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EXPLORING THE INTERPLAY OF SOCIAL MEDIA'S NEGATIVE EFFECTS, ACADEMIC PRESSURE, AND PROCRASTINATION AMONG COLLEGE STUDENTS

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ABSTRACT

Aim/Purpose	This study aims to explore the relationships among the negative effects of social media, academic pressure, and academic procrastination among college students.
Background	While social media facilitates interpersonal interaction, excessive use has been associated with distraction and psychological strain among students. Prior studies suggest that frequent social media engagement may reduce learning motivation, increase academic pressure, and be associated with procrastination.
Methodology	Grounded in stress-coping theory, this study employs structural equation modeling (SEM) to examine the interplay among the key variables. A total of 500 questionnaires were distributed across different academic years in college, with 456 valid responses used for analysis.
Contribution	This research offers a theoretical and empirical framework for examining the associations between social media use, academic behaviors, and psychological well-being.
Findings	The findings reveal that the negative effects of social media are significantly associated with higher academic pressure, which in turn is related to academic

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	procrastination. Additionally, the negative impact of social media also shows a direct association with procrastination.
Recommendations for Practitioners	Educational interventions and awareness programs that address social media use and academic pressure may support students in managing procrastination behaviors.
Recommendations for Researchers	Future research could benefit from examining procrastination through cross-cultural lenses and assessing the long-term effects of digital distractions across diverse educational settings. Moreover, longitudinal studies are encouraged to track changes in social media usage patterns and their ongoing impact on academic outcomes over time.
Impact on Society	The findings underscore the relevance of digital exposure for student mental health and academic performance, suggesting the importance of promoting balanced technology use in educational contexts.
Future Research	Future research should investigate cultural variations in procrastination behaviors and examine the longitudinal effects of digital distractions on academic performance, particularly within the context of post-pandemic educational environments.
Keywords	social media, negative effects, academic pressure, academic procrastination

INTRODUCTION

With the widespread adoption of smartphones and the Internet, social media has become an integral part of students' daily lives, offering convenience, entertainment, and social connection. Despite its benefits – such as facilitating communication, knowledge sharing, and emotional support – concerns have emerged regarding its excessive use and potential negative impacts on students' academic experiences (S. Y. Huang, 2024; Kuss & Griffiths, 2011). In educational contexts, where sustained attention and self-regulation are critical, overuse of social media may undermine learning effectiveness and overall academic performance. At the same time, research has also demonstrated positive outcomes of social media use in educational contexts. For example, Junco (2012) found that social media can foster student engagement, while Gray et al. (2013) highlighted its role in facilitating peer support during the transition to college. Similarly, Greenhow and Robelia (2009) noted that social networking sites can serve as valuable social learning resources. These findings suggest that social media has a dual role – both as a potential source of distraction and as a tool that enhances collaboration and academic support.

Prior studies have documented that excessive engagement with social media can lead to distractions, reduced concentration, poor time management, and eventually declining academic performance (INSIDE, 2021; Nielsen, 2016). Moreover, constant exposure to peer comparisons and entertainment content may trigger self-doubt and anxiety, which can intensify academic stress. This stress often encourages students to adopt avoidance-based coping strategies, such as procrastination. While existing research has examined social media use and academic procrastination separately (Ho, 2022; Li & Zheng, 2023), few studies have investigated their interrelationships within a unified framework that incorporates academic stress as a mediating mechanism. This gap limits our understanding of how social media overuse indirectly contributes to procrastination through stress-related processes.

This study is grounded in the stress and coping framework originally proposed by Lazarus and Folkman (1984), which conceptualizes stress as a process involving primary appraisal of environmental demands, secondary appraisal of coping resources, and the adoption of coping strategies that lead to behavioral outcomes. Wills et al. (2001) extended this framework to addictive behaviors, highlighting that when individuals lack effective coping resources, they may rely on maladaptive strategies such as

substance use or excessive digital engagement. In line with this theoretical lineage, we conceptualize academic pressure as the appraisal of environmental demands, problematic social media use as a maladaptive coping style, and academic procrastination as a behavioral outcome of ineffective coping. This integration provides the theoretical foundation for the present study.

From a practical standpoint, identifying how social media use exacerbates academic stress and procrastination is highly relevant for educational institutions, teachers, and student counselors. Insights derived from this research can support the development of targeted interventions that strengthen students' self-regulation, time management, and coping strategies, thereby reducing the risk of academic underperformance and psychological distress in the digital era (Marino et al., 2018).

To address the identified research gap, this study aims to examine the interconnected roles of negative effects of social media, academic stress, and academic procrastination among college students. Specifically, we test whether academic stress mediates the relationship between social media overuse and procrastination. The findings will contribute theoretically by extending the application of stress-coping theory to the study of procrastination, and practically by providing actionable recommendations for interventions that foster healthier technology use and more effective coping in academic settings.

LITERATURE REVIEW

The various disguises on social networks lead us down a dangerous path of alienation, where we become accustomed to embracing illusions and technology. The result is a collective state of cognitive dissonance and depression (Keles et al., 2020; TECH2IPO, 2015). Some studies have found that the Internet has the most significant impact on users in areas such as academics, interpersonal relationships, finances, employment, and marriage (Egger & Rauterberg, 1996; Young, 1998). This study, grounded in stress-coping theory, examines the relationships among the negative effects of social media, academic pressure, and academic procrastination. The findings provide valuable insights for educational and counseling institutions to address the maladaptive behavioral cycles resulting from the negative functions of social media. By doing so, students can develop better self-management skills in terms of time and daily life.

THE NEGATIVE FUNCTIONS OF SOCIAL MEDIA AND STRESS-COPING THEORY

The stress and coping theory proposed by Lazarus and Folkman (1984) provides a foundational framework for understanding how individuals evaluate and respond to stressors. This theory emphasizes two central processes: primary appraisal, in which individuals assess whether an environmental demand poses a threat, and secondary appraisal, in which they evaluate their available coping resources. Based on these appraisals, individuals adopt coping strategies that can be either problem-focused or emotion-focused, ultimately influencing behavioral and psychological outcomes.

Wills et al. (2001) extended this framework to the domain of addictive behaviors. They argued that when individuals perceive high levels of stress but lack effective coping resources, they are more likely to rely on maladaptive coping strategies, such as substance use, compulsive internet engagement, or excessive social media use. These behaviors may temporarily reduce emotional discomfort but eventually reinforce stress and lead to maladaptive outcomes (Deursen et al., 2015).

Within this framework, the present study operationalizes stress-coping theory in the following way: academic pressure is treated as the appraisal of environmental demands, negative functions of social media are conceptualized as avoidance-based maladaptive coping strategies, and academic procrastination is considered the behavioral outcome of ineffective coping (Schouwenburg, 2013). This operationalization allows us to test a simplified but theoretically consistent model of how stress and coping mechanisms contribute to procrastination in the academic context.

Although many studies emphasize the risks of compulsive social media use, other evidence shows its potential positive role in academic contexts (Blackwell et al., 2017). For example, Burke and Kraut (2016) reported that meaningful interactions on Facebook were associated with improved well-being, while Chi and Yeh (2017) found that social networking interventions can promote health-related knowledge and collaborative learning (Twenge & Campbell, 2018). These findings remind us that social media has a dual role – both as a potential stressor and as a supportive resource – depending on how students use it. On the other hand, recent studies have confirmed that compulsive social media use is associated with impaired self-regulation, reduced academic engagement, and an increased psychological burden over time (Fu & Zhang, 2023; Hussain & Wegmann, 2021). Based on these findings, we infer that the negative functions of social media may intensify academic stress, leading to H1.

H1: Negative functions of social media are positively associated with academic pressure.

Academic Pressure

Academic pressure refers to the psychological strain arising from the pursuit of educational goals, often shaped by external expectations, self-imposed standards, and environmental demands such as examinations, workload, and peer competition (Eccles, 2007; Ryan & Deci, 2012). Recent research has highlighted that social media may exacerbate academic pressure. For example, constant exposure to peers' academic accomplishments on digital platforms fosters upward social comparison, anxiety, and unrealistic self-expectations (Tandoc et al., 2019; Twenge, 2018). Moreover, the constant flow of online communication reduces opportunities for rest and recovery, contributing to cognitive overload and emotional exhaustion (Y. H. Chen, 2018; Liu & Ma, 2020).

Extending this perspective, L. Chen and Xu (2022) argued that academic stress is no longer confined to school-based tasks but has increasingly expanded to include digital interactions and expectations shaped by algorithm-driven platforms as students become deeply integrated into social media culture, academic and digital stressors intersect, undermining motivation, confidence, and emotional resilience (Hou et al., 2022; Kim & Seo, 2015; J. L. Wang et al., 2021). Taken together, these findings suggest that heightened academic pressure may foster maladaptive behaviors such as procrastination, which provides the rationale for H2.

H2: Academic pressure is positively associated with academic procrastination.

Academic Procrastination

Academic procrastination is a prevalent form of self-regulatory failure that undermines learning outcomes. It is typically characterized by delaying academic tasks due to low self-efficacy, elevated stress, or difficulties in regulating emotions (Sirois & Pychyl, 2016; Steel, 2007).

Social media plays a dual role in this process. On one hand, it provides an easily accessible distraction; on the other, it serves as a coping mechanism for avoiding aversive academic demands. Research indicates that students under academic stress often turn to social media for temporary emotional relief, thereby reinforcing a cyclical pattern of avoidance and task delay (Rozgonjuk et al., 2019; Schønning et al., 2020).

The emotional gratification derived from social media further reduces students' sense of urgency in completing assignments, especially when self-regulatory capacity is weak. The shift to online learning following the COVID-19 pandemic has amplified this pattern, as diminished structural support and increased digital reliance contribute to higher levels of procrastination (Dey et al., 2022; Elhai et al., 2020; C. Wang et al., 2021; Yang et al., 2023; Zhou et al., 2022).

In sum, these findings suggest that the negative functions of social media not only intensify academic stress but also directly promote procrastination behaviors. Accordingly, we posit that problematic social media use increases students' tendency to procrastinate, which forms the basis of H3.

H3: Negative functions of social media are positively associated with academic procrastination.

Mediating Role of Academic Pressure

Building on the stress-coping framework, academic pressure represents students' appraisal of environmental demands. In contrast, the negative functions of social media can be viewed as avoidance-based, maladaptive coping strategies, and academic procrastination can be seen as the behavioral outcome of ineffective coping. When students experience greater academic pressure triggered by negative social media use, they are more likely to resort to procrastination as an avoidance behavior. Thus, academic pressure is expected to transmit part of the effect of the negative functions of social media on academic procrastination, consistent with stress–coping theory (Lazarus & Folkman, 1984), which provides the rationale for H4.

H4: Academic pressure mediates the relationship between the negative functions of social media and academic procrastination.

RESEARCH METHOD

Participants and Procedure

This study employed purposive sampling to target undergraduate students from various academic years. A total of 500 questionnaires were distributed on campus and via digital platforms. After excluding incomplete responses, 456 valid samples were obtained, resulting in an effective response rate of 91.2%. Participants were informed of the study's purpose and assured of anonymity and confidentiality. Demographic data collected included gender, academic year, time spent on social media, and part-time job status.

Measures

This study used structured questionnaires with validated items to measure key constructs. All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The constructs and their subdimensions are described in Table 1.

(1) The negative functions of social media assessed the behavioral and psychological effects of excessive social media usage. It consists of four subdimensions: attention diversion, loss of awareness, time detachment, and negative interactions (S. Y. Huang, 2024; Yeh & Huang, 2021).

(2) Academic pressure was measured using four dimensions reflecting different sources of stress in students' academic life, including personal pressure, family pressure, school pressure, and peer pressure (Eccles, 2007; Kaplan & Sadock, 2003; Ryan & Deci, 2012).

(3) This scale measures students' tendency to delay academic tasks and assignments (Chu & Choi, 2005; C. E. Huang, 2008; Schraw et al., 2007).

Reliability coefficients (e.g., Cronbach's α) and validity evidence reported in the original studies comply with standards. These scales to comparable populations (e.g., university students in Taiwan) have been cited to further support their applicability. The content validity of the items was confirmed by experts to ensure that the revised items retained their reliability and validity (Tables 1 and 2). Additional details on reliability and validity analysis for each construct are provided in the Appendix.

Table 1. Scale sources and research variables

Construct	Dimension	Operational definition	Reference list
Negative functions of social media (second-order)	Attention diversion	When people use social media, they enter an immersed state, shifting their attention to a specific range, unconsciously filtering out feelings unrelated to the activity, becoming unable to perceive the passage of time, and interacting with social media platforms, triggering a series of non-stop, seamless reactions.	Yeh and Huang, 2021; S. Y. Huang, 2024
	Loss of awareness		
	Time detachment		
	Negative interactions		
Academic pressure (second-order)	Personal pressure	Academic pressure is the tension and anxiety students feel from demands to achieve specific academic goals, often fueled by expectations from family, school, peers, or themselves to get good grades or attend elite institutions.	Eccles, 2007; Kaplan and Sadock, 2003; Ryan and Deci, 2012
	Family pressure		
	School pressure		
	Peer pressure		
Academic procrastination (First-order)	Academic procrastination 1-7	Academic procrastination is a persistent behavior in students' academic development consisting of postponing or delaying the completion of necessary tasks. It is typically characterized by delaying academic tasks due to low self-efficacy, elevated stress, or difficulties in regulating emotions.	C. E. Huang, 2008; Chu, and Choi, 2005; Schraw et al., 2007

Table 2. Items

Negative functions of social media (second-order)		Means	Std.
Attention diversion		3.283	0.822
1	I pay attention to whether social media notifications have sounded.	3.44	0.990
2	I lose track of time while using social media.	3.25	0.942
3	I constantly check if there are message replies on social media.	3.32	0.987
4	I cannot multitask while using social media	3.13	1.046
	Loss of awareness	3.025	0.908
1	I ignore my surroundings when using social media.	3.09	1.029
2	I forget the problems I was thinking about while using social media.	3.04	1.031
3	I overlook others' questions or needs while using social media.	2.95	0.982
	Time detachment	3.140	0.819
1	Time seems to pass quickly when I use social media.	3.26	0.919
2	I stop whatever I am doing when I start using social media.	3.11	0.951
3	Using social media delays my original plans.	3.05	0.956
	Negative interactions	2.856	0.851
1	I feel forced to join voice or video meetings in social media groups.	2.70	1.059
2	I open social media apps because friends tag me.	3.17	0.973
3	I feel obligated to respond to messages in social groups.	2.70	0.960
Academic pressure (second-order)			
	Personal pressure	2.793	0.884
1	I worry about not graduating successfully.	2.79	1.080

Negative functions of social media (second-order)		Means	Std.
2	I fear my grades will drag down my team.	2.81	1.042
3	I find schoolwork very difficult.	2.86	1.001
4	I am afraid to see my exam scores.	2.72	1.002
Family pressure		2.605	0.922
1	My grades do not meet my parents' expectations.	2.75	1.059
2	My parents get angry when my grades are low.	2.57	1.042
3	My parents compare my grades with my relatives.	2.50	1.067
4	My grades worry my parents.	2.60	1.042
School pressure		2.831	0.842
1	I am afraid when teachers ask me questions.	2.86	1.038
2	There are too many school exams.	2.88	0.965
3	I cannot meet the expectations from my teachers.	2.80	0.941
4	I think there are too many courses to learn.	2.78	0.945
Peer pressure		2.558	0.844
1	I feel scared by classmates' competition.	2.61	0.983
2	Classmates laugh at me for poor grades.	2.46	1.035
3	My suggestions in group work are often ignored.	2.48	1.005
4	I fear being asked academic questions by peers.	2.67	0.934
Academic procrastination		3.239	0.764
1	I often fail to follow my planned study schedule due to procrastination.	3.28	0.935
2	I tend to postpone studying until just before an exam.	3.31	0.955
3	During exam preparation, I frequently waste time on other activities, delaying my study tasks.	3.32	0.975
4	I often fail to complete assignments or reports according to my initial plan due to procrastination.	3.28	0.995
5	I put off working on assignments or reports until the deadline approaches, rushing to complete them.	3.18	0.905
6	I usually finish assignments or reports at the very last moment before the submission deadline.	3.13	0.940
7	I delay working on assignments or reports due to distractions and other temptations	3.17	1.005

Based on the research framework illustrated in Figure 1, this study proposes the following hypotheses.

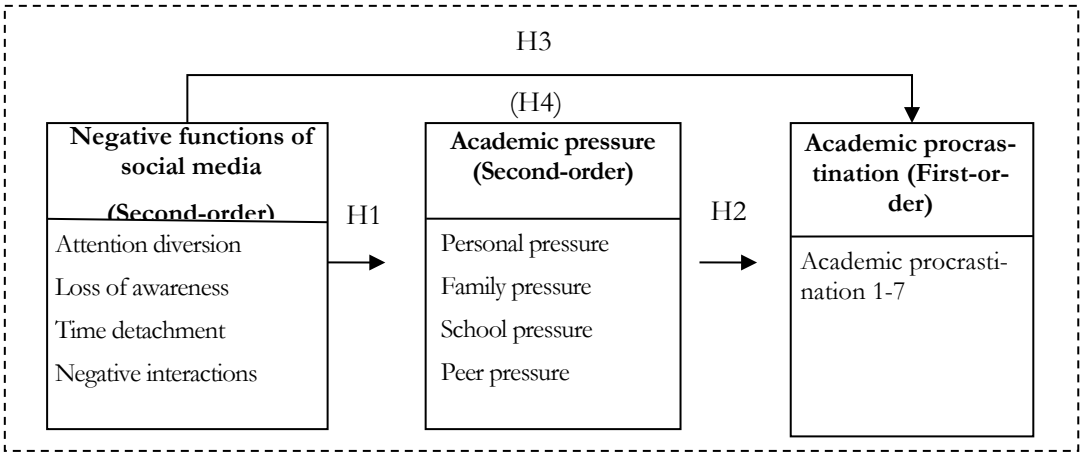

Figure 1. Research framework

DATA ANALYSIS

The data collected were analyzed using SPSS 26.0 and AMOS 24.0 statistical software packages. First, descriptive statistics were conducted to summarize the demographic characteristics of the participants, including gender, academic year, social media usage time, and part-time job status. Next, reliability analysis was performed using Cronbach's alpha coefficients to assess the internal consistency of each construct. All subscales demonstrated acceptable reliability, with alpha values exceeding the 0.70 threshold. To evaluate the construct validity of the measurement model, a confirmatory factor analysis (CFA) was conducted. This procedure tested the fit of the observed data to the hypothesized factor structure and verified the convergent and discriminant validity of the latent variables. Finally, structural equation modeling (SEM) was employed to examine the hypothesized relationships among the negative functions of social media, academic pressure, and academic procrastination. The SEM analysis allowed for the testing of both direct and indirect effects and assessing the overall fit of the proposed conceptual model.

DISCUSSION AND FINDINGS

SAMPLE STRUCTURE

Based on the valid responses collected in this study, the gender distribution of respondents indicates that female participants comprised 55.9%, while male participants accounted for 44.1%. The distribution of academic years among respondents is as follows: Freshmen (32.9%), Sophomores (26.8%), Juniors (26.1%), Seniors (9.4%), and Others (4.8%). Regarding part-time employment status, 47.6% of respondents reported having a part-time job. In terms of social media usage intensity, heavy users account for 19.7%, moderate users account for 42.3%, and low social media engagement accounts for 37.9%. Regarding social media viewing frequency, frequent viewers account for 42.1%, moderate viewers account for 44.7% and occasional viewers account for 13.2%. For a detailed summary, refer to Table 3.

Table 3. Sample distribution

	Item	Number	Percentage (%)
Gender	Male	201	44.1
	Female	255	55.9
	Total	456	100
Academic year	Freshman	150	32.9
	Sophomore	122	26.8
	Junior	119	26.1
	Senior	43	9.4
	Others	22	4.8
	Total	456	100
Part-time job experience	Yes	217	47.6
	No	239	52.4
	Total	456	100
Frequency of using social media	Heavy user (more than 4 hours per day)	90	19.7
	Moderate user (2-4 hours per day)	193	42.3
	Low engagement (less than 1 hour per day)	173	37.9
	Total	456	100

	Item	Number	Percentage (%)
Frequency of viewing social media	Frequent	192	42.1
	Moderate	204	44.7
	Occasional	60	13.2
	Total	456	100

RELIABILITY AND VALIDITY ANALYSIS

This study evaluates the internal consistency of the questionnaire using Cronbach's α coefficient, composite reliability (CR), and average variance extracted (AVE). Cronbach's coefficients for the negative functions of social media, academic pressure, and academic procrastination scales were 0.922, 0.941, and 0.904, respectively. According to Nunnally (1978) and DeVellis (1991), Cronbach's α value above 0.7 is the minimum acceptable threshold for reliability. Henson (2001) further suggested that when a study aims to develop a measurement instrument, the reliability coefficient should exceed 0.7. As all Cronbach's α values in this study surpass 0.7, the questionnaire is considered reliable. Bagozzi and Yi (1988) proposed three evaluation criteria for convergent validity analysis – Goodness-of-Fit Index (GFI), Normed Fit Index (NFI), and Comparative Fit Index (CFI) – all of which should exceed 0.8. Additionally, the Root Mean Square Residual (RMSR) should be lower than 0.05. A higher composite reliability (CR) indicates greater internal consistency, with a threshold of 0.7 being considered acceptable (Hair et al., 1998). For average variance extracted (AVE), a value above 0.5 signifies that the construct possesses sufficient convergent validity (Fornell & Larcker, 1981).

Based on the aforementioned criteria, the measurement model for all three constructs demonstrated acceptable model fit and strong psychometric properties. For the negative functions of social media, goodness-of-fit indices indicated acceptable fit (GFI = 0.881, NFI = 0.900, CFI = 0.915). All factor loadings were statistically significant ($p < 0.001$), and both the composite reliability (CR = 0.939) and average variance extracted (AVE = 0.797) exceeded recommended thresholds, supporting internal consistency and convergent validity. Similarly, the academic pressure measurement model yielded good fit indices (GFI = 0.879, NFI = 0.912, CFI = 0.929), with all factor loadings reaching significance. The CR (0.934) and AVE (0.780) values further confirmed that the construct demonstrated high reliability and adequate convergent validity.

For the academic procrastination construct, the model fit was also strong (GFI = 0.920, NFI = 0.929, CFI = 0.936). Factor loadings were all significant, and the construct met reliability criteria (CR = 0.912). Although the AVE value (0.599) was slightly lower than that of the other constructs, it still exceeded the minimum acceptable threshold of 0.50 (Fornell & Larcker, 1981), indicating satisfactory convergent validity. Collectively, these results suggest that all constructs in the study demonstrate sufficient internal consistency, convergent validity, and structural reliability. Thus, the measurement model is deemed robust and appropriate for subsequent structural analysis, as detailed in Table 4.

Table 4. Scale reliability and construct validity

Construct/dimension		MLE		CR	AVE	Cronbach's α
		Loading	Error			
Negative functions of social media (Second-order)				0.939	0.797	0.922
	Attention diversion	0.933***	0.056			0.848
	Loss of awareness	0.934***	0.106			0.877
	Time detachment	0.831***	0.143			0.838
	Negative interactions	0.664***	0.427			0.812
Note: GFI = 0.881, AGFI = 0.823, NFI = 0.900, CFI = 0.915, ***$p < 0.001$						

Construct/dimension		MLE		CR	AVE	Cronbach's α
		Loading	Error			
Academic pressure (Second-order)				0.934	0.780	0.941
	Personal pressure	0.816***	0.214			0.879
	Family pressure	0.876***	0.161			0.900
	School pressure	0.831***	0.186			0.888
	Peer pressure	0.801***	0.219			0.875
Note: GFI = 0.879, AGFI = 0.836, NFI = 0.912, CFI = 0.929, ***p < 0.001						
Academic procrastination (First-order)				0.912	0.599	0.904
	Academic procrastination 1	0.707***	0.436			
	Academic procrastination 2	0.702***	0.461			
	Academic procrastination 3	0.823***	0.306			
	Academic procrastination 4	0.807***	0.344			
	Academic procrastination 5	0.818***	0.270			
	Academic procrastination 6	0.716***	0.430			
	Academic procrastination 7	0.734***	0.464			
Note: GFI = 0.920, AGFI = 0.841, NFI = 0.929, CFI = 0.936, ***p < 0.001						

When comparing different research dimensions, if the chi-square difference between the constrained and unconstrained models exceeds 3.84 and reaches statistical significance, it indicates a satisfactory level of discriminant validity between constructs (Anderson & Gerbing, 1988). As shown in Table 5, the chi-square differences among the research dimensions all reached a highly significant level ($p < 0.001$), demonstrating strong discriminant validity.

Table 5. Discriminant validity analysis

Model	χ^2	df	$\triangle\chi^2$
Unconstrained measurement model	329.0	59	—
The correlation coefficient between attention diversion and loss of awareness is set to 1.	359.7	60	30.7***
The correlation coefficient between attention diversion and time detachment is set to 1.	378.0	60	49.0***
The correlation coefficient between attention diversion and negative interactions is set to 1.	410.9	60	81.9***
The correlation coefficient between loss of awareness and time detachment is set to 1.	389.0	60	60.0***
The correlation coefficient between loss of awareness and negative interactions is set to 1.	423.5	60	94.5***
The correlation coefficient between time detachment and negative interactions is set to 1	400.8	60	71.8***
Unconstrained measurement model	466.9	98	—
The correlation coefficient between personal stress and family stress is set to 1.	521.3	99	54.4***
The correlation coefficient between personal stress and school stress is set to 1.	524.5	99	57.6***
The correlation coefficient between personal stress and peer stress is set to 1.	557.7	99	90.8***
The correlation coefficient between family stress and school stress is set to 1.	526.5	99	59.6***

Model	χ^2	df	$\triangle\chi^2$
The correlation coefficient between family stress and peer stress is set to 1.	542.8	99	75.9***
The correlation coefficient between school stress and peer stress is set to 1.	553.6	99	86.7***

Note: *p<0.05, **p<0.01, ***p<0.001

Table 6 shows the negative functions of the social media scale, with an overall construct mean of 3.076. For the academic pressure scale, the construct mean is 2.758. In the academic procrastination scale, the overall construct mean is 3.239. Additionally, if the correlation coefficient between any paired constructs is lower than the reliability of each construct, it further confirms the presence of discriminant validity (Gaski, 1986).

Table 6. Discriminant validity analysis of constructs

Construct	Mean	SD	Negative functions of social media	Academic pressure	Academic procrastination
Negative functions of social media	3.076	0.710	(0.922)	0.350**	0.494**
Academic pressure	2.758	0.727		(0.941)	0.470**
Academic procrastination	3.239	0.764			(0.904)

Note: *p<0.05, **p<0.01, ***p<0.001

Structural Equation Model Analysis

Following the recommendations of Hair et al. (1998), this study evaluates the model fit by categorizing fit indices into three groups: absolute fit measures, incremental fit measures, and parsimonious fit measures. For the absolute fit measures, the overall theoretical model demonstrated the following indices: $\chi^2 = 383.9$, GFI = 0.900, AGFI = 0.863, RMR = 0.043, RMSEA = 0.087. The chi-square value was statistically significant, and all other indices met acceptable standards. For the incremental fit measures, NFI = 0.919 and CFI = 0.936, both exceeding 0.9, indicating an acceptable fit. For the parsimonious fit measures, PNFI = 0.761 and PGFI = 0.653, both exceeding 0.5, which are within acceptable thresholds. Although the model fit indices (e.g., RMSEA = 0.087) approached the upper limit of conventional cutoffs, prior meta-analytic evidence by Baumgartner and Homburg (1996), based on 184 structural equation modeling studies, suggests that when most recommended fit criteria are satisfied and only one or two indices slightly deviate but remain close to the proposed thresholds, the model can still be regarded as exhibiting an acceptable overall fit. Overall, the results confirm that the structural model exhibits a good fit.

Referring to Figure 2, the CR values for negative functions of social media, academic pressure, and academic procrastination were 0.894, 0.915, and 0.912, respectively. The AVE values were 0.681, 0.737, and 0.599, all of which exceeded the acceptable threshold, indicating that the model exhibits a good internal structural fit. Comparing the factor loadings of each construct, the factor loadings for negative functions of social media were highest for loss of awareness ($\lambda = 0.842$), followed by time detachment ($\lambda = 0.811$), attention diversion ($\lambda = 0.790$), and negative interactions ($\lambda = 0.638$). These results suggest that while social media platforms enhance communication convenience, they may also lead users to neglect changes in their surrounding environment. For academic pressure, the highest factor loading was for family pressure ($\lambda = 0.983$), followed by school pressure ($\lambda = 0.976$), personal pressure ($\lambda = 0.638$), and peer pressure ($\lambda = 0.612$). This indicates that students may impose excessive pressure on themselves due to high parental expectations. Additionally, school or peer pressure

may fluctuate depending on environmental or interpersonal factors, whereas personal pressure is often latent but can still have a significant impact on an individual.

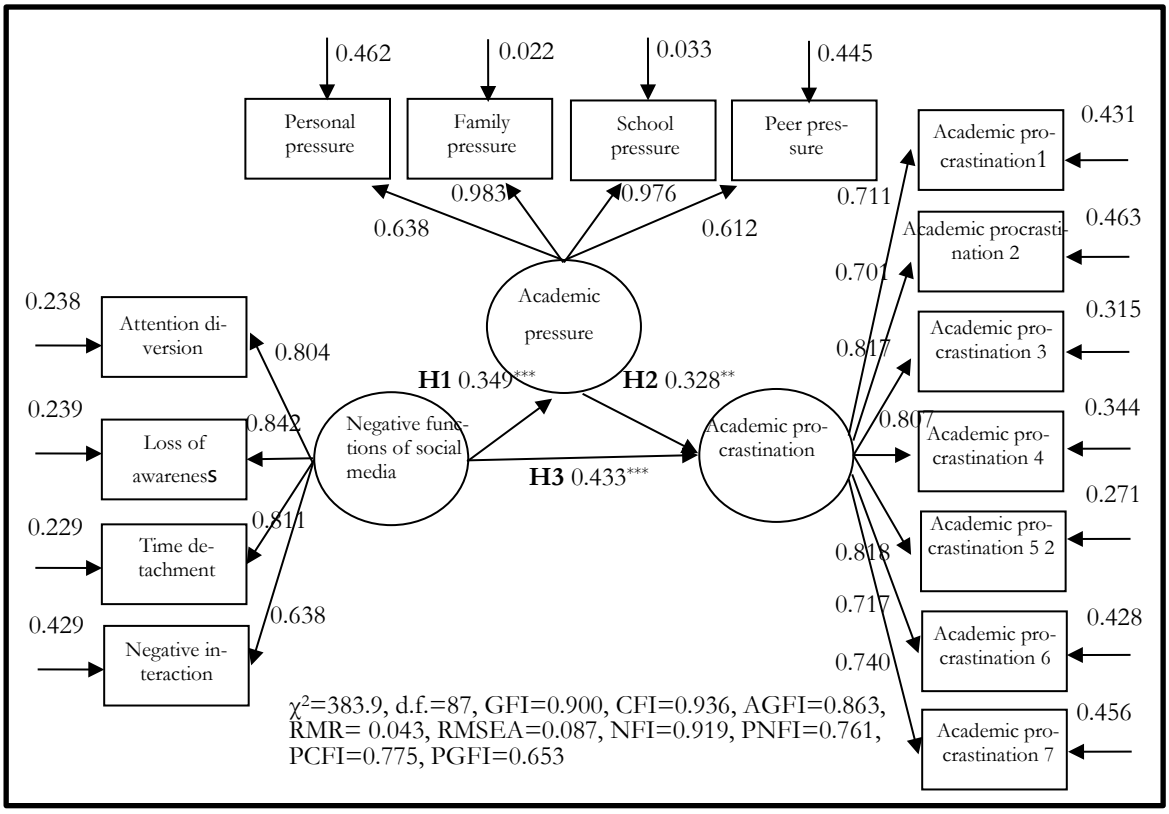

Figure 2. Path coefficients analysis

In the construct of academic procrastination, respondents rated the statement "I tend to procrastinate on assignments or reports until the deadline, then I will rush to complete them" (academic procrastination 5, $\lambda = 0.818$) the highest. This was followed by "while preparing for exams, I often waste time on other activities, delaying my study tasks" (academic procrastination 3, $\lambda = 0.817$), "I often fail to follow my original schedule for completing assignments or reports due to procrastination" (academic procrastination 4, $\lambda = 0.807$), "I get distracted by other temptations, which delays my assignment or report completion" (academic procrastination 7, $\lambda = 0.740$), "I always finish all my assignments or reports at the last minute before the deadline" (academic procrastination 6, $\lambda = 0.717$), "I often fail to follow my planned study schedule due to procrastination" (Academic procrastination 1, $\lambda = 0.711$), and "I only start preparing for exams when they are approaching" (academic procrastination 2, $\lambda = 0.701$). These findings suggest that respondents' procrastination behavior stems from both personal choices and external distractions, leading to delays in academic tasks.

Moreover, about H4, this study will adopt SEM and Bootstrapping as tools to test the mediation effect. These methods provide the advantage of accurately estimating mediation effects without assuming a specific sampling distribution and without being influenced by the complexity of the paths between independent and dependent variables. SEM and Bootstrapping are currently regarded as the most efficient methods for testing mediation effects and can effectively reduce the risk of Type I errors (Hayes, 2009; Preacher & Hayes, 2008). The results indicate that academic pressure indeed plays a significant mediating role in the relationship between the negative functions of social media and academic procrastination. Moreover, the mediation is identified as partial (Table 7).

Table 7. Summary of mediation effects

Path	Estimate	95% Confidence interval	
		BC p-value	BC
Standardized indirect effect			
Negative functions of social media → Academic pressure → Academic procrastination	0.126	0.000	0.080~0.193
Standardized direct effect			
Negative functions of social media → Academic procrastination	0.421	0.001	0.303~0.541
Standardized total effect			
Negative functions of social media → Academic procrastination	0.547	0.001	0.433~0.644

Note: BC: Bias-corrected percentile method

The finding of partial mediation suggests that academic pressure is an important but not exclusive mechanism linking social media's negative effects to procrastination. According to stress-coping theory (Lazarus & Folkman, 1984), multiple pathways may emerge when individuals face high demands and limited coping resources. While our model captures one core process (academic stress as an appraisal of environmental demands), additional mechanisms – such as diminished self-regulation, fear of missing out (FOMO), low academic self-efficacy, or poor time management – likely operate in parallel. These unmeasured pathways can directly foster procrastination, explaining why the direct effect ($\beta = 0.421$) remained stronger than the indirect effect ($\beta = 0.126$).

The partial mediation indicates that while academic pressure explains a substantial portion of the link between negative social media use and procrastination, additional mechanisms – such as diminished self-regulation, fear of missing out, and emotional coping – likely operate in parallel. This is consistent with stress-coping theory, which posits multiple pathways from stressors to maladaptive behaviors.

DISCUSSION AND IMPLICATIONS

This study explores the associations between the negative functions of social media (such as attention diversion, loss of awareness, time detachment, and negative interactions) and academic pressure, as well as academic procrastination. The results confirm that all four dimensions are significantly and positively associated with both academic pressure and procrastination (Table 8).

Table 8. Path coefficients and hypothesis testing

Path	Path coefficient	Hypothesis	Result
Negative functions of social media → Academic pressure	0.349***	H1	Supported
Academic pressure → Academic procrastination	0.328***	H2	Supported
Negative functions of social media → Academic procrastination	0.433***	H3	Supported

Note: ***p<0.00

Furthermore, academic pressure mediates the relationship between social media use and procrastination, suggesting a compounding effect where social media amplifies internal and external stressors, which in turn are associated with a higher likelihood of delay behaviors. These findings align with prior research, which has documented that social media overuse undermines self-regulation and contributes to academic strain (Hussain & Wegmann, 2021). This study also extends existing literature by

empirically validating the mediating role of academic pressure, a psychological mechanism that has been suggested but rarely tested in prior work. Unlike studies that emphasize only the direct distraction effects of social media (Rosen et al., 2013), our findings highlight a more nuanced pathway in which academic stress operates as a critical intermediary factor.

The results also resonate with prior cross-cultural observations. For example, research in Western contexts has shown that procrastination often stems from avoidance coping and diminished time management (Sirois & Pychyl, 2016; Steel, 2007), while our findings in an East Asian context underscore the additional influence of family and institutional pressures. This suggests that the cultural environment – particularly in societies where academic achievement is closely tied to family expectations – may intensify the impact of digital distractions. In this respect, the present study both confirms global patterns and adds a culturally specific dimension that enriches the literature.

However, the findings also diverge from some earlier reports. For instance, while Junco (2012) argued that certain social media activities can increase student engagement, our results emphasize predominantly negative outcomes, indicating that the effect of social media may be highly contingent upon usage type, cultural expectations, and stress appraisal. Similarly, whereas some scholars have noted that moderate online interactions can provide emotional support and buffer stress (Burke & Kraut, 2016), our evidence suggests that under high academic pressure, the buffering effect is outweighed by the risk of procrastination.

Despite these contributions, several limitations warrant consideration. First, the study may be subject to social desirability bias and inaccuracies in recalling behavior. Future research could incorporate objective measures such as digital usage logs or experimental tracking of task performance. Second, cross-sectional research design restricts causal inferences. While structural equation modeling supports the proposed pathways, longitudinal or experimental designs are necessary to establish temporal precedence and directionality. Third, the cultural context must be acknowledged. The sample consisted of Taiwanese college students, whose academic experiences are shaped by strong family involvement and competitive educational environments. Consequently, the generalizability of findings to other cultural or institutional settings may be limited. Comparative studies across cultures would help to clarify whether the mediating role of academic pressure is universally applicable or culturally specific. Cultural context may further reinforce this pattern. In East Asian societies, strong family expectations and competitive educational environments amplify stress but also impose norms about achievement and time use. This duality may intensify both the stress-driven (indirect) and the distraction-driven (direct) pathways. Our results, therefore, contribute to the cross-cultural literature by showing how institutional and familial pressures interact with digital behaviors to shape procrastination tendencies.

This study makes several theoretical contributions to the literature on social media, stress, and procrastination. First, the results provide empirical support for stress-coping theory (Lazarus & Folkman, 1984) by showing that academic pressure mediates the relationship between the negative functions of social media and procrastination. This validates the notion that stress processes – not merely distraction – are central to understanding digital behavior outcomes. Second, the findings extend previous research that has primarily focused on the direct effects of social media use (e.g., Rosen et al., 2013). Our results demonstrate that the indirect pathway through academic pressure is equally important, suggesting a more nuanced model of procrastination. Third, this study contributes to cross-cultural perspectives by illustrating that in the Taiwanese context, family and institutional expectations exert particularly strong pressure. This highlights the importance of considering cultural differences when applying psychological theories of procrastination, as the stress-procrastination mechanism may be more pronounced in collectivist societies where academic success is tied to family honor. Fourth, the present study operationalizes stress-coping theory by mapping its core elements onto a simplified pathway: appraisal (academic pressure), maladaptive coping (negative social media use), and outcome (procrastination). While the model does not directly measure all appraisal processes or diverse coping styles, it captures an essential mechanism of the theory in an academic

context. By empirically validating this pathway, the study contributes to a more nuanced application of stress-coping theory, particularly in understanding how digital behaviors function as avoidance-based coping strategies. Future research should expand this framework by incorporating explicit measures of appraisal processes, emotion-focused versus problem-focused coping strategies, and individual differences in coping resources.

The empirical results also provide several actionable recommendations. First, since family pressure showed the strongest factor loading within academic stress ($\lambda = 0.983$), universities should consider interventions targeting parent–student dynamics. Family workshops and communication programs can help reduce unrealistic expectations, thereby indirectly alleviating procrastination tendencies. Second, given that loss of awareness ($\lambda = 0.842$) and time detachment ($\lambda = 0.811$) emerged as the most influential dimensions of negative social media use, educators should implement digital literacy training that emphasizes awareness of time distortion and self-regulation. Third, because academic procrastination was most strongly associated with deadline-driven task completion ($\lambda = 0.818$), time management tools (e.g., structured schedules, Pomodoro techniques, or digital planners) could directly address students' delay behaviors.

Additionally, policymakers should acknowledge that academic pressure mediates social media's influence on procrastination, suggesting that interventions must address both technological habits and stress management strategies simultaneously, rather than treating them as separate issues. Besides, because this study employed a cross-sectional design, the findings reflect associations rather than causal relationships. Future longitudinal or experimental research is needed to establish causality and temporal dynamics among social media use, academic pressure, and procrastination. Finally, the purposive sampling from a single institution further restricts the generalizability of the results. Because participants were recruited only from one university, the findings may not fully represent students from other institutions, regions, or educational systems. Future research should draw on more diverse and representative samples across multiple institutions to enhance external validity.

CONCLUSION

This study demonstrates that the negative functions of social media are associated with academic procrastination among college students through **both direct and indirect pathways**. Academic pressure emerged as a significant but **partial mediator**, indicating that while stress processes explain part of the relationship, other mechanisms, such as diminished self-regulation, fear of missing out, and low self-efficacy, also contribute. These findings reinforce stress-coping theory by illustrating how appraisal of environmental demands (academic pressure) and maladaptive coping (negative social media use) jointly shape behavioral outcomes (procrastination).

By highlighting the coexistence of distraction-driven and stress-driven pathways, the present study extends prior research focused solely on direct effects. It adds a culturally specific perspective from East Asian higher education. This nuanced understanding strengthens the theoretical contribution of stress-coping theory to digital behavior and student well-being.

Future research should employ longitudinal or experimental designs to establish causality, explore **alternative mediators** such as emotional regulation or self-control, and test for moderators including gender, cultural values, or coping resources. Such work will further clarify the mechanisms by which social media influences academic procrastination and refine theoretical models of stress and coping in digital contexts.

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APPENDIX: EXTENDED RELIABILITY AND VALIDITY FOR MEASUREMENT SCALES

Construct/dimension		Item-total correlation	Alpha if item deleted	Cronbach's α
Negative functions of social media (second-order)				0.922
Attention diversion				0.848
1	I pay attention to whether social media notifications have sounded.	0.682	0.808	
2	I lose track of time while using social media.	0.670	0.814	
3	I constantly check if there are message replies on social media.	0.751	0.779	
4	I cannot multitask while using social media	0.645	0.826	
Loss of awareness				0.877
1	I ignore my surroundings when using social media.	0.791	0.799	
2	I forget the problems I was thinking about while using social media.	0.768	0.820	
3	I overlook others' questions or needs while using social media.	0.729	0.855	
Time detachment				0.838
1	Time seems to pass quickly when I use social media.	0.651	0.822	
2	I stop whatever I am doing when I start using social media.	0.767	0.707	
3	Using social media delays my original plans.	0.686	0.789	
Negative interactions				0.812
1	I feel forced to join voice or video meetings in social media groups.	0.678	0.728	
2	I open social media apps because friends tag me.	0.615	0.790	
3	I feel obligated to respond to messages in social groups.	0.700	0.706	
Academic pressure (second-order)				0.941
Personal pressure				0.879
1	I worry about not graduating successfully.	0.696	0.863	
2	I fear my grades will drag down my team.	0.702	0.859	
3	I find schoolwork very difficult.	0.800	0.821	
4	I am afraid to see my exam scores.	0.762	0.836	

Construct/dimension		Item-total correlation	Alpha if item deleted	Cronbach's α
Family pressure				0.900
1	My grades do not meet my parents' expectations.	0.721	0.890	
2	My parents get angry when my grades are low.	0.784	0.868	
3	My parents compare my grades with my relatives.	0.827	0.851	
4	My grades worry my parents.	0.773	0.871	
School pressure				0.888
1	I am afraid when teachers ask me questions.	0.683	0.885	
2	There are too many school exams.	0.772	0.849	
3	I cannot meet the expectations of my teachers.	0.793	0.842	
4	I think there are too many courses to learn.	0.778	0.848	
Peer pressure				0.875
1	I feel scared by classmates' competition.	0.717	0.845	
2	Classmates laugh at me for poor grades.	0.796	0.813	
3	My suggestions in group work are often ignored.	0.739	0.836	
4	I fear being asked academic questions by peers.	0.674	0.861	
Academic procrastination (first-order)				0.904
1	I often fail to follow my planned study schedule due to procrastination.	0.673	0.895	
2	I tend to postpone studying until just before an exam.	0.673	0.895	
3	During exam preparation, I frequently waste time on other activities, delaying my study tasks.	0.773	0.883	
4	I often fail to complete assignments or reports according to my initial plan due to procrastination.	0.748	0.886	
5	I put off working on assignments or reports until the deadline approaches, rushing to complete them.	0.776	0.884	
6	I usually finish assignments or reports at the very last moment before the submission deadline.	0.673	0.895	
7	I delay working on assignments or reports due to distractions and other temptations	0.695	0.893	

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