



Passive social media use and meaning in life of undergraduate students: The roles of social comparison and personal relative deprivation

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Abstract: The study examined whether passive social media use is associated with meaning in life through social comparison and personal relative deprivation. Undergraduate students ($n = 347$, females = 52.7%, mean age = 19.1 years, $SD = 0.92$ years) completed surveys on passive social media use, social comparison, personal relative deprivation and meaning in life. Results from cross-lagged analysis showed that passive social media use was not significantly associated with meaning in life in either cross-sectional or longitudinal analyses. However, passive social media use was indirectly associated with lower presence of meaning through a chained pathway involving social comparison and personal relative deprivation. Social comparison was associated with higher search for meaning, whereas personal relative deprivation was associated with lower presence of meaning. Longitudinal analyses showed that social comparison at the earlier time point was indirectly associated with lower subsequent presence of meaning via increased personal relative deprivation. These findings suggest social comparison and relative deprivation theory perspective that passive social media use is meaning-related primarily through the psychological processes of social comparison and perceived relative deprivation.

Keywords: passive social media use; social comparison; personal relative deprivation; meaning in life; longitudinal design

Introduction

Meaning in life helps college students to deal with psychological problems as emerging adults (Ortega-Gómez et al., 2025). In these digital media times, college students use social media to make sense of their lives, and some are passive users. Unlike active use, passive social media use (PSMU) engages in browsing or monitoring others' social media content without direct interaction (Escobar-Viera et al., 2018; Frison & Eggermont, 2016), often very selectively regarding idealized social information (Samra et al., 2022). Conceivably, social media use is contingent upon the cognitive and motivational processes that accompany specific usage patterns (Valkenburg et al., 2022). However, the empirical evidence remains inconsistent (Thorisdottir et al., 2019; Ferguson et al., 2025; Godard & Holtzman, 2024; Hall, 2024; Lemahieu et al., 2025; Yang & Feng, 2024; Yu et al., 2024; Wong et al., 2024). Therefore, this study aims to examine whether undergraduate students' passive social media use is associated with meaning in life through social comparison and personal relative deprivation.

Passive social media use and meaning in life

The psychological relevance of PSMU is largely determined by how individuals process the social information they encounter. This encourages users to selectively present favorable aspects of themselves through edited images or carefully constructed narratives (Samra et al., 2022), resulting in passive consumers being repeatedly exposed to idealized portrayals of others. Such exposure has been related to negative cognitive and emotional responses (Verduyn et al., 2015). For example, college students who often compare their abilities with others on

social media may have a higher risk of identity distress due to rumination (Yang et al., 2018).

Meaning in life refers to the subjective experience through which individuals perceive their existence as coherent, significant, and purposeful (Czekierda et al., 2017). Contemporary research conceptualizes meaning in life as comprising two related but distinct dimensions: presence of meaning and search for meaning (Steger et al., 2006). Presence of meaning reflects the extent to which individuals experience their lives as meaningful, including a sense of purpose, significance, and coherence (King et al., 2016). In contrast, search for meaning refers to individuals' motivation and efforts to establish, deepen, or restore meaning in their lives. Presence of meaning in life is generally regarded as a relatively stable psychological experience rather than an emotional state (Steger et al., 2006), while search for meaning tends to vary more over time and may precede changes in meaning presence (Newman et al., 2018).

Given the mixed and often modest evidence regarding the direct effects of PSMU, it is possible that passive use is not directly associated with meaning in life. Instead, any association may operate through intermediate psychological processes, particularly social comparison. Second, there is lack of longitudinal research to clarify how comparison based assessment affects the presence of meaning. Therefore, this study adopts a process-oriented perspective to examine whether PSMU relates dynamically to meaning in life through psychological processes like social comparison.

The mediating role of social comparison

Social comparison often involves upward evaluation, through which individuals perceive themselves as falling



behind relevant others (Morina et al., 2026). Such experiences, although potentially frustrating, may also function as informational cues that prompt reflection on personal goals, values, and future direction. In this sense, social comparison may coincide with increased search for meaning, as individuals reconsider what they regard as important and worthwhile.

PSMU provides abundant opportunities for social comparison because it exposes users to large volumes of selectively presented social information (Samra et al., 2022; Verduyn et al., 2020). In this sense, social media functions as an informational environment that facilitates comparison-based self-evaluation. Moreover, individuals with a stronger tendency toward social comparison are especially drawn to social media platforms and may be more sensitive to comparison cues encountered during passive use (Reer et al., 2019). Research further predicts that adolescents and young adults frequently engage in comparisons related to identity-relevant domains, such as achievement, appearance, and lifestyle, when using social media (Noon et al., 2021).

The effect of personal relative deprivation

Personal relative deprivation, which may arise from repeated or unfavorable social comparison, is likely to relate differently to meaning in life. Personal relative deprivation involves a subjective sense of disadvantage accompanied by negative affect and perceptions of unfairness (Smith et al., 2012). Research indicates that such experiences are associated with reduced perceived control and self-efficacy (Guo et al., 2024), as well as negative self-referential cognitions (Beshai et al., 2017). When individuals perceive themselves as persistently disadvantaged relative to others, they may devalue their own worth and significance.

Importantly, perceived significance and purpose are central components of presence of meaning (King et al., 2016). Davis (1959) argued that relative deprivation involves perceptions of unfairness in shaping motivational and evaluative processes. Persistent perceptions of unfair disadvantage may weaken individuals' sense that effort is meaningful or that life goals are attainable, thereby undermining the experience of meaning presence. Accordingly, personal relative deprivation may be negatively associated with presence of meaning. Taken together, these arguments suggest that PSMU may relate to meaning in life through simultaneous psychological processes. Specifically, social comparison may be associated with greater search for meaning, whereas personal relative deprivation may be associated with lower presence of meaning. Furthermore, PSMU may be indirectly associated with presence of meaning through a sequential pathway involving social comparison and personal relative deprivation.

Theoretical basis

According to social comparison theory, individuals evaluate their opinions, abilities, and life circumstances by comparing themselves with others (Esteves et al., 2021; Festinger, 1954). Social comparison is a multi-stage process involving the acquisition of social information, comparison with the self, and subsequent cognitive or

emotional response (Olivos et al., 2021). Comparisons may be directed upward, toward targets perceived as superior, or downward (McComb et al., 2023). Upward social comparison, which is particularly prevalent on social media, involves comparison with others who appear more successful or better off, whereas downward social comparison involves comparison with less advantaged others (Johnson & Knobloch-Westerwick, 2014; Samra et al., 2022).

Social comparison theory further suggests that comparison processes have been associated with self-evaluation by providing external reference standards (Festinger, 1954). Through comparison with others, individuals assess their abilities, achievements, and life progress, which may motivate behavioral adjustment or goal revision. According to the deficit-correcting hypothesis, individuals are more likely to engage in the search for meaning when they encounter challenges, discrepancies, or disruptions that signal inadequacy or incompleteness (Steger et al., 2008). Prior research shows that upward comparison can, under certain conditions, stimulate motivation and striving (Diel et al., 2025). Moreover, comparison targets may serve as reference points that help individuals clarify personal aspirations and life priorities.

A large number of previous studies have found that social comparison is associated with negative emotional experiences, including envy, shame, and feelings of inadequacy (Wang et al., 2024). When individuals compare idealized social media content with their own current circumstances or perceived capabilities, they may experience self-doubt and subjective inferiority (Noon et al., 2021). From the perspective of relative deprivation theory, such comparison outcomes may give rise to personal relative deprivation, defined as a subjective sense of disadvantage accompanied by negative affect, such as anger or resentment, resulting from perceived unfair discrepancies between oneself and relevant others or standards (Smith et al., 2012).

Goal of the study

The study examined the relationship between undergraduate students passive social media use and meaning in life, focusing on the role of social comparison and personal relative deprivation. We tested the following hypotheses (see Figure 1 for conceptual model):

Hypothesis 1: Passive Social Media Use (PSMU) is associated with higher social comparison.

Hypothesis 2: PSMU is associated with higher personal relative deprivation through social comparison.

Hypothesis 3: Social comparison is associated with higher search for meaning.

Hypothesis 4: Personal relative deprivation is associated with lower presence of meaning.

Hypothesis 5: PSMU is indirectly associated with presence of meaning through social comparison and personal relative deprivation.

Hypothesis 6: Social comparison at an earlier time point is indirectly associated with lower subsequent presence of meaning through personal relative deprivation, and not search for meaning.

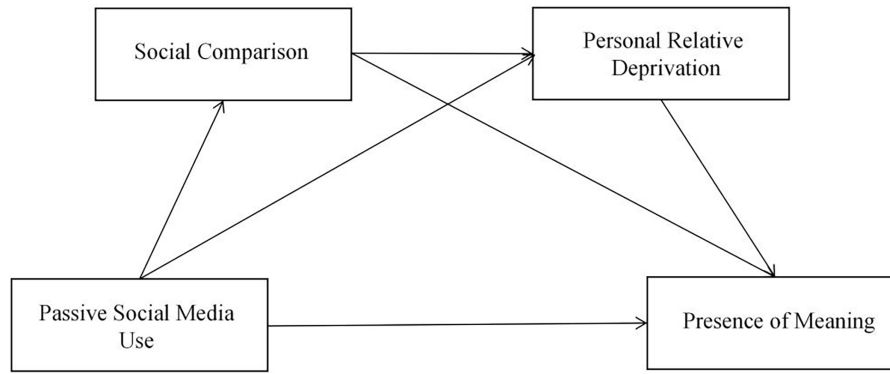


Figure 1. Chained mediation model

Table 1. Participant demographics

Time	Number	Mean age	SD age	Male	Female	Freshmen	Juniors
T1	347	19.1	0.92	47.3%	52.7%	92.2%	7.8%
T2	351	19.3	0.93	48.7%	51.3%	91.2%	8.8%

Methods

Research design

This study utilized a longitudinal design to address the research hypotheses. A longitudinal perspective is particularly important when considering the potential cumulative effects of repeated social comparison. By distinguishing between presence of meaning and search for meaning and by incorporating a two-wave design, the present study aims to clarify how PSMU may be indirectly associated with meaning-related experiences over time.

Because the study includes two waves of data, the analyses distinguish between concurrent process associations and a longitudinal pathway.

- Wave 1: Hypotheses from 1 to 5 examine theoretically linked concurrent associations among PSMU, social comparison, personal relative deprivation, and meaning in life.
- Wave 2: H6 examines a longitudinal pathway linking earlier social comparison to later presence of meaning through personal relative deprivation. Accordingly, the proposed chained mediation model is interpreted as a set of theoretically guided associations rather than as a fully temporally separated causal sequence (see Figure 1).

Participants and setting

Participants were 360 undergraduate students recruited from Huzhou Normal University. The valid samples for T1 recovery was 347, and that for T2 recovery was 351 (see Table 1). The participants are freshmen and juniors majoring in primary education, mathematics, physics, and physical education.

Measures

Passive social media use

The Chinese version of Surveillance Use Scale (Liu et al., 2017) encompasses four items. Samples items include “read comments/reviews” and “watch videos or view pictures.” Responses are scored on a five-point Likert scale

from 1 (never) to 5 (very frequently). In the present study, scores from the scale demonstrated good internal consistency (Cronbach’s $\alpha = 0.83$).

Social comparison

The Iowa-Netherlands Comparison Orientation Measure (INCOM) (Gibbons & Buunk, 1999) encompasses 11 items. Sample items include “I always like to know what others in a similar situation would do” and “I am not the type of person who compares often with others”. All items rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). In the present study, scores from the scale demonstrated good internal consistency (Cronbach’s $\alpha = 0.80$).

Personal relative deprivation

The Relative Deprivation Sense Assessment Scale (Ma, 2012) encompasses four items. Sample items include “Given my efforts and contributions, my life ought to be better than it currently is.” and “I often feel that others have taken what rightfully belongs to me.” All items rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). In the present study, scores from the scale showed good internal consistency (Cronbach’s $\alpha = 0.89$).

Meaning in life

The Meaning in Life Questionnaire (MLQ) (Steger et al., 2006) comprises 10 items in two dimensions: presence of meaning and search for meaning. Sample items include “I understand the meaning of my life” and “I am searching for meaning in my life”. All items rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). In the present study, scores from the scale demonstrated good internal consistency (Cronbach’s $\alpha = 0.83$).

Procedure

This study was reviewed and approved by the Ethics Committee of the School of Education, Huzhou Normal

Table 2. Means, standard deviations, and correlations among study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. T1 PM	16.03	3.81	1									
2. T1 SM	17.60	3.2	0.10	1								
3. T2 PM	16.88	3.71	0.69**	0.03	1							
4. T2 SM	18.16	3.25	−0.02	0.54**	0.02	1						
5. T1 PRD	6.45	2.14	−0.33**	0.02	−0.35**	0.05	1					
6. T2 PRD	9.64	2.52	−0.20**	0.16*	−0.32**	0.18**	0.50**	1				
7. T1 SC	34.19	4.78	−0.001	0.29**	−0.13*	0.12	0.19**	0.25**	1			
8. T2 SC	34.98	4.72	−0.09	0.13*	−0.16**	0.13*	0.21**	0.30**	0.62**	1		
9. T1 PSMU	11.18	2.83	0.03	0.19**	0.04	0.12	0.07	0.01	0.36**	0.21**	1	
10. T2 PSMU	11.63	2.82	0.03	0.10	0.01	0.16**	0.01	−0.03	0.30**	0.27**	0.63**	1

Note. T1 = Time 1; T2 = Time 2. PSMU = passive social media use; SC = social comparison; PRD = Personal Relative Deprivation; PM = presence of meaning; SM = search for meaning. All variables were treated as continuous. * $p < 0.05$, ** $p < 0.01$.

University (Approval No. 20241207_XL01) on 7 December 2024. All participants provided written informed consent prior to participating in the study. We collected data in two waves. The first wave took place at the beginning of the spring semester, and the second wave was conducted at the end of the spring semester. The content and procedure of the two survey waves were identical. After each survey, the subjects were given a small gift as reward.

Data analysis

We used version 26.0 of SPSS to conduct a Pearson correlation analysis to examine the associations among PSMU, social comparison, personal relative deprivation, and meaning in life (see Table 2). Given that the original data deviated from a normal distribution, the relevant variables were subjected to a log transformation prior to estimating the serial mediation effects. To examine the hypothesized cross-sectional process model, a chained mediation analysis was conducted by using model 6 in the PROCESS of SPSS 26.0 through 5000 Bootstrap samples, controlling participants' demographic characteristics variables (e.g., gender, age, origin and the time of social media use). To handle missing data, listwise deletion was used for the cross-sectional mediation, because the PROCESS in SPSS does not support multiple imputation. Additionally, some participants did not complete both waves of the study, resulting in data gaps for these individuals. To minimize bias, this study first applied multiple imputation ($m = 5$) to the data, a cross-lagged panel model was then estimated using R.

Common method bias

We examined common method bias using Harman's single-factor test with SPSS. Results indicated eight items with eigenvalues greater than 1. The first unrotated factor accounted for 17.1% of the total variance, which is below the commonly used threshold of 40%, suggesting no significant common method bias (Tang & Wen, 2020).

Results

Descriptive analysis

The result of descriptive analysis are presented in Table 2. At both T1 and T2, PSMU was positively associated with social comparison ($p < 0.01$). Social comparison was positively associated with personal relative deprivation at both time points ($p < 0.01$). With respect to meaning in life, social comparison showed a positive association with the search for meaning at both T1 and T2 ($p < 0.05$). In contrast, personal relative deprivation was negatively associated with the presence of meaning at both T1 and T2 ($p < 0.01$). Cross-time correlations further predicted that social comparison at T1 was positively correlated with personal relative deprivation at T2 ($p < 0.01$), and personal relative deprivation at T2 was negatively correlated with the presence of meaning at T2 ($p < 0.01$).

Cross-sectional mediation analyses

The results of the cross-sectional mediation are presented in Figures 2 and 3 and Table 3. Results showed that PSMU was positively associated with social comparison ($\beta = 0.176$, $p < 0.001$), and social comparison was positively associated with personal relative deprivation ($\beta = 0.451$, $p < 0.001$). With respect to meaning in life, social comparison was positively associated with the search for meaning ($\beta = 0.315$, $p < 0.001$), whereas personal relative deprivation was negatively associated with the presence of meaning ($\beta = -0.266$, $p < 0.001$). In addition, the indirect effect of PSMU on the presence of meaning through the chained pathway involving social comparison and personal relative deprivation was statistically significant ($\beta = -0.023$, 95%CI [−0.045, −0.007]), whereas the direct effect was not significant ($p > 0.05$, 95%CI [−0.053, 0.141]). These results indicate that PSMU is not directly linked to meaning in life, but rather operates through the psychological processes it activates. Specifically, PSMU is indirectly related to presence of meaning through a chain mediation effect of social comparison and personal relative deprivation. Consequently, hypothesis 1 to 5 were all supported.

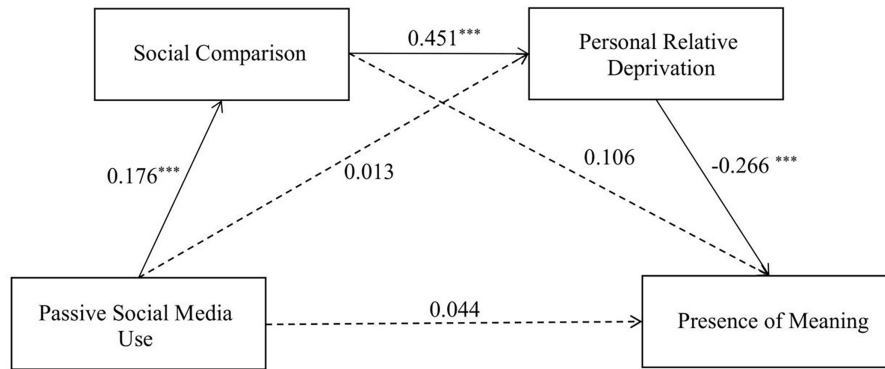


Figure 2. Sequential mediation model for PM. Note. *** $p < 0.001$.

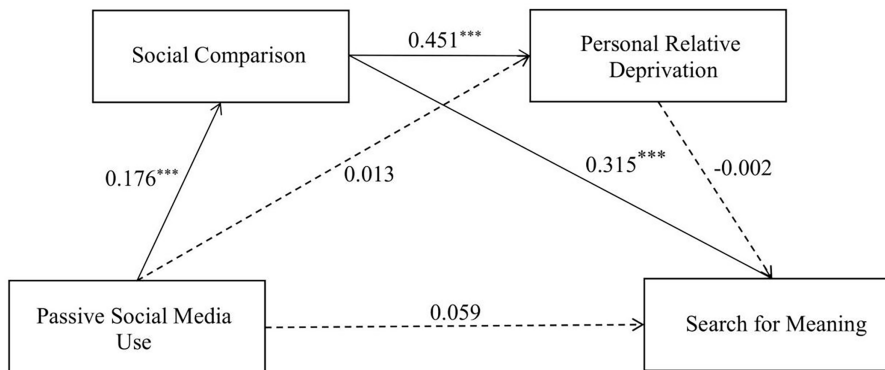


Figure 3. Sequential mediation model for SM. Note. *** $p < 0.001$.

Table 3. Regression results for the serial mediation model

Regression equation		Composite fit index			Significance of regression coefficients			
Outcome variable	Predictor variables	R	R ²	F	Coeff	BootLLCI	BootULCI	t
SC		0.41	0.16	11.13				
	PSMU				0.18	0.12	0.24	6.82***
PRD		0.22	0.05	2.45				
	PSMU				0.01	-0.13	0.15	0.18
PM	SC				0.45	0.15	0.75	3.24**
		0.37	0.14	6.80				
	PSMU				0.04	-0.06	0.14	0.89
	SC				0.11	-0.10	0.31	1.07
SM	PRD				-0.27	-0.34	-0.20	-7.00***
		0.31	0.10	4.65				
	PSMU				0.06	-0.02	0.14	1.50
	SC				0.32	0.15	0.50	3.97***
	PRD				-0.001	-0.07	0.07	-0.06

Note. PSMU = passive social media use; SC = social comparison; PRD = Personal Relative Deprivation; PM = presence of meaning; SM = search for meaning. ** $p < 0.01$, *** $p < 0.001$.

The cross-lagged analysis results

The overall model demonstrated acceptable fit to the data, $\chi^2/df = 3.60$, $p < 0.001$, CFI = 0.936, TLI = 0.844, RMSEA = 0.086, SRMR = 0.045. Although the TLI and RMSEA marginally deviate from traditional strict thresholds, the overall model fit remains acceptable given the robust CFI and SRMR values, because the TLI tends to overly penalize complex models and an RMSEA of 0.086 still falls within a mediocre yet permissible range (MacCallum et al., 1996; Marsh et al., 2004). The results

of the cross-lagged model are presented in Figures 4 and 5. All variables showed significant temporal stability across the two waves, including PSMU ($\beta = 0.503$, $p < 0.001$), social comparison ($\beta = 0.33$, $p < 0.001$), personal relative deprivation ($\beta = 0.341$, $p < 0.001$), and presence of meaning ($\beta = 0.506$, $p < 0.001$). With respect to cross-lagged paths, social comparison at T1 was positively correlated with personal relative deprivation at T2 ($\beta = 0.216$, $p < 0.001$). In turn, personal relative deprivation at T2 significantly predicted lower levels of

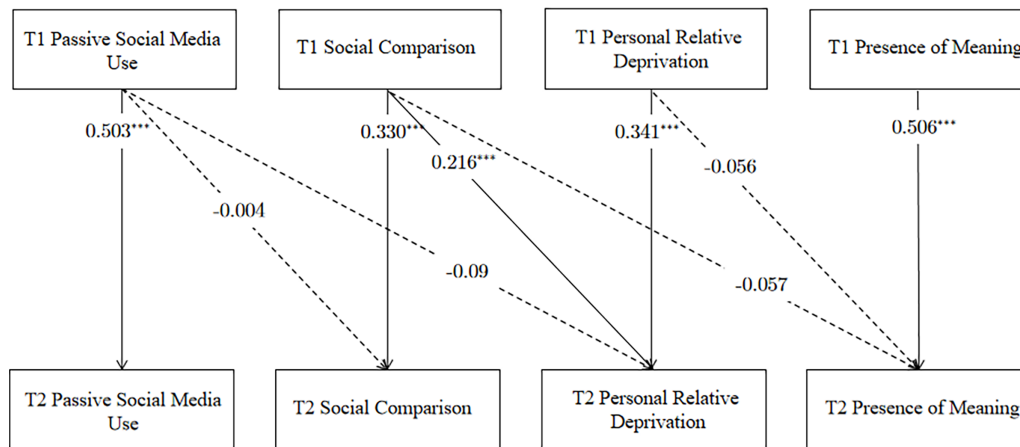


Figure 4. Cross-lagged panel model examining longitudinal associations among PSMU, SC, PRD, and PM. Note. *** $p < 0.001$.

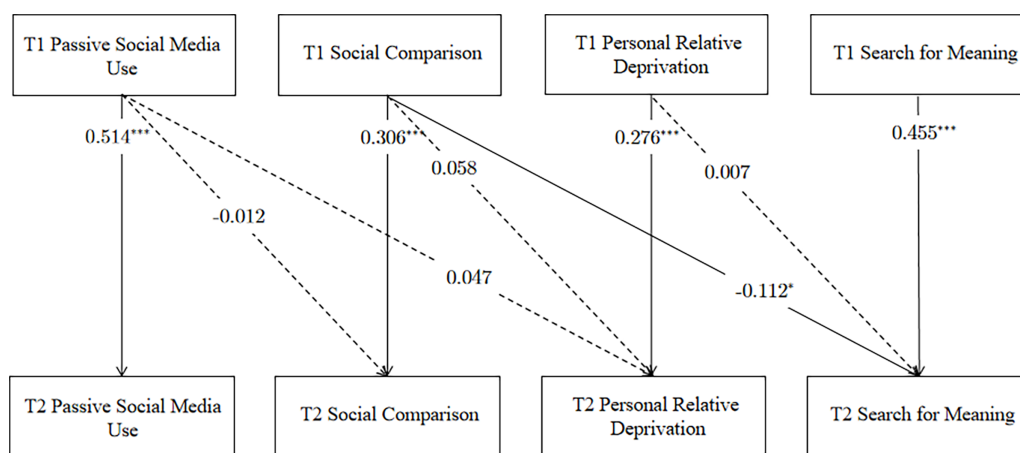


Figure 5. Cross-lagged panel model examining longitudinal associations among PSMU, SC, PRD, and SM. Note. * $p < 0.05$, *** $p < 0.001$.

presence of meaning at T2 ($\beta = -0.177$, $p < 0.001$), after accounting for baseline presence of meaning. Indirect effect analysis further indicated that social comparison at T1 had a significant half-longitudinal indirect effect on the presence of meaning at T2 through personal relative deprivation at T2 ($\beta = -0.038$, $p < 0.05$; 95% CI $[-0.052, -0.008]$). PSMU did not significantly predict presence of meaning across time. Accordingly, hypothesis 6 was supported.

To examine the second dimension of meaning in life, an additional cross-lagged model was estimated including PSMU, social comparison, personal relative deprivation, and search for meaning. The model demonstrated acceptable fit to the data, $\chi^2/df = 2.95$, $p < 0.01$, CFI = 0.941, TLI = 0.855, RMSEA = 0.075, SRMR = 0.036. The results of the cross-lagged model are presented in Figure 4. All core variables showed significant temporal stability across the two waves, including PSMU ($\beta = 0.514$, $p < 0.001$), social comparison ($\beta = 0.306$, $p < 0.001$), personal relative deprivation ($\beta = 0.276$, $p < 0.001$), and search for meaning ($\beta = 0.455$, $p < 0.001$). With respect to cross-lagged paths, social comparison at T1 was negatively associated with search for meaning at T2 ($\beta = -0.112$, $p < 0.05$). As a result, social comparison at T2 was positively associated with higher levels of personal relative

deprivation at T2 ($\beta = 0.197$, $p < 0.001$), and social comparison at T2 was positively associated with higher levels of search for meaning at T2 ($\beta = 0.145$, $p < 0.01$), after accounting for baseline search for meaning. The indirect effect of PSMU on search for meaning was not statistically significant, as the bootstrap confidence interval included zero ($\beta = 0.009$, $p > 0.05$). This non-significant indirect effect on search for meaning further support hypothesis 6. Consistent with the first model, the cross-lagged panel analysis showed no significant longitudinal paths from PSMU to either dimension of meaning in life (presence of meaning or search for meaning).

Discussion

From a process-oriented and longitudinal perspective, this study examined how PSMU is associated with meaning in life through a sequence psychological processes. Our findings reveal that PSMU is not directly associated with either dimension of meaning in life, but indirectly related through social comparison and personal relative deprivation. The results are consistent with hypotheses proposed earlier.

We found that there is no cross-section and cross-time direct association between PSMU and either dimension of meaning in life, which is consistent with previous research (Ferguson et al., 2025; Hall, 2024; Lemahieu

et al., 2025; Schemer et al., 2021; Yu et al., 2024) and moral panic theory (Cohen, 2011). Additionally, our finding also further supports that the growing critique of the active–passive dichotomy (Bij De Vaate et al., 2024; Valkenburg et al., 2022), and PSMU acts more as a behavioral context than a direct cause of mental health and does not appear to be directly associated with changes in individual’s experience of the purpose, significance, or coherence of life.

The present findings show that PSMU is positively associated with social comparison at the concurrent level, which in turn was positively associated with heightened personal relative deprivation. This finding is consistent with prior research suggesting that PSMU is likely to activate comparison-based self-evaluative processes (Appel et al., 2016; Burnell et al., 2019; Verduyn et al., 2017; Yue et al., 2022). One explanation for this association lies in the distinctive informational environment created by social media platforms. Users’ selective presentation of idealized lives, especially in appearance and achievement domains, creates a persistently accessible environment conducive to upward social comparison (Samra et al., 2022; Chen et al., 2022). In highly idealized online environments, individuals may come to perceive a persistent mismatch between their efforts and perceived outcomes, fostering a sense of unfairness and entitlement related frustration. This interpretation is consistent with prior research (Cheng et al., 2023; Nguyen et al., 2025; Pang, 2021), suggesting that the psychological relevance of PSMU are associated with deeper evaluative processes involving judgments about fairness, entitlement, and personal standing.

We also found social comparison was positively associated with search for meaning, while indirectly relating to lower presence of meaning through heightened personal relative deprivation, prior research reporting mixed findings regarding the psychological consequences of social comparison. On the one hand, social comparison is linked to enhanced motivation for goal pursuit (Diel et al., 2025), self-optimization (Cramer et al., 2016) and personal growth (Lockwood & Kunda, 1997; Meier & Schäfer, 2018). Consistent with assimilation-based models of social comparison (Mussweiler, 2001), upward comparison acts as an informational cue that motivates goal clarification and aspiration reassessment when targets are perceived as relevant and attainable (Diel et al., 2025; Tong & Shakibaei, 2025). On the other hand, it has also been associated with lower self-esteem (Desjarlais, 2024; Rütter et al., 2023) and reduced well-being, particularly in contexts characterized by frequent upward comparison (Gerson et al., 2016; Reer et al., 2019; Ruan et al., 2023). One explanation is that with chronic social comparison in idealized online environments, individuals may develop persistent perceptions of inferiority and unfairness. Such unfairness may weaken beliefs about the value and effectiveness of personal effort, reduce perceived self-control and self-efficacy, and foster negative self-referential thinking (Teng, 2023; Guo et al., 2024; Beshai et al., 2017), ultimately diminishing the sense that one’s life is meaningful. These different associations may depend on how individuals interpret and evaluate social comparison information.

In cross-lagged analysis, social comparison was positively associated with the search for meaning at the same point in time, yet it exhibited a significantly negative association over time. The explanation for this phenomenon may be that search for meaning exhibits more pronounced state-like characteristics and variability over time (Newman et al., 2018). Therefore, while concurrently related to a higher search for meaning, social comparison may drain psychological resources over time, ultimately corresponding to a lower drive to seek meaning.

We found social comparison at an earlier time point was associated with lower subsequent presence of meaning through increased personal relative deprivation in longitudinal analyses. This finding suggests that the adverse association between social comparison and meaning in life is not limited to short-term fluctuations, but may reflect a psychological process that develops gradually over time. It may be explained by the accumulation of psychological strain stemming from repeated exposure to stressors that elicit feelings of inadequacy or unfairness (Maslach, 2001). Because, in social media contexts, repeated social comparison may be linked to personal relative deprivation, particularly when individuals perceive persistent gaps between their efforts and outcomes that they feel unable to reduce. Alternatively, prolonged demands can reduce emotional responsiveness and cognitive flexibility, impairing individuals’ ability to maintain a stable sense of life purpose, coherence and personal significance. Furthermore, chronic exposure to upward comparisons lowers perceived self-worth (Irmer & Schmiedek, 2023). These negative self-evaluations heighten sensitivity to interpersonal gaps and relative deprivation, ultimately eroding meaning over time.

Implications for research and practice

The present findings reveal the adaptive and maladaptive meaning-related outcomes of social comparison and the critical importance of distinguishing between immediate effects and enduring experiences in elucidating the psychological outcomes associated with PSMU. Exposure to upward social comparison information may be associated with negative self-evaluative thoughts and rumination, which can prolong negative psychological states and increase demands on emotional resources. Research on emotional exhaustion conceptualizes this process as the gradual depletion of psychological and emotional resources following sustained exposure to stressors (Maslach, 2001). In social comparison contexts, repeated perceptions of disadvantage or unfairness may be associated with greater emotional strain over time. Importantly, persistent experiences of personal relative deprivation may have implications for meaning related experiences. From this perspective, the association between social comparison and presence of meaning may not be immediate but may unfold gradually through sustained perceptions of relative deprivation.

Limitations and future research directions

Several limitations should be acknowledged. First, the study relied on self-report measures, which capture subjective experiences but may not fully reflect actual patterns of social media use. Future research could incorporate objective usage indicators or multi-informant reports to complement self-report data. Second, the sample consisted of Chinese undergraduate students, which may limit generalizability to other cultural contexts or age groups. Future research could adopt more diverse age groups and cultural settings to assess the robustness of the findings. Third, although longitudinal design strengthens temporal interpretation, the mediation analysis is inherently half-longitudinal, and relevant personality traits or contextual factors were not included, so causal conclusions cannot be drawn. Future studies using at least three waves or experimental designs with broader controls may help clarify the underlying mechanisms.

Conclusion

This study examined how PSMU relates to meaning in life through social comparison and personal relative deprivation using a longitudinal design. The findings show that PSMU was not directly associated with meaning in life, but was linked to meaning-related outcomes through social comparison processes. Social comparison was associated with greater search for meaning, while higher personal relative deprivation was associated with lower presence of meaning. Longitudinal analyses further showed that earlier social comparison predicted lower subsequent presence of meaning through increased personal relative deprivation. These results suggest that the association between PSMU and meaning in life reflects a gradual psychological process rather than a short-term emotional response.

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Author Contribution: Conceptualization and writing—original draft preparation, Xinyi Qu; visualization and supervision, Chao Wang. All authors reviewed and approved the final version of the manuscript.

Availability of Data and Materials: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics Approval: This study was reviewed and approved by the Ethics Committee of the School of Education, Huzhou Normal University (Approval No. 20241207_XL01) on December 7, 2024. All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and with the principles of the 1964 Declaration of Helsinki and its subsequent amendments. Written informed consent was obtained from all participants prior to their participation in the study.

Participants were assured that their responses would remain confidential and that all data would be analyzed and reported in aggregated form only.

Conflicts of Interest: The authors declare no competing interests.

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