



Academic Stress and Cyberslacking in Students: The Moderating Role of Emotion Regulation

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Abstract

In the digital era, students increasingly rely on technology for academic purposes, yet they also face significant challenges such as cyberslacking—using the internet for non-academic activities during study time. This study investigates the role of emotion regulation in moderating the relationship between academic stress and cyberslacking among university students. Using a convenience sampling technique, 100 university students who actively use the internet for academic purposes, aged 18–25 years were recruited as participants. They completed online surveys assessing academic stress, emotion regulation, and cyberslacking behaviors. The Emotion Regulation Questionnaire (ERQ), Perception of Academic Stress Scale (PASS), and Cyberslacking Scale were utilized to gather data. Descriptive statistics, assumption testing, and moderation analysis were conducted using Jamovi software. The findings reveal a significant positive relationship between academic stress and cyberslacking (Estimate = 0.69, $p < 0.01$). Emotion regulation, however, did not have a significant direct effect on cyberslacking ($p > 0.05$), nor did it moderate the relationship between academic stress and cyberslacking ($p > 0.05$). Nonetheless, simple slope analysis revealed that students with lower levels of emotion regulation experienced a stronger association between academic stress and cyberslacking compared to those with higher levels of emotion regulation. This suggests that while emotion regulation does not moderate the relationship in a statistical sense, it may still influence how students respond to academic stress. These findings highlight academic stress as a key predictor of cyberslacking and suggest the potential of targeting emotion regulation skills to help mitigate stress-related cyberslacking behaviors among university students.

Keywords: *academic stress, cyberslacking, emotion regulation*

1. INTRODUCTION

Student life in the digital era is characterized by a high dependence on information and communication technology (Hailegebreal et al., 2022). Students use digital devices such as laptops, smartphones, and tablets, along with internet access, to support various aspects of their academic lives (Al-Hariri & Al-Hattami, 2017). Technology facilitates the search for reading materials, downloading journals and books, and accessing university-provided e-learning platforms (Timotheou et al., 2022). Thus, digital technology has accelerated the learning process and expanded access to information, enabling students to learn more effectively and efficiently.

However, alongside these benefits, students also face several problems related to digital technology use. One of the main issues is the distraction caused by easy access to various non-academic websites and applications. Social media platforms, video streaming, and online games can easily divert students' attention from their academic tasks (Xu et al., 2022). This

easy access often makes it difficult for students to stay focused on their work, thereby reducing the effectiveness of their study time and task completion (Kolhar et al., 2021).

In addition to concentration issues, another problem is the dependence on technology, which can lead to a decline in interpersonal skills (Hao et al., 2022; Romero-López et al., 2021). Students who engage excessively with social media and instant messaging apps may experience difficulties in direct communication. Moreover, excessive use of digital technology can also cause physical health problems such as eye strain (Mylona et al., 2020), sleep disturbances (Farsani et al., 2016), and lack of physical activity (Genc & Pirincci, 2023). All these factors negatively impact the overall well-being of students and can affect their academic performance.

A specific manifestation of concentration disruption is the phenomenon known as cyberslacking, which refers to the use of the internet for non-academic purposes during study or work time (Vitak et al., 2011). Cyberslacking poses a serious potential problem as it can disrupt students' focus and academic productivity. When students engage in cyberslacking, they spend time meant for academic activities on unproductive pursuits (Krishna & Agrawal, 2023). This not only reduces valuable study time but also delays task completion, ultimately leading to a decline in academic performance and increased academic pressure, creating a vicious cycle that is hard to break.

Cyberslacking can have various negative impacts on students. One of the most apparent effects is a decrease in academic productivity (Owusu et al., 2021). When students spend significant time on non-academic online activities during study or work periods, they lose valuable time that should be spent completing academic tasks. This can result in delays in task completion, incomplete assignments, and a decrease in the quality of academic output (Nasir et al., 2023). Additionally, the time spent on cyberslacking is often irretrievable, causing students to work extra hard to catch up, which can ultimately increase fatigue levels (Oriji & Johnson, 2024).

Various factors influence cyberslacking behavior among students. One such factor is the availability and ease of access to digital devices and the internet. When internet access is easy and fast, the temptation to engage in non-academic online activities becomes greater. Furthermore, an unstructured learning environment or lack of supervision can also increase the likelihood of students engaging in cyberslacking (Metin-Orta & Demirtepe-Saygılı, 2021). Students who study independently without supervision may be more susceptible to distractions from irrelevant online activities.

Psychological factors also play a crucial role in cyberslacking (Li & Liu, 2022). Academic stress is a major risk factor that can trigger this behavior (Güğerçin, 2019). Students experiencing high academic pressure may seek ways to alleviate their stress, and non-academic online activities are often seen as an easily accessible form of escape (Mishra & Tajeja, 2022). Additionally, emotion regulation, or the ability to manage and control emotions, can influence students' tendency to engage in cyberslacking (Gökçearsan et al., 2023). Students with poor emotion regulation may be more prone to seeking escape through online activities to avoid or cope with negative emotions.

Previous research has identified a relationship between academic stress and cyberslacking behavior (Dinarti & Satwika, 2022; Ningtias & Magistarina, 2023; Nweke et al., 2024). Studies showed that students experiencing high levels of academic stress were more likely to engage in non-academic online activities to divert attention from the pressures they face. These activities include using social media, watching videos, playing online games, and aimlessly surfing the internet. Cyberslacking is considered a maladaptive coping mechanism that may provide temporary relief but ultimately exacerbates academic problems (Mishra & Tajeja, 2022).

Emotion regulation, or the ability to manage and control emotions, is also closely related to digital behavior (Yorulmaz, 2020). Students who can regulate their emotions well tend to have better control over the impulse to engage in unproductive online activities. They can face academic stress and pressure more adaptively by using constructive coping strategies, talking to friends or family, or seeking professional help if needed. Conversely, students with poor emotion regulation may be more vulnerable to cyberslacking behavior to avoid or cope with negative emotions (Gökçearslan et al., 2023).

Research indicates that effective emotion regulation can help individuals manage stress and reduce negative behaviors (Kinner et al., 2014). Students with good emotion regulation skills can resist the temptation to engage in non-academic online activities when feeling stressed and instead opt for more productive or healthy relaxation activities. Therefore, emotion regulation may play a crucial role in moderating the relationship between academic stress and cyberslacking by reducing the negative impact of academic stress on unproductive digital behavior.

Previous studies have examined academic stress and emotion regulation separately in relation to cyberslacking. The potential moderating influence of emotion regulation on the relationship between academic stress and cyberslacking is intriguing to explore. Emotion regulation can act as a buffer that mitigates the negative impact of academic stress on cyberslacking behavior. In other words, students with good emotion regulation may engage less in cyberslacking despite experiencing high academic stress. Effective emotion regulation allows students to cope with stress in more adaptive and constructive ways (Sari et al., 2020), thus reducing the need to seek escape through non-academic online activities.

This study aimed to examine the role of emotion regulation as a moderating variable in the relationship between academic stress and cyberslacking among students. By understanding the moderating role of emotion regulation, we hope to gain deeper insights into how students can manage their academic stress and reduce cyberslacking behavior. The benefits of this research are expected to contribute to the development of effective interventions to enhance students' emotion regulation, thereby reducing the negative impact of academic stress and cyberslacking behavior. The findings of this study can be used by educators and psychology practitioners to design programs that support students' mental health and academic well-being. Furthermore, this research can provide deeper insights into the underlying mechanisms of the relationship between academic stress and cyberslacking, which may be beneficial for future research in educational psychology and mental health.

2. METHODS

This study employs a quantitative research design with a correlational approach. This design was chosen to investigate the relationships between variables, particularly focusing on the role of emotion regulation as a moderator in the relationship between academic stress and cyberslacking among students.

2.1. Participants

The participants in this study were university students currently enrolled in higher education. The inclusion criteria required students to have regular access to the internet and digital devices (such as laptops, smartphones, or tablets) for their learning processes. To screen participants based on these criteria, a pre-screening question was included in the study's initial survey: "Do you have regular access to the internet?" Participants who answered "Yes" were considered eligible for the study, as this question assumes regular access to the internet and the necessary digital devices required for learning processes. Convenience sampling, a non-probability sampling strategy, was used in this study. According to Elfil and Negida (2017), the researcher chose sample items based on their accessibility and availability.

Based on the data collected, the study included 100 participants with various demographic characteristics presented in Table 1. In terms of gender, the majority of participants were female, totaling 79 individuals (79.0%), while males constituted 21 individuals (21.0%). The participants' ages ranged from 18 to 23 years, with a mean age of 21.1 years (SD = 1.28).

2.2. Materials

The instruments used in this study included the Emotion Regulation Questionnaire (ERQ), the Perception of Academic Stress Scale (PASS), and the Cyberslacking Scale. The ERQ, developed by Gross and John (2003), consists of 10 items that measure two strategies of emotion regulation: cognitive reappraisal and expressive suppression. The Indonesian version of the ERQ has been tested for reliability. The internal consistency for cognitive reappraisal is .95, while for expressive suppression- is .79 (Radde et al., 2021). Examples of items include: *"I control my emotions by not expressing them"* (expressive suppression) and *"When I want to feel more positive emotion, I change the way I'm thinking about the situation"* (cognitive reappraisal). Construct validity has been supported by factor analyses, which confirm the two-factor structure of the ERQ—cognitive reappraisal and expressive suppression (Gouveia et al., 2018).

Academic stress was measured using the PASS developed by Bedewy and Gabriel (2015). The Indonesian version of the scale, which has a reliability coefficient of .802 (Fatimah, 2021), consists of 16 items with four response options ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). An example item is: "The unrealistic expectations of my parents stress me out." The PASS underwent a rigorous content validation process involving experts who evaluated the relevance and clarity of each item. This validation ensured that the scale effectively measures students' perceived sources of academic stress (Bedewy & Gabriel, 2015).

The Cyberslacking Scale, developed by Akbulut et al. (2016) and adapted into Indonesian by Simanjuntak et al. (2019), has an internal consistency of .87. The scale comprises 24 statements introduced with the instruction, "During lectures, I do the following." The scale offers five response options ranging from 1 (Never) to 5 (Always). The validity of the scale has been established through structural equation modeling (SEM) and confirmatory factor analysis (CFA), which confirmed its underlying factor structure (Simanjuntak et al., 2022).

2.3. Procedure

Data was collected through an online survey. The questionnaire was distributed via the Google Forms survey platform. Participants were invited to complete the questionnaire through social media channels. Prior to completing the questionnaire, participants were provided with an explanation of the research objectives and asked to give their written consent online.

2.4. Data analysis

Data analysis was carried out using Jamovi statistical software and involved several key steps, including descriptive analysis, assumption testing, and moderation analysis. Prior to performing inferential analyses, assumption testing was conducted to ensure that the data met the necessary criteria for the chosen statistical tests. This step was crucial for validating the appropriateness of the subsequent analyses. Moderation analysis was performed using the mediation and moderation module 1.1.0 in Jamovi. This analysis assessed whether the strength or direction of the relationships between the variables of interest (academic stress and cyberslacking) was influenced by a third variable, specifically emotion regulation (The Jamovi Project, 2023).

3. RESULTS

Based on the descriptive results for 100 participants presented in Table 1. These data indicate significant variation among participants in terms of emotion regulation, levels of cyberslacking, and the degree of academic stress experienced.

Table 1.
Descriptive Analysis Results

	Mean	Median	SD	Min	Max
Emotion Regulation	31.3	31.0	4.65	21.0	40.0
Cyberslacking	79.3	79.0	14.92	26.0	116.0
Academic Stress	44.1	44.0	7.58	27.0	64.0

The assumption testing results indicate that the data is normally distributed, as evidenced by a p-value of .96. Additionally, there is no occurrence of multicollinearity among the predictor variables, as the Variance Inflation Factor (VIF) is 1.01 ($VIF < 10$), and the Tolerance is .99 ($p > 0.01$). These findings suggest that the data meets the assumption of normal distribution, and there is no significant multicollinearity among the predictor variables, thereby supporting the validity of the assumptions for further statistical analyses.

Table 2
Correlation Matrix

	Cyberslacking	Emotion regulation
Emotion regulation	.079	—
Academic stress	.368***	.098

Note: *** $p < .001$

We conducted a preliminary correlation analysis to examine the relationships between the primary study variables. The intercorrelation matrix is presented in Table 2. Academic stress was positively correlated with cyberslacking ($r = .368, p < .001$), indicating that higher levels of academic stress were associated with increased cyberslacking behavior. Emotion regulation was weakly and positively correlated with cyberslacking ($r = .079, p = .435$), but this correlation was not statistically significant. Emotion regulation and academic stress were weakly and negatively correlated ($r = .098, p = .333$), suggesting a slight inverse relationship between the two, though this finding was not significant.

Moderation analysis was conducted to evaluate the role of emotion regulation in the relationship between academic stress and cyberslacking. The moderation results, as presented in Table 3, indicate that academic stress has a significant positive effect on cyberslacking (Estimate = 0.6945, $SE = 0.1801, Z = 3.857, p < .001$). This suggests that increased academic stress is associated with an increase in cyberslacking behavior.

Table 3
Moderation Estimates

	Estimate	SE	Z	p
Academic Stress	0.6945	0.1801	3.857	< .001
Emotion Regulation	0.2667	0.2930	0.910	.363
Academic stress * Emotion regulation	-0.0535	0.0285	-1.877	.061

Emotion regulation, as an independent predictor variable, did not show a significant effect on cyberslacking (Estimate = 0.2667, *SE* = 0.2930, *Z* = 0.910, *p* = .363). This implies that emotion regulation alone is not sufficient to predict changes in cyberslacking behavior.

The interaction between academic stress and emotion regulation showed a non-significant effect (Estimate = -0.0535, *SE* = 0.0285, *Z* = -1.877, *p* = .061). This result indicates that emotion regulation does not significantly moderate the relationship between academic stress and cyberslacking. Given the non-significance of the moderation effect, it can be concluded that emotion regulation does not significantly change the relationship between academic stress and cyberslacking across all levels of emotion regulation.

Table 4.
Simple Slope Estimates

	Estimate	SE	Z	p
Average	0.695	0.182	3.82	< .001
Low (-1SD)	0.942	0.221	4.27	< .001
High (+1SD)	0.447	0.230	1.94	.052

Note: shows the effect of the predictor (Academic stress) on the dependent variable (Cyberslacking) at different levels of the moderator (Emotion regulation)

Simple slope analysis was conducted to test the effect of academic stress on cyberslacking at various levels of emotion regulation (as a moderator), as presented in Table 4. The results indicate that at the average level of emotion regulation, academic stress has a significant positive effect on cyberslacking (Estimate = 0.695, *SE* = 0.182, *Z* = 3.82, *p* < .001). This suggests that, overall, increased academic stress is associated with increased cyberslacking behavior.

When emotion regulation is at a low level (one standard deviation below the mean), the effect of academic stress on cyberslacking is stronger and statistically significant (Estimate = 0.942, *SE* = 0.221, *Z* = 4.27, *p* < .001). This indicates that students with low emotion regulation are more susceptible to increased cyberslacking behavior when they experience high levels of academic stress. The stronger effect observed at low emotion regulation suggests that these students may struggle more to manage their emotions and cope with academic pressure, leading to an increase in distractions such as cyberslacking.

The contrast between the effects at the average and low levels of emotion regulation highlights a crucial difference: at lower levels of emotion regulation, academic stress has a more pronounced impact on cyberslacking behavior. Specifically, the strength of the relationship between academic stress and cyberslacking is greater when emotion regulation is weaker, indicating that emotion regulation may buffer the effects of academic stress. In other words, students with lower emotion regulation skills are more likely to engage in cyberslacking as a coping mechanism when they experience stress, whereas students with average emotion regulation are still influenced by academic stress, but to a lesser extent.

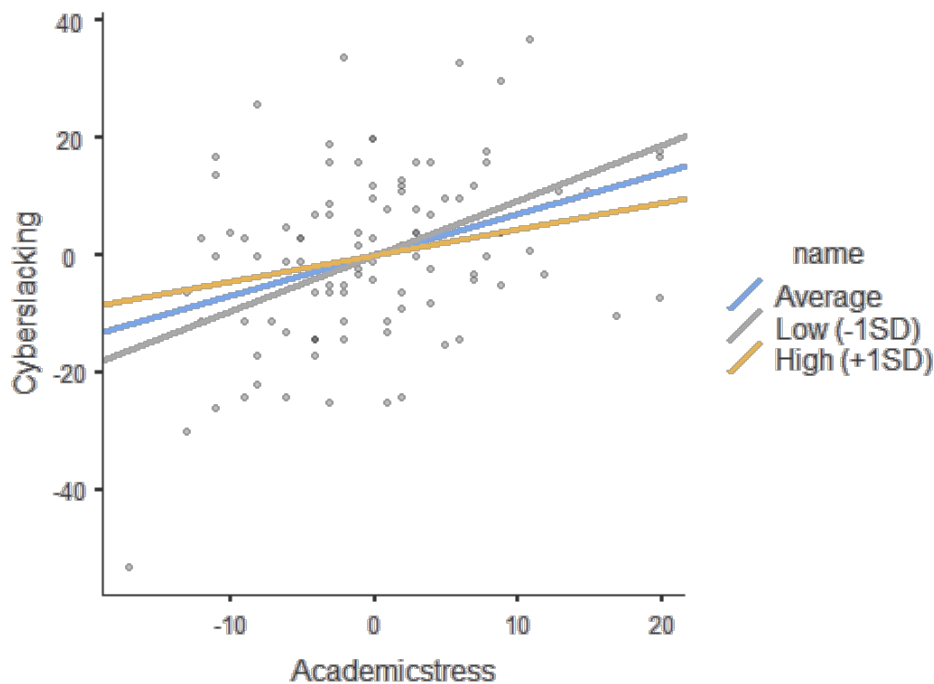
Conversely, when emotion regulation is at a high level (one standard deviation above the mean), the effect of academic stress on cyberslacking is not statistically significant at conventional levels (Estimate = 0.447, *SE* = 0.230, *Z* = 1.94, *p* = .052). Although this result approaches significance, it suggests that higher emotion regulation may reduce the impact of academic stress on cyberslacking behavior, though it does not completely eliminate it.

These findings indicate that while the overall interaction effect between academic stress and emotion regulation was not significant (Table 3), the results of the simple slope analysis

provide additional insights. Specifically, the simple slopes suggest that the strength of the relationship between academic stress and cyberslacking varies at different levels of emotion regulation.

At low levels of emotion regulation, the effect of academic stress on cyberslacking is stronger and statistically significant, indicating that students with lower emotion regulation skills are more susceptible to cyberslacking under high academic stress. At high levels of emotion regulation, this relationship weakens and becomes statistically nonsignificant, suggesting a potential buffering effect, although moderation was not supported across all levels of emotion regulation. This pattern implies that while emotion regulation may not exert a uniform buffering effect across its entire range, it does play a critical role in reducing cyberslacking behavior in students with average or higher emotion regulation skills. To better illustrate these findings, the results are visualized in Figure 1, which presents a *simple slope plot* depicting the relationship between academic stress and cyberslacking at low, average, and high levels of emotion regulation.

Figure 1
Simple Slope Plot



Overall, these results highlight the potential for emotion regulation to serve as a protective factor in specific contexts. Developing strong emotion regulation skills may help mitigate the negative effects of academic stress on cyberslacking, particularly for students who already possess average to high levels of these skills. However, the localized nature of the moderation effect also suggests that additional interventions may be needed for students with low emotion regulation skills to address their heightened susceptibility to cyberslacking under academic stress.

4. DISCUSSION

The results of this study indicate a positive relationship between academic stress and cyberslacking. This finding is consistent with previous research showing that higher academic stress correlates with increased levels of cyberslacking. Academic stress refers to a state where

students feel overwhelmed by excessive academic demands, such as piling assignments, pressure to achieve high grades, or exam preparations (Jagiello et al., 2024). When students experience high levels of stress, they often seek ways to alleviate the pressure and achieve relief, even if only temporarily (Aina & Wijayati, 2019). One common way to cope with stress is through cyberslacking, which involves spending time on non-academic internet activities during periods intended for studying or completing assignments (Li & Liu, 2022).

When facing stress, individuals often seek coping mechanisms to alleviate tension. However, not all coping mechanisms are adaptive (Alkhalaf et al., 2023). Cyberslacking can be considered a maladaptive coping mechanism where students attempt to escape stress by diverting their attention to more enjoyable online activities, such as social media, online games, or watching videos (Metin-Orta & Demirtepe-Saygılı, 2021).

Cyberslacking activities provide easily accessible distractions from pressing academic demands (Taneja et al., 2015). With just a few clicks, students can enter a different world where they do not have to think about stressful tasks or exams. This provides a temporary escape that can reduce feelings of anxiety and stress (Lu et al., 2024). When students feel stressed and then engage in cyberslacking, they may experience a temporary reduction in their stress levels (Güngerçin, 2020). This experience can reinforce cyberslacking behavior as a coping strategy, as they perceive it as a "reward" providing relief after engaging in it.

The role of the social environment and peer pressure may offer additional context for understanding cyberslacking behavior in students. While this study primarily focuses on academic stress and emotion regulation, peers who also engage in cyberslacking as a response to stress might create a normative influence, encouraging similar behavior. This aligns with prior findings that environmental factors, such as peer behavior, are closely related to problematic internet use (Chung et al., 2019). Although this factor was not directly examined in this study, it could amplify the effects of low emotion regulation, as students with poor regulation may be more easily influenced by peers to use cyberslacking as a maladaptive coping strategy.

In this study, it was found that emotion regulation was not significantly associated with cyberslacking ($r = .079, p = .435$). This finding contrasts with previous research indicating that higher levels of emotion regulation are associated with lower cyberslacking (Gökçearslan et al., 2023). One possible explanation for this discrepancy is the limited strength of the relationship between emotion regulation and cyberslacking in this study. The weak positive correlation observed suggests that emotion regulation may not directly influence cyberslacking behavior, and other factors may play a more dominant role.

Emotion regulation refers to an individual's ability to manage and alter their emotions adaptively in various situations (Gross, 2015). Although emotion regulation plays a crucial role in psychological well-being and adaptation to stress, the findings of this study suggest that emotion regulation is not significantly related to cyberslacking behavior among students.

There are various emotion regulation strategies that individuals can use, and not all strategies may be effective in reducing cyberslacking behavior. For example, an individual using emotional suppression might still engage in cyberslacking as a way to avoid stress, despite having good emotion regulation skills. The finding that emotion regulation is not significantly related to cyberslacking suggests that cyberslacking behavior may be more complex and influenced by factors beyond emotion regulation.

These findings reveal interesting insights into the role of emotion regulation in the relationship between academic stress and cyberslacking behavior among students. Specifically, the interaction between academic stress and emotion regulation shows an effect approaching significance, indicating that emotion regulation has the potential to moderate this relationship. Although this finding is marginally significant, it provides important insights into how emotion regulation abilities can impact student behavior under academic pressure.

Emotion regulation may function as a buffering mechanism that helps students manage academic stress more effectively. Research shows that emotion regulation can influence the types of emotions experienced by individuals and how they express emotions in behavior (Gross, 1998). Students with strong emotion regulation skills may be better able to reduce anxiety and stress arising from academic demands, thereby diminishing the need to seek distractions through cyberslacking.

These findings reveal interesting insights into the role of emotion regulation in the relationship between academic stress and cyberslacking behavior among students. Specifically, the interaction between academic stress and emotion regulation shows non-significant results. However, a closer examination of the role of various levels of emotion regulation in the relationship between academic stress and cyberslacking reveals interesting findings. Low and moderate levels of emotion regulation significantly influence the relationship between academic stress and cyberslacking. Students with low emotion regulation are more susceptible to increased cyberslacking behavior when they experience high levels of academic stress.

Poor emotion regulation leads individuals to adopt maladaptive coping strategies. This is because individuals struggle to reevaluate and solve problems, thereby increasing the impact of academic stress. As a result, they find it difficult to maintain focus and academic productivity, making them more vulnerable to cyberslacking behavior. Individuals with poor emotion regulation tend to engage in avoidance behaviors because they struggle to directly address stress (Shi et al., 2016). They lack the skills to manage negative emotions effectively, which can cause them to turn to unrelated online activities instead of focusing on their academic tasks in class. Effective emotion regulation enables individuals to be more flexible in adjusting their emotional responses to challenging situations (Kobylińska & Kusev, 2019). This flexibility can help them remain calm and focused even under academic pressure, thus reducing the tendency to seek escape through cyberslacking.

These findings suggest that the relationship between academic stress and cyberslacking is not entirely linear but is influenced by the complex dynamics between stress and emotion regulation. Students who can regulate their emotions may be able to alleviate some of the pressures associated with academic stress, thereby reducing the need to engage in cyberslacking as a coping mechanism.

The implications of this study for interventions aimed at reducing cyberslacking behavior among students are significant. Programs designed to enhance emotion regulation can help students manage academic stress better and reduce their propensity for engaging in unproductive behavior. Emotion regulation training that includes strategies such as mindfulness, relaxation techniques, and the development of adaptive coping skills may offer long-term benefits in improving students' well-being and academic performance. Furthermore, educators and academic counselors need to recognize the importance of supporting the development of emotion regulation as part of higher education curricula. By providing the necessary resources and support to help students develop these skills, educational institutions can contribute to reducing cyberslacking behavior and enhancing overall academic success.

Overall, while the moderating effect of emotion regulation on the relationship between academic stress and cyberslacking is only marginally significant, these findings highlight the important potential of emotion regulation in mitigating the negative impact of academic stress. Further research is needed to clarify this mechanism and develop effective strategies to enhance emotion regulation among students.

The limitations of this study include data collection during a specific period, which may not reflect the dynamic nature of students' experiences that can change over time. For example, the significant positive correlation between academic stress and cyberslacking observed in this study may be influenced by the timing of data collection, as students might experience higher stress levels closer to assignment deadlines or exams. Different academic contexts, such as

exam periods or holidays, may also influence stress levels and cyberslacking behavior. Future research could consider specific time contexts. Additionally, longitudinal studies could be conducted to understand the dynamics of the relationship between academic stress, emotion regulation, and cyberslacking over time.

Another limitation is the lack of data on participants' specific academic majors, types of digital devices used while studying, and university characteristics (e.g., public or private institution, location). These factors might have a potential influence on cyberslacking behaviors and the relationships under investigation. For instance, certain academic majors may involve varying levels of academic stress or different demands for digital device usage, while students from universities with distinct characteristics might also exhibit different patterns of cyberslacking. Future studies could benefit from incorporating these variables to provide a more comprehensive understanding of the factors associated with cyberslacking behaviors.

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Acknowledgments

Not applicable