



Significance Matters: Examining the Association between Perceived Helplessness and Problematic Social Media Usage

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Abstract. Previous studies have shown a positive association between problematic social media usage and negative affect among young adults. However, few studies have examined how this relationship relates to the three dimensions (3DM) of meaning in life: significance, coherence, and purpose. This study aims to examine the indirect effects of 3DM on the association between perceived helplessness and problematic social media usage. We recruited 427 Hong Kong college students (Mean age = 21.58 years old, Range = 18 to 35 years old) and used structural equation modeling to test the indirect effect. Findings support the indirect effect of perceived helplessness on problematic social media usage via significance, but no significant indirect effects for coherence and purpose. Significance, which reflects “one’s perceived value of their life to oneself”, demonstrated as a protective factor to buffer the association between perceived helplessness and problematic social media usage. This suggests future interventions should focus on enhancing one’s sense of significance.

Keywords. Problematic Social Media Use, Meaning in Life, Perceived Helplessness, 3DM.

1. Literature Review

The proliferation of social media platforms has fundamentally transformed the way people communicate and interact with each other worldwide. Appropriate social media use can yield positive outcomes, including but not limited to elevated happiness (Ward et al., 2018), reduced depressive symptoms (Wang et al., 2019), and enhanced social support (Tifferet, 2020). However, this digital revolution has given rise to concerns regarding problematic social media use, particularly among emerging young adults. Previous studies have identified problematic social media use as a severe concern among college students in Hong Kong (Aparicio, 2020). In a study of Hong Kong teenagers, Yu and Du (2022) found that 46.8% reported frequent social media use, while 7.8% met the criteria for social media addiction when measured by the Bergen’s Social Media Addiction Scale (Andreassen et al., 2012). Furthermore, a comprehensive meta-analysis examining 39 studies with a total sample of 58,058 Asian college

students revealed that the prevalence of Internet addiction reaches approximately one quarter of the studied sample (Duc et al., 2024).

To explain how problematic social media use develops, there are two existing theories: Compensatory Internet Use Theory (CIUT; Kardefelt-Winther, 2014) and General Strain Theory (GST; Agnew & White, 1992). The CIUT suggests people use online platforms to fulfill unmet psychological needs or relieve negative feelings from their real-life problems. When internet use temporarily alleviates negative feelings from real-life issues and supplements the unmet psychological needs in everyday lives, users may develop dependence and a strong desire to spend increasing amounts of time online, potentially leading to problematic outcomes. Another theory is GST, which explains the association between strain or stress and Internet addiction. According to GST, participants with stress and associated negative emotions lead to deviant behavior. Agnew and White (1992) identify three primary types that promote deviance: failing to achieve valued goals, losing positive feedback, and experiencing negative feedback. Among these, the inability to achieve valued goals, including money, status, and autonomy, account for the most common strain. Prior literature has established problematic social media use as excessive engagement with social platforms that results in adverse physical and psychological outcomes (e.g., Arrivillaga, et al., 2022; Keles et al., 2020; Wartberg et al., 2021). A significant bidirectional relationship exists between perceived stress and problematic social media use, with increases in one variable corresponding to elevations in the other. This association has been substantiated by a comprehensive meta-analysis encompassing 18 studies with a cumulative sample of 9,269 participants, yielding a moderate positive correlation ($r = .313, p < .001$; Shannon et al., 2022). A longitudinal study conducted by Shannon and colleagues (2024) found that problematic social media use significantly related to more depressive symptoms and loneliness over a 4-week time.

1.1. The Mediating Role of Meaning in Life

Several studies have examined the relationship among perceived stress, meaning in life, and problematic social media usage. Emerging research suggests a pathway where increased stress leads to decreased meaning in life, which subsequently contributes to increased problematic social media usage (Meng et al., 2023). However, research findings in this area present some interesting contradictions. For instance, Meng et al. (2023) studied 1,198 adolescents in China and found that increased social media use was significantly associated with enhanced meaning in life, which in turn predicted higher life satisfaction. This suggests that under certain circumstances, social media use may enhance positive psychological functions. Conversely, Zhang et al. (2015) examined 1,068 Chinese college students and discovered that higher impulsivity predicted lower meaning in life, which subsequently led to increased internet addiction. This finding aligns with the Compensatory Use Theory (Kardefelt-Winther, 2014), suggesting that individuals may turn to problematic technology use when experiencing psychological dissatisfaction. More recently, Jiang and Zhang (2024) investigated 724 Chinese adolescents during the COVID-19 pandemic and found a more complex relationship. Their results indicated that perceived stress during the pandemic was linked to problematic mobile phone use, but this relationship was moderated by meaning in life. This suggests that meaning in life may serve as a protective factor

against maladaptive technology use during stressful periods. The literature presents substantial evidence for a complex relationship between psychological well-being, meaning in life, and problematic social media use.

According to Martela and Steger's (2016; 2023) theoretical framework, meaning in life comprises three dimensions (3DM): coherence, purpose, and significance. The first is coherence, the cognitive dimension referring to "a sense of comprehensibility and one's life making sense" (Martela & Steger, 2023, p. 534). The second is purpose, the motivational dimension encompassing "a sense of core goals, aims, and direction in life" (Martela & Steger, 2023, p. 534). The third is significance, the evaluative dimension representing "a sense of life's inherent value and having a life worth living" (Martela & Steger, 2023, p. 534). These dimensions of meaning in life can be further understood in relation to General Strain Theory (GST; Agnew & White, 1992), which explains how strain or stress can lead to problematic social media use. According to GST, stress and resulting negative emotions lead to deviant behavior when individuals cannot achieve valued goals, lose positive feedback, or experience negative feedback. The inability to achieve valued goals—particularly money, status, and autonomy—accounts the most common strain that may compromise one's sense of purpose and significance, potentially driving compensatory behaviors like problematic social media use.

1.2. Research Questions

The aim of the current study was to test the relationship between perceived helplessness, meaning in life, and problematic social media use in college students. We hypothesize that perceived helplessness has an indirect effect on problematic social media usage via three dimensions of meaning in life, based on conflicting findings in the literature (Meng et al., 2023, Shannon et al., 2022). We propose that meaning in life would mediate the relationship between perceived helplessness and problematic social media usage. Previous studies have reported that perceived stress and helplessness are associated with diminished meaning in life (Zhang et al., 2015, Jiang & Zhang, 2024), and that meaning in life is associated with problematic social media usage (Meng et al., 2023, Martela & Steger, 2023). We also hypothesize that specific dimensions of meaning in life (coherence, purpose, and significance) may differentially mediate the relationship between perceived helplessness and problematic social media usage. Based on Martela and Steger's (2016; 2023) three-dimensional model of meaning, we predicted that coherence, purpose, and significance would each serve as a unique mediator. The theoretical model is presented in Fig 1.

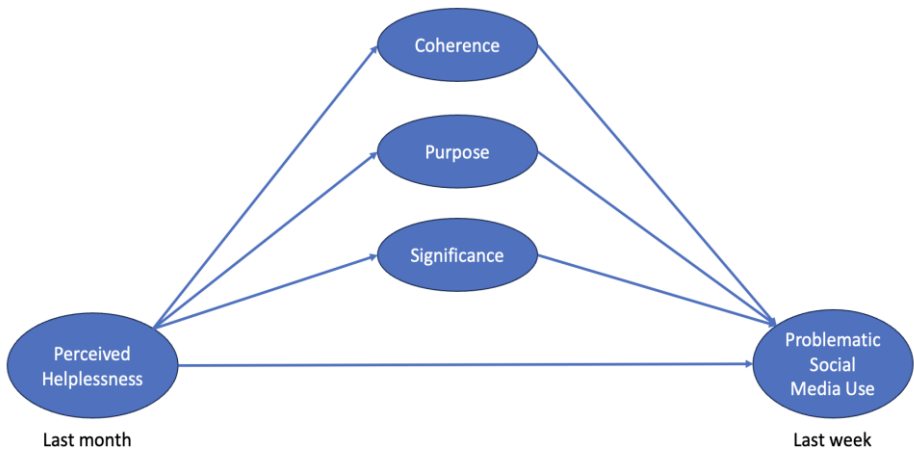


Figure 1: The Hypothesized Model

2. Method

2.1. Procedures and Participants

Data were collected through an online survey completed between January and February 2024. After receiving ethics approval from the Research Ethics Committee of Tung Wah College, a link to the online questionnaires was distributed to the college students through on-campus posters and advertisements. All participants were informed about confidentiality and the right to withdraw from the study at any time without penalty. Upon completion of all study measures, participants received compensation of a HKD50 coupon.

Our sample ($n = 427$) consisted of 65.81% women ($n = 281$) and 34.19% men ($n = 146$), with a mean age of 21.58 years ($SD = 3.36$) and an age range of 18 to 35 years. Regarding family monthly income, 21.55% of participants reported income below HKD\$20,000 (lower than Hong Kong's median income of HK\$19,800 reported by the Census and Statistics Department for May-June 2023). In addition, 44.03% reported monthly family income between HK\$20,001 and HK\$40,000, while 34.43% reported income above HK\$40,001.

2.2. Measures

Self-report measures were used to collect demographic information and data on problematic social media usage, meaning in life, and perceived stress.

Problematic Social Media Use. The revised version of the Bergen Facebook Addiction Scale was used to determine participants' problematic social media use (BFAS; Andreassen et al., 2012). Participants were asked to evaluate their social media use in

the past week. The research team had replaced the term ‘Facebook’ with ‘social media’. The scale consists of 6 items, and participants were asked to rate on a 5-Likert scale (1 = very rarely to 5 = very often). This scale exhibited satisfactory internal consistency reliability in the current study (Cronbach’s $\alpha = .84$).

Meaning in Life. Meaning in Life was measured using Martela and Steger’s (2023) Three-Dimensional Meaning in Life Scale, an 11-item instrument assessing coherence (4 items; e.g., “I can easily make sense of my life”), purpose (4 items; e.g., “I pursue one or more main purposes in my life”), and significance (3 items; e.g., “My life is full of value”). Participants were asked to rate their meaning in life on a 7-point scale (1 = “not at all true” to 7 = “very true”). The internal reliability in this study for the 3 dimensions of MIL was satisfactory (Cronbach’s α was .84 for coherence; .89 for purpose, and .89 for significance).

Perceived Helplessness. Perceived helplessness was assessed using the 6 items from Perceived Stress Scale-10 in the last month (PSS-10; Lu et al., 2017). Participants were asked to rate their perceived helplessness in the past month on a 5-point Likert scale ranging from 0 (“never”) to 5 (“very often”) on items such as “In the last month, how often have you been unable to control the important things in your life?” A higher score on the scale indicates greater perceived helplessness. The internal reliability in the present study for perceived helplessness was satisfactory (Cronbach’s $\alpha = .86$).

2.3. Data Analysis

We first conducted a confirmatory factor analysis (CFA) to evaluate the measurement model with all cross-loadings constrained to zero. Measurement invariance across gender was examined using a series of multigroup CFAs, testing configural, metric, and scalar invariance models. Results showed a non-significant chi-square test and CFI difference less than .01, confirming measurement invariance (Cheung & Rensvold, 2002).

Structural equation modeling (SEM) was employed to investigate the indirect effect of perceived stress to problematic social media use via meaning in life (Figure 1). Given that most psychological data violate normality assumptions (Micceri, 1989), we utilized robust maximum likelihood estimation for model parameters and fit indices. Model fit was evaluated using the following criteria (Hu & Bentler, 1999; Brown, 2015): comparative fit index (CFI) > .90, Tucker-Lewis index (TLI) > .90, standardized root-mean-square residual (SRMR) < .09, and root-mean-square error of approximation (RMSEA) < .06 with 90% confidence interval of RMSEA < .06. The indirect effects were examined using bootstrapping method with 10000 resamples. All analyses were performed in R (R Core Team, 2025) using the lavaan package for CFA and SEM analyses (Rosseel, 2012) and the semhelpinghands package for bootstrapping confidence intervals for standardized indirect paths (Cheung, 2024).

3. Results

3.1. Descriptive Analysis

Table 1 reports descriptive statistics for the study variables, including means, standard deviations, skewness, kurtosis, and range, as well as their correlations. All variables fell within the skewness and kurtosis range of -1 to 1, suggesting a slightly deviation from normality (Lei & Lomax, 2005).

Table 1: Descriptive Statistics and Correlation Coefficients Between Study Variables ($n = 425$)

Variables	1	2	3	4	5
1. Problematic SM use	1				
2. Coherence	-.053	1			
3. Purpose	-.030	.712***	1		
4. Significance	.033	.721***	.759***	1	
5. Perceived helplessness	.303***	-.277***	-.213***	-.271***	1
Mean	2.875	4.657	4.852	4.852	2.085
Standard Deviation	.821	1.141	1.243	1.354	.712
Skewness	.117	-.517	-.660	-.521	-.180
Kurtosis	-.099	.235	.479	-.121	.163
Range	1-5	1-7	1-7	1-7	0-4
Items	6	4	4	3	6

Notes. *** $p < .001$.

3.2. Measurement Model

As shown in Table 2, the CFA revealed that the model fit the data well ($\chi^2 = 511.481$, $df = 200$, CFI = .946, TLI = .938, SRMR = .046, and RMSEA = .056, 90% CI for RMSEA = [.049, .062]). Factor loadings for the Problematic Social Media Use ranged from .555 to .741 ($ps < .001$), Coherence ranged from .611 to .899 ($ps < .001$), Purpose ranged from .724 to .860 ($ps < .001$), Significance ranged from .810 to .908 ($ps < .001$), and Perceived Helplessness ranged from .554 to .806 ($ps < .001$), with satisfactory composite reliabilities (McDonald's omega values ranged from .845 to .892).

To examine measurement invariance across genders, we conducted two separate CFAs – one for female participants and another for male participants. Table 2 reveals that both gender models demonstrated acceptable model fit indices, with males showing slightly better fit indices. We then proceeded with a multigroup CFA to test measurement invariance. Our analysis began with a configural model where parameters were freely estimated, followed by progressively adding constraints on loading,

intercepts, and residuals. Notably, chi-square difference tests showed no significant differences among the models, and CFI decreased slightly, supporting measurement invariance for genders.

Table 2. Fit indices of CFA in overall sample and across gender.

Model	χ^2	<i>df</i>	RMSEA 90%CI	CFI	TLI	SRMR	Δ CFI	Δ SB χ^2
Overall model	511.481	220	.056 [.049, .062]	.946	.938	.046		
Female (n = 281)	482.514	220	.065 [.057, .073]	.930	.919	.052		
Male (n = 146)	316.267	220	.055 [.041, .068]	.946	.937	.064		
Invariance								
Configural model	798.781	440	.062 [.055, .069]	.935	.925	.057		
Loadings model	828.141	458	.055 [.047, .063]	.933	.926	.061	.002	28.280 ^{ns}
Intercepts model	849.027	476	.054 [.046, .062]	.932	.928	.062	.001	21.436 ^{ns}

Notes. χ^2 = chi-square; *df* = degree of freedom; RMSEA = root mean square error of approximation; CI = confidence interval; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square residuals; SB = Satorra-Bentler; ^{ns} non-significance.

3.3. Structural Model

Fig. 2 illustrates the SEM. Results revealed a significant positive direct relationship between perceived helplessness and problematic social media addiction ($\beta = .394$, $p < .001$). Additionally, perceived helplessness was negatively associated with all three meaning in life dimensions: coherence ($\beta = -.332$, $p < .001$), purpose ($\beta = -.257$, $p < .001$), and significance ($\beta = -.311$, $p < .001$), as presented in Table 3. However, the results indicate that only one dimension of meaning in life – significance showed a statistically significant positive association with problematic social media use ($\beta = .491$, $p < .01$).

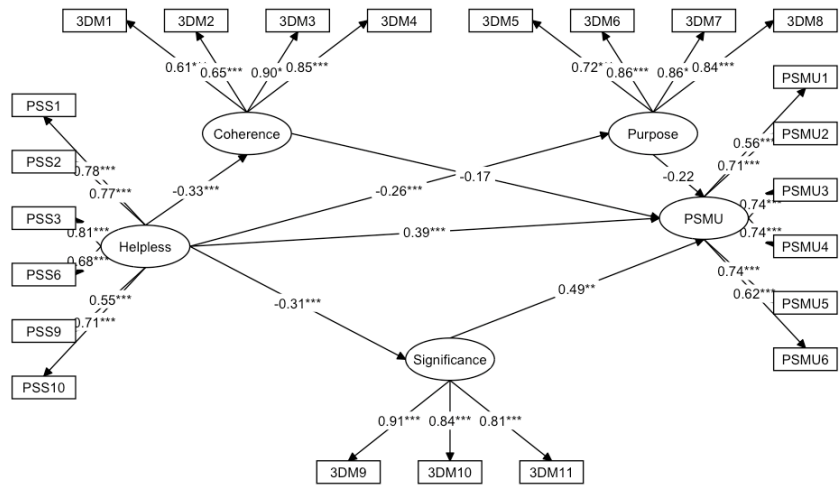


Figure 2: Structural equation model investigating the relationship between perceived helplessness and problematic social media use with the mediating role of meaning in life.

Furthermore, results showed a significant indirect effect of perceived helplessness on problematic social media use, through significance ($\beta = -.153, p < .05, 95\% \text{bootCI} = [-.295, -.052]$).

Table 3. Path coefficients in the SEM of indirect effect of perceived helplessness on problematic social media addition via 3DM.

Path	<i>B</i>	<i>SE(B)</i>	β	<i>SE</i> (β)	95%BootCI for β
Direct effect					
Helpless -> Coherence	-.408***	.085	-.332***	.060	[-.446, -.211]
Helpless -> Purpose	-.393***	.098	-.257***	.063	[-.381, -.132]
Helpless -> Significance	-.626***	.120	-.311***	.059	[-.428, -.194]
Helpless -> PSMU	.303***	.060	.394***	.068	[.256, .521]
Coherence -> PSMU	-.104	.086	-.167	.137	[-.438, .100]
Purpose -> PSMU	-.110	.078	-.218	.164	[-.540, .105]
Significance -> PSMU	.118**	.062	.491**	.159	[.179, .803]
Indirect effect					
Helpless -> Coherence -> PSMU	.043	.037	.055	.048	[-.033, .156]
Helpless -> Purpose -> PSMU	.043	.033	.056	.047	[-.033, .145]
Helpless -> Significance -> PSMU	-.118*	.046	-.153*	.062	[-.295, -.052]

Notes. *B* = unstandardized coefficient; *SE* = standard error; β = standardized coefficient; BootCI = bootstrapping confidence interval; * $p < .05$, ** $p < .01$, *** $p < .001$; Helpless = perceived helplessness; PSMU = Problematic social media use.

4. Discussion

This study aimed to investigate the indirect effect of perceived helplessness on problematic social media use through three dimensions of meaning in life using structural equation modeling.

Consistent with the findings from previous studies (e.g., Shannon et al., 2022), we found a significant positive association between perceived helplessness and problematic social media use. This relationship supports the notion that individuals experiencing higher levels of psychological distress may turn to social media as a coping mechanism, potentially leading to maladaptive usage patterns. This finding aligns with the compensatory use theory, which suggests that social media use may be used to alleviate negative psychological states (Kardefelt-Winther, 2014). In addition, our results showed that significant negative associations between perceived helplessness and all three dimensions of meaning in life. We found that individuals experiencing higher levels of perceived helplessness reported lower levels of three dimensions of meaning in life.

Interestingly, we observed a positive relationship between significance and problematic social media use, suggesting that individuals with a stronger sense of personal meaning and importance of life were more likely to have problematic social media use. This finding challenges the Compensatory Use Theory (Kardefelt-Winther, 2014), which suggests that social media is used to alleviate negative psychological states, and points to more complex mechanisms underlying problematic social media use patterns. This unexpected finding can be explained through the General Strain Theory (GST; Agnew & White, 1992). According to Agnew's GST framework, when individuals experience strain (such as perceived helplessness), they seek ways to alleviate negative emotions. Those who maintain a sense of significance despite feeling helpless may turn to social media as a means of affirming their worth and importance. The strain created by the discrepancy between feeling helpless yet significant may drive individuals to seek validation through social media platforms, where they can present idealized versions of themselves and receive immediate feedback through likes, comments, and shares. This behavior aligns with GST's proposition that strain motivates individuals to engage in adaptive (albeit sometimes problematic) behaviors to reduce negative emotional states (in this case, from the lack of validation) and preserve their sense of self-worth. This interpretation is further supported by recent research by David and Roberts (2023), who found that self-centeredness and fear of missing out (FOMO) are significant predictors of problematic social media use. Their study suggests that individuals with a strong sense of personal significance may paradoxically engage more intensely with social media platforms as a means of maintaining and broadcasting their sense of importance, particularly when other aspects of their psychological well-being (such as perceived control) are compromised.

There are several limitations to be considered when interpreting our study's findings. First, the cross-sectional design in the current study limits our ability to draw causal inferences regarding the relationships between perceived helplessness, meaning in life dimensions, and problematic social media use. Future research would benefit from longitudinal designs to establish temporal precedence and investigate potential bidirectional relationships among these variables. Such designs would also allow for the examination of how these relationships evolve over time, particularly during periods of transition or stress. Second, while our analyses revealed significant pathways through the significance (one dimension of meaning in life), the relationship between significance and problematic social media use may be influenced by additional variables not captured in our model. Potential moderators such as childhood psychological maltreatment (Meng et al., 2023) and self-control (Simsir-Gokalp & Akyurek, 2024) warrant investigation in future studies to further elucidate the complex mechanisms underlying these relationships. Third, our sample consisted of primarily college students in Hong Kong, which may limit the generalizability of our findings to other demographic groups or cultural contexts. Cross-cultural studies are needed to determine the universality of the relationships observed in our research.

Despite the limitations, our findings have important implications for intervention programs for college students. In particular, efforts to empower college students by fostering self-understanding and discovering their values and beliefs are encouraged. Supportive interventions aim to help college students discover and affirm their self-worth and inherent value will be helpful to reduce their need to explore and

find support in the virtual world, which may in turn reduce their reliance on social media usage.

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