

Social Capital and Psychological Distress Among Chinese University Students: The Predictive Role of Social Network Site Use and Gender

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The Asian Conference on Psychology & the Behavioral Sciences 2026
Official Conference Proceedings

Abstract

Social network site use has become a part of necessary component of human beings worldwide, particularly for youth. The current study attempts to investigate four types of widely used social network sites (SNSs; Facebook, WeChat, Instagram, and Twitter) from the perspective of behavior and frequency of usage, their impacts on social capital (cognitive and structural social capital), and psychological ill-being (anxiety and depressive symptoms). Self-reported data were collected from 293 Chinese students. Results showed that usage behavior and frequency of SNS were not significantly related to their level of depressive symptoms, and only commenting behavior was significantly related to anxiety symptoms ($B = -0.74, p < .05$). Students tended to use Twitter less than other types of SNSs. Their frequency of Facebook use ($B = -0.54, p < .01$), WeChat use ($B = 0.54, p < .01$), and Twitter use ($B = 1.01, p < .01$), and pressing like behavior in SNSs ($B = -0.40, p < .05$) significantly contributed to structural social capital, while only students' pressing like behavior was significantly associated with their cognitive social capital ($B = 0.13, p < .05$). No gender effect was observed. Our findings contributed to a better understanding of which SNSs use and behavior acted as significant predictive roles, suggesting the need to take the frequency and behavior of SNS use into account when considering the impact of SNSs use on students' social capital and psychological ill-being.

Keywords: anxiety, gender difference, depressive symptoms, social network site use

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Introduction

According to Obar and Wildman (2015), the Social Network Site (SNS; also called social networking service or social media) refers to an online platform that allows people to construct social relationships with others by sharing interests, activities, and connections. With the growing trend of internet connectivity and the proliferation of smartphones around the world, most people use one or more of these SNSs regularly and consider these SNS use vital in their daily lives (Chatterjee, 2014). Further, adolescents and emerging adults are avid users of SNSs and the internet. Empirical studies in the European and American contexts also showed that nearly 56% to 70% of adolescents use SNS daily (Twenge et al., 2019). Because of the rapid growth of the SNS, which has dramatically transformed individuals' social interactions and networking into an online environment, more and more researchers and educators are interested in examining the impact of SNS use on students' social, psychological, and academic outcomes. For example, empirical studies showed that SNS use significantly bridged social ties (Phua et al., 2017), strengthened social capital (Kim & Kim, 2017), enhanced students' psychological well-being (Huang, 2017) and life satisfaction (Doğan, 2016), and increased college students' GPA (Liu et al., 2017). However, within the empirical studies, most attempted one or two specific types of SNS with a particular focus on Facebook, and only a few attempted to differ the impact of the SNS use in a comparison of several famous SNSs. Based on 61 eligible studies consisting of 67 independent samples in a meta-analysis examining the impact of SNS use on individual psychological well-being (Huang, 2017), most of the studies were situated in the American context and only 5 studies were drawn from Chinese samplings focusing on Facebook or general time spent on the SNS. In this study, we attempt to investigate four types of widely used SNS use (Facebook, WeChat, Instagram, and Twitter) from the perspective of usage behavior (update status, press like, comment, and send message) and frequency, and examine their impact on students social capital and psychological distress in the Chinese sample.

SNS Use and Social Capital

Social capital refers to relationships and norms of social interactions, which influence the structure of relations between people and facilitate coordinated actions (Coleman, 1988). It can be obtained through both tangible and intangible social resources covering trust, norms and networks (Putnam, 1995). According to Harpham (2008), two distinct facets of social capital were proposed: *Cognitive social capital* refers to individuals' cognitive component consisting of shared values, attitudes, and beliefs that produce norms of behavior and individual feeling within the society (e.g., neighborhood trust, and appreciation of the community to which they belong), while *structural social capital* refers to individuals' observable behavior and actions in their social network. Both facets have been empirically supported in their impacts on individual mental health outcomes, such as depressive symptoms and life satisfaction (Wong et al., 2019). With the increasing availability of wireless technology, more and more researchers have highlighted the role of SNS since it offers online platforms for individuals to participate and interact with others during online activities (Steinfeld et al., 2008). Several studies have attempted to investigate how online relationships and interactions could facilitate individual perceived social capital (Cachia et al., 2007). Further, SNS use has been empirically considered a negligible factor in predicting individuals' social capital (Ellison & Boyd, 2013). From a view of social capital theory (Lin, 1999), both online and offline social networks provide significant personal connections with others, which further contribute to the development of social capital (Choi & Chung, 2013). Despite the boost of research examining the relationship between SNS use and social capital, there is still a lack of empirical research

about the effect of different types of SNSs or taking a look into the effect of the behavior of SNS use (e.g., commenting). For example, previous studies mainly focused on the time spent or use frequency without considering the behavior or purposes of SNS use (Wilson et al., 2012). It is worth noting that in this rapidly changing world, individuals may have an increasing number of SNS accounts on technological devices with different purposes, which further influences their SNS usage behavior. To date, it is not clear whether there is a particular type of SNSs use or behavior of SNSs use that is more likely to result in social capital. Therefore, one aim of this study is to tease out the relative weight of the different types of SNS and the behavior of SNS use in contributing to social capital.

SNS Use and Psychological Distress

Psychological distress (also called mental distress) refers to unpleasant subjective states of mood typically characterized by anxious and depressive symptoms (Mirowsky & Ross, 1983). Some studies suggested that adaptive SNS use potentially leads to well-being and distress, such as better life satisfaction and positive mental health, and lower anxiety and depressive symptoms (Marino et al., 2018). Similarly, some research has also drawn attention to the potentially detrimental effects of problematic SNS use on well-being and distress, such as lower quality of life and higher depressive symptoms (Satici & Uysal, 2015). This could be because the users may perceive their friends on SNS to be happier than themselves (Chou & Edge, 2012) and feelings of isolation from their significant others (e.g., family and peers) and society (Al-Dubai et al., 2013). However, some equivocal results exist. In another study (Kraut et al., 2002), individuals' SNS use did not significantly increase depressive symptoms over time or even showed to be associated with less depressive symptoms (Morgan & Cotten, 2003). However, research has yet to evaluate the effect of different types of SNS on individual psychological distress simultaneously. It remains unclear whether this effect can vary across different types of SNS or whether there is a third variable that potentially explains the current equivocal results (e.g., gender).

Role of Gender

For nearly a decade, gender has been consistently considered as a potential factor in explaining individuals' SNS use with exponential growth in empirical research (Ferenczi et al., 2017). It has been widely documented that gender differences exist in several behaviors in the SNSs, such as shared photos and status (Oleszkiewicz et al., 2017), sent messages (Muscanell & Guadagno, 2012), and post content (Park et al., 2016). Furthermore, several studies have addressed gender differences in the association between SNSs and psychological distress (e.g., Nesi & Prinstein, 2015). However, some studies have shown null gender differences (Beyens et al., 2016). Given the lack of consensus on the gender difference in previous empirical studies, the current study addressed gender as a potential factor and investigated whether there is a gender difference in SNS use, social capital, and psychological distress, and examined the role of gender in explaining the associations among the SNS use, social capital, and psychological distress.

Present Study

This study is believed to contribute to the literature in two ways. First, this is the first study that directly examined the frequency and behavior of four SNS uses in a university student population with a view to gender differences. Further, a research question was formulated: *Are there any gender differences in students' SNS use, social capital, and psychological distress in*

a Macau context? On the other hand, this study examined the impact of SNS use on students' social capital and psychological distress by analyzing the effect of gender in the same statistical model. Specifically, the following hypotheses were formulated:

H₁: There is a significant association between SNS use (Facebook, Instagram, Twitter, and WeChat) and social capital, and gender plays a role in this association.

H₂: There is a significant association between SNS use (Facebook, Instagram, Twitter, and WeChat) and psychological distress, and gender plays a role in this association.

Method

Participants and Procedure

Qualtrics was used to collect online survey data from students. The research protocol was approved by the research committee of the authors' corresponding institution. Informed consent was sought from all participants before the study, who were explicitly briefed about the research purpose, nature, and procedure of this research. There was no illegal collection of information from participants, and they were not identifiable, all participants volunteered to participate. Two hundred and ninety-three students completed the questionnaire package. The majority (99.66%) were enrolled in a bachelor degree program, and only one student was from a master degree program. This master student data has been removed because this data point was from a different education level than most data points. The χ^2 and Mahalanobis distance tests were used to detect multivariate outliers assuming the multivariate normality of main variables. Twenty-two outliers were identified and removed. The final sample size included 270 undergraduates (82 males and 188 females). The age ranged from 18 to 22 ($M = 19.80$, $SD = 1.41$).

Instrument Used and Their Validation

Social Network Site Use

The social network site use consisted of 17 items to ask participants to report the usage of SNS (Elhai & Hall, 2015). This scale was modified in the usage of four SNSs: Facebook, WeChat, Instagram, and Twitter. Sample items for Facebook use were "*Change or update your status on Facebook*", "*Comment on other people's status, photos, links or other posts on Facebook*", and "*Send a private message on Facebook*". The frequency of usage was rated on a 6-point Likert scale from 1 (*less often or never*) to 6 (*several times a day*). Following a standard procedure of back-translation for cross-cultural research (Brislin, 1970), all the items were administered in Chinese. In terms of the behavior of SNS use, we recoded and computed four variables that captured the common features among the four SNSs (Update status, Press like, Comment, and Send message).

Social Capital

Social capital was assessed using the Short Adapted Social Capital Assessment Tool (SASCAT; Harpham et al., 2002). This scale consisted of 4 items to measure cognitive social capital, each item related to different elements: trust, social harmony, sense of belonging, and sense of fairness; 5 items to measure structural social capital related to an active member in the different social groups, social support, and citizenship activities. Responses were reported dichotomously (Yes/No), and responses were summed to create an index of cognitive/structural social capital. All the items captured the key concepts of social capital theory, supporting a

good discriminant validity to distinguish social capital (Harpham et al., 2002). We also followed Brislin's (1970) approach for translate the scale. To ensure that the translation captured the key concept of social capital theory, three bilingual speakers with a proficiency level and one professor with a social psychology background were involved in the back-translation procedure.

Anxiety

Anxiety was assessed using the State-Trait Anxiety Inventory (STAT-6; Marteau & Bekker, 1992). STAT-6 covered 6 items that asked participants to report the symptoms of anxiety. Three items were in positive wordings that needed to be reversed (e.g., *I was feeling calm*). Each item was rated on a 4-point Likert scale from 0 (*almost never*) to 3 (*almost always*). The Chinese version of STAT-6 has shown acceptable reliability and validity (Ma et al., 2013). The Cronbach's alpha was .80 in this study, indicating good internal consistency.

Depressive Symptoms

Depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). PHQ-9 covered nine items that asked participants to report the depressive symptoms they experienced during the previous two weeks. The sample item was "*Little interest or pleasure in doing things*". Each item was rated on a 4-point Likert scale from 0 (*not at all*) to 3 (*nearly every day*). The Chinese version of PHQ-9 showed good construct validity and criterion validity (Wang et al., 2014), and it had good internal consistency and test-retest reliability in measuring depressive symptoms in Chinese samples (Zhang et al., 2013). The Cronbach's alpha was .85 in this study, indicating good internal consistency.

Data Analysis

Composite scores were first computed for the questionnaire items representing each variable. Independent sample *t*-tests were used to examine gender differences in each variable. To control family-wise type I error, Bonferroni's method was used and each *t*-test was considered significant if $p < .05 / \text{number of comparisons}$. Two-step hierarchical multiple linear regression analyses were used to determine the relevance of frequency and behavior of students' SNS use in two factors of social capital (cognitive and structural social capital) and two types of psychological distress (anxiety and depressive symptoms), as well as the moderating effect of gender on this association. This approach allowed us to investigate the SNS usage patterns of social capital and psychological stress among university students in our sample and identify which type of frequency and behavior of students' SNS use is most important in regression models. In each regression analysis, frequency and behavior were entered in Model 1, and gender and interaction terms were then entered in Model 2. The SPSS Statistics 24 was used to perform all statistical analyses.

Results

Table 1 presents bivariate correlations among variables. For the interpretation of the *r* value, we followed Cohen's (1988) suggestion to indicate weak, medium, and strong effect sizes by .10, .30, and .50, respectively. As shown in Table 1, we observed a strong correlation between the frequency and behavior of students' SNS use. Therefore, we performed multicollinearity analysis and obtained variance inflation factors (VIFs) to determine whether each type of frequency and behavior could be used as independent variables in predicting social

capital and psychological distress. The absence of multicollinearity was assumed if the VIF was below 10 (O'Brien, 2007). In this study, the VIFs for each type of frequency and behavior were all less than 10 in all models tested (ranging from 1.21 to 4.03). Therefore, all types of frequency and behavior were shown to be suitable for inclusion as independent variables in multiple linear regression models.

Table 1
Correlations Matric Among Tested Variables (N = 270)

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Gender
<i>Frequency</i>												
1. Facebook	-											.09
2. WeChat	.41***	-										.30***
3. Instagram	.52***	.52***	-									.25***
4. Twitter	.05	.05	.10	-								.13*
<i>Behavior</i>												
5. Update status	.57***	.64***	.65***	.17***	-							.16**
6. Press like	.67***	.66***	.75***	.14**	.51***	-						.33***
7. Comment	.67***	.72***	.74***	.21**	.60***	.67***	-					.22***
8. Send message	.68***	.47***	.59***	.15*	.39***	.54***	.58**	-				.13*
<i>Social capital</i>												
9. Cognitive	.10	.03	.07	.10	.01	.16*	.07	.05	-			.11
10. Structural	.16**	.16**	.03	.15*	.11	.10	.18**	.13*	.04	-		.08
<i>Psychological distress</i>												
11. Anxiety	.04	-.03	-.04	-.02	-.01	.02	-.08	.00	-.09	-.01	-	.04
12. Depressive symptoms	.03	.01	.04	.01	.05	.05	-.02	.02	-.10	-.02	.50***	.04

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

H₁: SNS Use and Social Capital

Overall, students tended to use WeChat more frequently (Mean = 4.33, $SD = 1.24$), followed by Facebook (Mean = 3.08, $SD = 1.27$), Instagram (Mean = 2.51, $SD = 1.37$), and Twitter (Mean = 1.09, $SD = .40$). In terms of behavior in the SNS use, students tended to press like more frequently (Mean = 3.40, $SD = 1.17$), followed by sending message (Mean = 2.85, $SD = .67$), giving comment (Mean = 2.59, $SD = 1.06$), and updating status (Mean = 2.17, $SD = .99$). As shown in Table 2, only students' pressing like behavior was significantly associated with their cognitive social capital ($B = .13$, $p < .05$, see Model 1 of cognitive social capital), while their frequency use in Facebook ($B = .54$, $p < .01$), WeChat ($B = .54$, $p < .01$), and Twitter ($B = 1.01$, $p < .01$), and pressing like behavior ($B = -.40$, $p < .05$) were significantly associated with structural social capital (see Model 1 of structural social capital). This hypothesis was partially supported.

Table 2
Results of Multiple Linear Regression Analyses for Social Capital (N = 270)

Variables	Cognitive social capital				Structural social capital			
	Model 1		Model 2		Model 1		Model 2	
	B	SE	B	SE	B	SE	B	SE
Independent variables								
<i>Frequency</i>								
Facebook (A)	.05	.07	.04	.14	.54**	.21	.27	.41
WeChat (B)	-.02	.07	-.05	.12	.54*	.21	.16	.36
Instagram (C)	.00	.00	.00	.00	.00	.00	.00	.00
Twitter (D)	.17	.12	.34	.82	1.01**	.36	2.89	2.46
<i>Behavior</i>								
Update status (E)	-.07	.07	-.11	.14	-.34	.20	-.17	.41
Press like (F)	.13*	.06	.11	.13	-.40*	.19	-.32	.39
Comment (G)	-.02	.08	.05	.18	-.01	.23	.39	.54
Send message (H)	-.08	.10	-.08	.17	-.24	.29	-.48	.50
Moderating variable								
Gender (I)			.12	.95			-.26	2.86
Interaction								
A × I			.02	.17			.22	.50
B × I			.05	.16			.42	.47
C × I			.01	.15			-.21	.45
D × I			-.17	.83			-2.05	2.49
E × I			.04	.20			-.08	.61
F × I			.00	.00			.00	.00
G × I			-.10	.26			-.40	.79
H × I			.01	.24			.66	.73
Constant	3.31***	.24	3.19***	.90	2.19***	.72	1.51	2.69
R ²	.04		.08		.08		.10	
F (sig.)	1.69		.88		3.17**		1.94*	

Note. B = unstandardized regression coefficient, SE = standard error.

* $p < .05$; ** $p < .01$; *** $p < .001$.

H₂: SNS Use and Psychological Distress

As shown in Table 3, only students' commenting behavior was significantly associated with their anxiety ($B = -.74, p < .05$, see Model 1 of anxiety), while students' frequency and behavior in the SNS use were not significantly associated with their depressive symptoms ($ps = ns$). This hypothesis was partially supported.

Table 3*Results of Multiple Linear Regression Analyses for Psychological Distress (N = 270)*

Variables	Anxiety				Depression			
	Model 1		Model 2		Model 1		Model 2	
	B	SE	B	SE	B	SE	B	SE
Independent variables								
<i>Frequency</i>								
Facebook (A)	.38	.31	1.11	.61	-.08	.42	.59	.83
WeChat (B)	.14	.31	.28	.54	-.17	.42	-.38	.74
Instagram (C)	.00	.00	.00	.00	.00	.00	.00	.00
Twitter (D)	.15	.54	-3.76	3.65	-.02	.74	-7.37	5.01
<i>Behavior</i>								
Update status (E)	-.02	.30	-.91	.60	.45	.42	-.77	.82
Press like (F)	.16	.28	.14	.58	.41	.38	-.35	.79
Comment (G)	-.74*	.34	-.75	.80	-.50	.46	.76	1.10
Send message (H)	-.08	.43	-.36	.74	.18	.59	.68	1.01
Moderating variable								
Gender (I)							-6.31	5.80
Interaction								
A × I			-.96	.74			.14	1.01
B × I			-.26	.70			1.33	.96
C × I			.02	.67			1.04	.92
D × I			3.82	3.69			8.49	5.06
E × I			1.16	.90			.46	1.23
F × I			.00	.00			.00	.00
G × I			.07	1.17			-2.48	1.60
H × I			.34	1.08			-1.88	1.48
Constant	9.17***	1.07	12.89**	3.98	6.13***	1.47	12.58	5.46
R ²	.02		.05		.01		.05	
F (sig.)	.89		.82		.47		.92	

Note. B = unstandardized regression coefficient, SE = standard error.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Gender Differences

Table 4 presents the means, *SD*, and comparisons for female and male students for the social capital subscales and two indicators of psychological distress. Accordingly, a significant gender difference was observed in WeChat use (Mean_{female} = 4.57, *SD*_{female} = 1.10; Mean_{male} = 3.78, *SD*_{male} = 1.36, $t = -5.02$, $p < .001$), Instagram use (Mean_{female} = 2.73, *SD*_{female} = 1.32; Mean_{male} = 1.99, *SD*_{male} = 1.36, $t = -4.19$, $p < .001$), Twitter use (Mean_{female} = 1.13, *SD*_{female} = .47; Mean_{male} = 1.02, *SD*_{male} = .10, $t = -2.12$, $p < .05$), update status (Mean_{female} = 2.27, *SD*_{female} = .96; Mean_{male} = 1.92, *SD*_{male} = 1.02, $t = -2.72$, $p < .01$), press like (Mean_{female} = 3.66, *SD*_{female} = 1.07; Mean_{male} = 2.81, *SD*_{male} = 1.19, $t = -5.76$, $p < .001$), comment (Mean_{female} = 2.74, *SD*_{female} = 1.06; Mean_{male} = 2.24, *SD*_{male} = 1.00, $t = -3.66$, $p < .001$), and send message (Mean_{female} = 2.90, *SD*_{female} = .67; Mean_{male} = 2.72, *SD*_{male} = .71, $t = -2.09$, $p < .05$). However, no significant

gender difference was observed in students' social capital and psychological distress ($ps = ns$). With a Bonferroni correction, the significance remained for WeChat use, Instagram use, press like, and comment.

Table 4
Results of Gender Differences

Variables	Females (N = 188)		Males (N = 82)		t-value	p-value	Levene's Test for equality of Variances
	Mean	SD	Mean	SD			
<i>Frequency</i>							
1. Facebook	3.16	1.27	2.91	1.27	-1.45	.145	.01
2. WeChat	4.57	1.10	3.78	1.36	-5.02***	.000 ^a	6.90*
3. Instagram	2.73	1.32	1.99	1.36	-4.19***	.000 ^a	.03
4. Twitter	1.13	.47	1.02	.10	-2.12*	.037	18.77***
<i>Behavior</i>							
5. Update status	2.27	.96	1.92	1.02	-2.72**	.009	.30
6. Press like	3.66	1.07	2.81	1.19	-5.76***	.000 ^a	1.80
7. Comment	2.74	1.06	2.24	1.00	-3.66***	.000 ^a	.88
8. Send message	2.90	.67	2.72	.71	-2.09*	.038	.43
<i>Social capital</i>							
9. Cognitive	3.65	.67	3.48	.79	-1.81	.066	4.76*
10. Structural	4.59	2.27	4.20	2.04	-1.39	.176	.88
<i>Psychological distress</i>							
11. Anxiety	9.55	3.23	9.30	3.05	-.59	.546	1.15
12. Depressive symptoms	6.81	4.31	6.45	4.43	-.57	.534	.25

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. ^aBonferroni $p < 0.004$

Furthermore, as shown in Tables 3 and 4, gender had no significant effect on social capital and psychological distress ($ps = ns$). Regarding the interaction terms, none of them showed a significant impact on social capital and psychological distress ($ps = ns$). The explanatory power for cognitive social capital was 5.00% ($R^2 = .05$) and the regression equation was non-significant ($F = .88, p = .589$), while for structural social capital was 10.20% ($R^2 = .10$) and the regression equation was statistically significant ($F = 1.94, p < .05$). The explanatory power for anxiety was 4.60% ($R^2 = .05$), and the regression equation was non-significant ($F = .83, p = .650$), while for depressive symptoms was 5.10% ($R^2 = .05$), and the regression equation was also non-significant ($F = .92, p = .547$).

Discussion

The primary objective of this study was to investigate the usage patterns and behaviors associated with four social networking sites (SNSs) and to assess how varying SNS usage and engagement behaviors may relate to students' social capital and psychological distress. The results indicated that Chinese students' SNS use was not significantly associated with their depressive symptoms. This finding diverges from prior research suggesting that SNS engagement may contribute to psychological distress among students (e.g., Yan et al., 2017). Within the context of this study, participants are situated in a collectivistic cultural framework. Previous research has indicated that individuals from collectivistic cultures tend to prioritize

real-life interpersonal relationships and engage less with SNSs compared to those from individualistic cultures, such as the United States (see Jackson & Wang, 2013). Accordingly, it is plausible that SNS use may not exert a notable influence on students' psychological distress, given that they may not exhibit extensive usage patterns relative to their counterparts in individualistic societies. Future cross-cultural investigations are warranted to further elucidate these dynamics. Additionally, the study revealed that students' frequency of commenting behavior was negatively associated with symptoms of anxiety. This finding aligns with existing literature suggesting that SNS engagement can facilitate social interaction with family and friends, thereby enhancing perceived social support and mitigating psychological distress (e.g., Nabi et al., 2013). Consistent with this perspective, interactive SNS behaviors (e.g., expressing concern through likes or comments) may foster cognitive social capital by cultivating a sense of community and reinforcing supportive networks, ultimately contributing to improved mental health outcomes among students.

Conversely, the findings revealed that students' engagement with specific SNS platforms (Facebook, Instagram, and Twitter) significantly contributed to their structural social capital. This outcome corroborates prior research underscoring the positive role of SNS use in facilitating students' social capital accumulation (Manago & Melton, 2020). Specifically, the results suggest that utilization of particular SNS platforms may enable students to establish and reinforce structural social capital by expanding and maintaining their social networks. Regarding cognitive social capital, the analysis indicated that only the act of pressing "like" emerged as a significant predictor of students' cognitive social capital levels. This finding underscores the potential significance of the "like" feature within SNS environments. Prior scholarship has suggested that distinct forms of engagement on SNS entail varying degrees of cognitive investment (Kim & Yang, 2017). For instance, pressing the like button typically involves minimal cognitive commitment, whereas commenting on a post demands greater engagement and cognitive effort, as it often reflects deliberation or deeper cognitive processing (Alhabash & McAlister, 2015). It is plausible that the act of liking a post, despite requiring minimal effort, simultaneously signals two interrelated processes: (1) individuals are attending to content shared by their close contacts, and (2) those contacts, in turn, receive notification of this attention, thereby reinforcing mutual awareness. Such reciprocal interactions may enhance individuals' sense of belonging and emotional connectedness within their social networks. Nevertheless, it is important to acknowledge that this study assessed only the frequency of liking behavior, which may, in some cases, represent automatic or habitual responses rather than deliberate social engagement. Accordingly, further qualitative inquiry is warranted to explore the underlying motivations and contextual meanings associated with specific SNS behaviors.

Based on the Bonferroni correction results, there were gender differences in the frequency of three SNSs (WeChat, and Instagram) and the behavior in the SNS use (Press like, and Comment). We found that female students tended to use SNS more frequently than male students. These findings were in line with a study which showed that females tended to use the SNS in maintaining social ties with friends and receiving social information from their close friends and broader network, while males used the SNS in observing information online with fewer purposes of social networking (Krasnova et al., 2017). However, when all variables were entered into a unified regression model, gender did not emerge as a significant predictor of either social capital or psychological distress. As noted previously, several hypothesized relationships in this study yielded inconsistent results. While gender was examined as a potential explanatory factor for these inconsistencies, it did not account for the observed variance. Future research should consider incorporating additional variables that may elucidate

these relationships more comprehensively. Promising avenues include individual-level characteristics such as personality traits and cultural background, as well as users' motivations for engaging with SNS. Investigating these factors could deepen our understanding of how SNS use shapes social capital and psychological distress.

Limitations and Future Direction

The findings of the present study should be considered within the context of several methodological limitations. First, owing to the cross-sectional nature of the research design, causal relationships among the variables cannot be inferred. Future studies employing experimental methodologies, such as randomized controlled trials, are necessary to establish causal pathways more rigorously. Second, this investigation was limited to examining the impact of four popular social networking sites (Facebook, WeChat, Instagram, and Twitter) within a Chinese sample. Consequently, the extent to which these findings generalize to other SNS platforms or cultural contexts remains uncertain. Given the dynamic and diverse nature of social media environments, subsequent research should explore the influence of emerging platforms, including Douyin in China and TikTok internationally, which have garnered substantial and growing user populations. Third, the quantitative approach adopted in this study focused primarily on measuring the frequency and observable behaviors associated with students' SNS engagement, without investigating the underlying motivations driving such use. It is important to recognize that students may utilize SNS for a variety of purposes, including maintaining existing relationships, expanding social networks, or fulfilling academic needs (Karimi et al., 2014). Future research would therefore benefit from incorporating users' motivations or goals as key variables, thereby facilitating a more comprehensive understanding of how SNS use affects psychological and social outcomes.

Conclusion and Implications

The current study investigated the impact of four types of SNS use on students' social capital and psychological distress in a Chinese context. Our findings contributed to a better understanding of which SNSs use and behavior acted as significant predictive roles, suggesting the need to take the frequency and behavior of SNS use into account when considering the impact of the SNS use on students' social capital. Nowadays, students may have registered several SNSs with different purposes of usage. Based on our findings, in terms of promoting students' social capital, educators and researchers can have a further specific focus on investigating students' perspectives in using SNSs and understanding the reasons why they behave in SNSs differently.

Regarding the impact on psychological distress, we found that students' SNS use on Facebook, WeChat, Instagram, and Twitter was not significantly associated with their anxiety and depressive symptoms. Further research is needed to examine whether SNS use can prompt a positive effect on students' mental health (such as life satisfaction and quality of life) and social outcomes (e.g., better interpersonal relationships), or relevant cultural background. Further research is also warranted to investigate other potential factors that underlie the association between SNS use and mental health.

Acknowledgements

Funding Statement

The author disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by Grant 0023/2021/APD from the Science and Technology Development Fund (FDCT), Macao SAR, China.

Conflict of Interest Disclosure

The author has no conflict of interest to declare.

Ethics Approval Statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The current study was approved by the ethics panel at the author's faculty.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that Grammarly, an AI-assisted writing software, was used in proofreading and refining the language used in the manuscript. The usage was limited to correcting grammatical and spelling errors and rephrasing statements for accuracy and clarity. The author further declares that, apart from Grammarly, no other AI or AI-assisted technologies have been used to generate content in writing the manuscript. The ideas, design, procedures, findings, analyses, and discussion are originally written and derived from careful and systematic conduct of the research.

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