001
passive	2.14 ± 2.60	2.13 ± 2.63	0.95	1.70 ± 1.57	2.26 ± 1.89	2.32 ± 2.90	2.10 ± 2.77	0.02
SMMQ								
Total	48.71 ± 9.51	45.52 ± 9.2	<0.001	53.75 ± 9.29	54.00 ± 6.61	46.61 ± 8.79	43.73 ± 9.45	<0.001
Coping	12.09 ± 3.35	10.10 ± 3.41	<0.001	14.09 ± 2.98	12.81 ± 2.72	11.26 ± 3.15	9.53 ± 3.27	<0.001
Enhancement	12.52 ± 3.20	10.77 ± 3.40	<0.001	14.34 ± 2.77	13.19 ± 2.56	11.76 ± 3.07	10.26 ± 3.34	<0.001
Social	14.10 ± 2.95	14.17 ± 2.92	0.77	14.19 ± 3.22	15.34 ± 2.56	14.06 ± 2.84	13.93 ± 2.93	0.17
Conformity	9.99 ± 3.18	10.48 ± 3.17	0.07	11.13 ± 3.38	12.66 ± 2.77	9.52 ± 2.97	10.01 ± 3.06	<0.001
DASS-21								
Total	39.54 ± 20.72	34.56 ± 17.79	0.002	50.08 ± 21.69	40.81 ± 18.91	35.15 ± 18.64	33.23 ± 17.33	<0.001
Anxiety	13.57 ± 6.85	12.39 ± 6.09	0.03	16.62 ± 6.94	14.38 ± 6.63	12.30 ± 6.40	11.97 ± 5.91	<0.001
Depression	12.77 ± 7.33	10.90 ± 6.41	0.001	16.38 ± 7.92	12.88 ± 6.91	11.26 ± 6.51	10.48 ± 6.25	<0.001
Stress	13.21 ± 7.72	11.27 ± 6.74	0.001	17.08 ± 8.18	13.56 ± 7.14	11.60 ± 6.91	10.76 ± 6.66	<0.001

Legend: SD stands for standard deviation, n stands for number, BSMAS stands for Bergen Social Media Addiction Scale, SMMQ stands for Social Media Motives Questionnaire, DASS-21 stands for Depression, Anxiety, and Stress Scale-21. *p*^a stands for gender differences in the total sample; *p*^b stands for differences between individuals with problematic vs. non-problematic social media use.

(very often). Higher scores indicate more severe problematic use with a cutoff value of 19 (Banyai et al., 2017; Chen et al., 2020). In our sample, the BSMAS Cronbach's alpha was good (Cronbach's $\alpha = .824$).

Motivation for social media use was evaluated using the Internet Motives Questionnaire for Adolescents (IMQ-A; (Bischof-Kastner et al., 2014). We replaced the word “Internet” with the phrase “social media” and, for our purposes, furthermore refer to it as the Social Media Motives Questionnaire (SMMQ). The SMMQ was adapted and translated into Chinese by two authors and back-translated into English by a separate bilingual psychiatrist to help ensure the accuracy of the translation. The SMMQ comprises 16 items rated on a 5-point scale and assesses both negative (coping and conformity) and positive (enhancement and social) reinforcement motives. Higher scores indicated higher levels of each type of motivation. In our sample, the total and subscale Cronbach's alphas were good (total: $\alpha = .889$; coping: $\alpha = .904$; conformity: $\alpha = .775$; enhancement: $\alpha = .886$; social: $\alpha = .801$).

Psychological distress was evaluated using the Depression, Anxiety, and Stress Scale-21 (DASS-21; (Lovibond and Lovibond, 1995), which has shown good reliability and validity among Chinese college students and adults (Chen et al., 2023; Wang et al., 2025; Zhou et al., 2024). It is a 21-item scale that assesses general distress experienced over the past week through three distinct 7-item subscales. Higher scores represent elevated levels of depression, anxiety, or stress. In our sample, the total and the subscale Cronbach's alphas were good (total: $\alpha = .931$; depression: $\alpha = .825$; anxiety: $\alpha = .776$; stress: $\alpha = .840$).

2.3. Statistical analysis

Analyses were performed with IBM SPSS Statistics for Windows, version 25.0 (IBM Corp., Armonk, N.Y., USA) and R software (R Development Core Team, 2016).

Prevalence of PSMU was computed as the percentage of participants who scored higher than 19 on the BSMAS (Banyai et al., 2017). Gender and problematic vs. non-problematic use differences among study variables were assessed by the student' t-test for continuous variables and by the chi-squared test for categorical variables. Effect sizes are reported

in terms of Cohen's d, with a $d \geq 0.5$ indicating a moderate or greater effect size and a $d \geq 0.8$ indicating a large effect size (Cohen, 1992).

After centering and scaling continuous variables, multiple regression models were used to assess the effects of active/passive use of social media, motives for social media use, psychological distress, and the possible moderating effect of gender on PSMU. Multicollinearity was monitored by examining the variance inflation factor (VIF). VIF values did not indicate multicollinearity in any of the models (all VIFs <10; Weisberg, 2005) with the exception of the interaction term Stress x Gender (VIF = 10.4) which, although at the threshold, requires caution in interpretation. All regressions employed maximum likelihood estimation, and model comparison was performed by evaluating the difference in Akaike information criterion (ΔAIC) between a model with the specified predictor and the null model. Negative ΔAIC values suggest better model fit for models with specified predictors. Residual plots were employed to evaluate the normality and homogeneity of variance, and scatterplots of the standardized residuals showed that the data met the assumptions of homogeneity of variance and linearity.

2.4. Ethics statement

The study was conducted in accordance with the Declaration of Helsinki and was approved by the Institutional Review Board of the Second Xiangya Hospital of Central South University (NO. 2019–113). All subjects were duly informed about the study and informed consent was obtained after the nature of the procedures had been fully explained.

3. Results

Descriptive statistics of study variables are reported in Table 1.

3.1. Prevalence and gender differences

The overall prevalence of PSMU in our sample of Chinese college students was 26.6 %, with 29.4 % of women exhibiting PSMU relative to

the total female sample, and 17.5 % of men exhibiting PSMU relative to the total male sample. The most used social media platform was WeChat (93.7 %), and the second most used was QQ (76.1 %). Compared to men, women used Weibo and Douban more frequently but used QQ less frequently ($p < .001$). Women also reported spending more time actively using social media than men did ($p < .001$). Moreover, the women exhibited higher levels of PSMU relative to the men ($p < .001$).

Relative to men, women also exhibited significantly higher scores on the BSMAS ($p < .001$; Cohen's $d = 0.52$), on the coping ($p < .001$, Cohen's $d = 0.59$), and enhancement ($p < .001$, Cohen's $d = 0.53$) subscales of the SMMQ and on the anxiety ($p = .03$, Cohen's $d = 0.18$), depression ($p = .001$, Cohen's $d = 0.27$), and stress ($p = .001$, Cohen's $d = 0.27$) subscales of the DASS-21.

3.2. Differences between individuals with problematic vs. non-problematic social media use

Relative to those without PSMU, those with PSMU reported higher daily active use time ($p < .001$, Cohen's $d = 0.46$), and had higher scores on the coping ($p < .001$, Cohen's $d = 0.99$), enhancement ($p < .001$, Cohen's $d = 0.93$), and conformity ($p < .001$, Cohen's $d = 0.54$) subscales of the SMMQ as well as on the anxiety ($p < .001$, Cohen's $d = 0.62$), depression ($p < .01$, Cohen's $d = 0.67$), and stress ($p < .001$, Cohen's $d = 0.69$) subscales of DASS-21 (see Table 1).

3.3. Associations of PSMU with study variables and the moderating effect of gender

There were statistically significant main effects of daily active use time ($\beta = 0.10$, 95s %CI $[-0.07, 0.26]$, $p < .001$, $\Delta AIC = -21.4$) and daily passive use time ($\beta = -0.05$, 95 %CI $[-0.16, 0.06]$, $p < .001$, $\Delta AIC = -5.89$). There were also main effects of coping ($\beta = 0.40$, 95 %CI $[0.26, 0.55]$, $p < .001$, $\Delta AIC = -43.5$), conformity ($\beta = 0.25$, 95 %CI $[0.10, 0.41]$, $p < .001$, $\Delta AIC = -6.58$), enhancement ($\beta = 0.002$, 95 %CI $[-0.15, 0.16]$, $p < .001$, $\Delta AIC = -24.6$), and social motives ($\beta = -0.0003$, 95 %CI $[-0.13, 0.13]$, $p = .002$, $\Delta AIC = -0.99$). However, the main effect of social motives on PSMU showed low strength of evidence

as indicated by a relatively small ΔAIC . Lastly, a statistically significant main effect was found for the stress subscale of the DASS-21 ($\beta = -0.01$, 95 %CI $[-0.15, 0.13]$, $p < .001$, $\Delta AIC = -30.2$).

Multiple regression analyses also revealed a moderating effect of gender on the relationships of PSMU with enhancement motives ($\beta = 0.51$, 95 %CI $[0.10, 0.92]$, $p < .02$, $\Delta AIC = -6.69$) and the depression subscale of the DASS-21 ($\beta = 0.51$, 95 %CI $[0.10, 0.92]$, $p = .02$, $\Delta AIC = -0.12$). However, the moderating effect of gender on the relationship between depression and PSMU showed low strength of evidence as indicated by ΔAIC . Post-hoc slope analysis revealed that the regression slope of using social media for enhancement motives differed significantly from zero in predicting PSMU only for women ($\beta = 0.08$, 95 %CI $[0.05, 0.11]$). As shown in Fig. 1, greater use of social media for enhancement motives was associated with higher levels of PSMU in women compared to men ($t = -2.92$, $p = .003$). The adjusted R^2 of the enhancement regression model was 0.42.

4. Discussion

This study investigated the prevalence of PSMU among Chinese college students and explored possible relationships between PSMU and possible risk factors (e.g., specific motivation for using social media and distress symptoms). In the present work, we also explored the moderating role of gender.

4.1. Prevalence of PSMU and gender differences

In our sample, the prevalence of PSMU was 26.6 % with the cutoff value of 19, which was higher than that reported by Zhou and colleagues (2023) and Ahorsu (2024) but lower than that reported by Kennard and colleagues (2025). Regional, social media platform, and demographic differences likely contributed to this discrepancy, but differences in instruments and cut-off scores for assessing PSMU likely heavily impact these prevalence estimates (Moretta et al., 2022). BSMAS was used in the first two studies with the cutoff value of 24 and 25, respectively (Ahorsu, 2024; Zhou et al., 2023) based on previous social media research (Luo et al., 2021; Zhao et al., 2022), whereas SMUIS was used

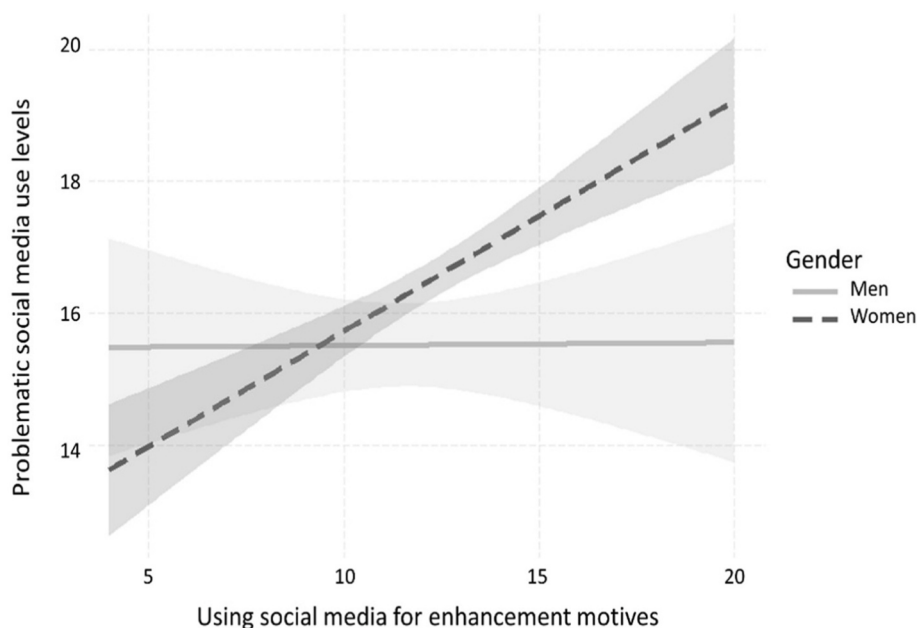


Fig. 1. The moderating effect of gender on the relationship between using social media for enhancement motives and PSMU. The moderating effect of gender on the relationship between depression and PSMU showed low strength. Post-hoc slope analysis revealed that the regression slope of using social media for enhancement motives differed significantly from zero in predicting PSMU only for women ($\beta = 0.08$, 95 %CI $[0.05, 0.11]$). Greater use of social media for enhancement motives was associated with higher levels of PSMU in women compared to men ($t = -2.92$, $p = .003$). PSMU stands for problematic social media use.

in Kennard et al.'s (2025) study. These discrepancies highlight the need to establish a standardized assessment system.

Regardless of the overall prevalence of PSMU, the present study yielded evidence that the prevalence of PSMU is indeed higher in women (29.4 % vs. 17.5 % in males), which was in accordance with previous studies (Aparicio-Martínez et al., 2020; Martínez-Ferrer et al., 2018) but conflicts with recent meta-analyses that found no difference in prevalence of PSMU among genders (Casale et al., 2023; Cheng et al., 2021; Meng et al., 2022). Conflicting results in the literature are likely due to the fact that factors such as social norms, motivations, or psychological state would play a more significant role than gender itself in the incidence of PSMU (Andrie et al., 2019; Su et al., 2019). For example, women are at a higher risk of developing affective disorders such as major depressive disorder (Salk et al., 2017), which, in turn, can influence their use of social media. Moreover, the higher incidence of mental health problems among college students (Banyai et al., 2017) might exacerbate gender differences in affective symptoms and, in turn, in PSMU.

4.2. Differences between individuals with problematic vs. non-problematic social media use

Participants with PSMU reported longer daily use, stronger coping/conformity/enhancement motives, and higher anxiety/depression/stress, aligning with a reciprocal model where use and motivation reinforce each other (Meng et al., 2020; Ruggiero, 2000). For Chinese college students, academic/relational pressures (Chen et al., 2016) may drive coping via social media, yet excessive use disrupts mood regulation (Peng et al., 2019). Our findings support the bidirectional PSMU-distress link (Lopes et al., 2022; Ohannessian et al., 2021) and social comparison mechanisms (Astleitner et al., 2023). Longitudinal studies are needed to confirm causality and test moderation by negative reinforcement motives.

4.3. The relationships of PSMU with motivations, distress, and the moderating role of gender

In the present study, we found higher levels of PSMU to be linked to using social media for coping, enhancement, and conformity motives. Coping motives most strongly predicted PSMU severity, suggesting coping motives may constitute a key element for PSMU characterization. This is consistent with a previous study on the PSMU (Moretta et al., 2023) and problematic use of smartphones (Chen et al., 2017), reporting negative reinforcement motives to be more likely linked to the problematic behavior, compared to positive reinforcement motives (Chen et al., 2017; Moretta et al., 2023).

As for the main effect of conformity motives on the level of PSMU, conformity motives likely reflect the necessity to circumvent peer disapproval (Maftei and Diaconu-Gherasim, 2023). Previous research has indicated a positive association between the desire to gain peer approval and PSMU (Marino et al., 2020). Many college students view social media as a basic and indispensable tool for interpersonal contact (Chen et al., 2017) and may use social media to align with peer norms and avoid exclusion (Timeo et al., 2020).

Regarding positive reinforcement motives, we found that only in women did higher levels of enhancement motivation predict more severe PSMU. This finding suggests that the development and maintenance of PSMU in women differs from that of men and may depend on positive reinforcement processes. On the other hand, negative reinforcement motivations likely characterize PSMU regardless of gender. A recent study by Moretta and colleagues (Moretta et al., 2023) found that high perceived stress may worsen PSMU via positive reinforcement processes (i.e., using social media for enhancement purposes). Since in the present study, we found higher distress symptoms in women compared to men, it can be speculated that the link between positive reinforcement processes and PSMU in women reflects the higher levels

of distress symptoms in women, which in turn, predict PSMU.

4.4. Limitations and conclusions

There were several limitations to this study. Although the sample was large, convenience sampling may reduce the representativeness of the sample. Moreover, the cross-sectional design prevents us from verifying causality based on findings, so longitudinal designs are imperative in further research.

Notwithstanding these limitations, the study offers novel insights into understanding PSMU in Chinese college students. In particular, the present study showed that the prevalence of PSMU in Chinese college students is 26.6 % and higher in women than in men. Furthermore, it is likely that social norms, motivations, and psychological state underlie these gender differences in the prevalence of PSMU. Those with PSMU exhibited longer active daily use time, stronger motivation (i.e., coping, enhancement, and conformity), and more severe distress symptoms (i.e., anxiety, depression, and stress), and using social media for coping and conformity purposes may represent risk factors for the development and maintenance of PSMU. Importantly, gender seems to moderate the relationship between PSMU and enhancement motives. It is only in women that higher levels of enhancement motives are associated with more severe PSMU, suggesting that women may be at higher risk than men of developing PSMU via positive reinforcement processes.

CRedit authorship contribution statement

Manyun Li: Writing – review & editing, Writing – original draft, Software, Investigation, Formal analysis, Conceptualization. **Yuzhu Hao:** Writing – original draft, Software, Investigation. **Yunfei Wang:** Writing – review & editing, Writing – original draft, Data curation. **Richard Morris:** Writing – review & editing. **Xuyi Wang:** Writing – review & editing. **Tieqiao Liu:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization. **Shubao Chen:** Writing – review & editing, Funding acquisition, Conceptualization. **Tania Moretta:** Writing – review & editing, Formal analysis, Conceptualization.

Author disclosure statement

The authors have no conflicts of interest to declare that are relevant to the content of this article.

Data availability statement

The corresponding author is contacted for data that backs up the study's conclusions when this is reasonable.

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Declaration of competing interest

No potential conflict of interest was reported by the authors.

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