

Digital Distraction and Academic outcomes Among University Students: The Role of Self-Control and Perceived Stress

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Background: The increasing use of digital devices and internet-based platforms has created new challenges for university students, particularly in maintaining academic focus and completing tasks on time. Digital distraction may be influenced by psychological and technology-related factors such as self-control, perceived stress, screen time, and notification exposure.

Aim: The present study examined the relationship between digital distraction and academic outcomes among Indian undergraduate and postgraduate students, with particular emphasis on the roles of self-control, perceived stress, daily screen time, and digital notification exposure.

Methods: A cross-sectional quantitative survey design was adopted. The sample comprised 263 undergraduate and postgraduate students aged 18 years and above enrolled in higher-education institutions in India. Participants were recruited through convenience and purposive sampling using online and offline data-collection procedures. Data were collected using a Smartphone Distraction Scale (SDS), Brief Self-Control Scale, Perceived Stress Scale, Academic Self-Efficacy Scale, and a Digital Use and Notification Questionnaire. Descriptive statistics, Pearson's correlation, independent-samples *t*-tests, one-way ANOVA, and multiple regression analyses were conducted. Statistical significance was set at $p < .05$.

Results: Digital distraction was significantly negatively associated with academic performance, academic well-being, and overall academic outcomes, while showing a significant negative

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association with self-control and a positive association with perceived stress. Daily screen time and notification exposure were positively associated with digital distraction and were also related to less favourable academic outcomes. Regression analysis showed that Digital distraction, self-control, and perceived stress collectively explained 20.8% of the variance in academic outcomes.

Conclusion: The findings suggest that academic functioning among university students is associated with an interplay of digital behaviour and psychological factors. Greater digital distraction and perceived stress were associated with poorer academic outcomes, whereas stronger self-control was associated with more favourable academic functioning. Interventions focusing on digital self-regulation, self-control, stress management, and healthy technology-use practices may therefore contribute to improved academic well-being among university students.

Keywords: Digital distraction; academic outcomes; self-control; perceived stress; screen time; digital notifications; university students; academic well-being

1 Introduction

Digital technologies have become an integral part of university education, providing students with convenient access to academic resources, online learning platforms, communication tools, and social networking applications. Smartphones, laptops, tablets, and other internet-enabled devices facilitate learning and academic communication; however, their continuous availability can also create difficulties in maintaining attention and regulating technology use during study periods. In particular, frequent notifications, social media engagement, entertainment content, and easy access to online activities may divert students from academic tasks and contribute to delays in initiating or completing their academic responsibilities.

Research has demonstrated that even receiving mobile-phone notifications can impose an attentional cost because notifications may trigger task-irrelevant thoughts and mind wandering, potentially interfering with ongoing cognitive activities (Stothart et al., 2015).

Academic procrastination refers to the voluntary delay of an intended academic task despite expecting that the delay may result in negative consequences. It is widely conceptualised as a form of self-regulatory failure rather than merely a problem of poor time management. Steel (2007), in a meta-analytic and theoretical review, identified self-control, distractibility, impulsiveness, self-efficacy, task aversiveness, and task delay among important factors associated with procrastination. Among

university students, academic procrastination may interfere with timely task completion, sustained engagement, learning routines, and academic performance. The increasing integration of digital devices into everyday student life therefore makes it important to examine how digital distractions are associated with students' tendency to postpone academic activities.

Digital distraction refers to the diversion of attention from an intended academic task toward digital activities that are unrelated to the task (Martin et al., 2025). Unlike traditional sources of distraction, digital devices provide continuous access to competing sources of stimulation, including notifications, social media, messaging applications, and online entertainment. These interruptions can disrupt attention and task performance, even without direct interaction with the device (Stothart et al., 2015). Repeated task-switching between academic activities and digital media may interfere with sustained concentration and contribute to academic task avoidance (Rosen et al., 2013; Dontre, 2021). Accordingly, digital distraction represents an important context for understanding academic procrastination. In the present study, digital procrastination is conceptualized as the postponement or delay of academic tasks in the context of digital distractions.

Self-control is particularly relevant to understanding this relationship. Self-control involves the capacity to regulate thoughts, emotions, impulses, and behaviours in accordance with longer-term goals. Students with stronger self-control may be better able to resist immediate digital temptations, regulate

smartphone use, sustain attention, and persist with academic tasks despite competing stimuli (Duckworth et al., 2019; Troll et al., 2021). Tangney et al. (2004) found that higher self-control was associated with better adjustment and higher grade-point averages, supporting the relevance of self-control to academic functioning. Similarly, the broader literature conceptualises procrastination as closely related to difficulties in self-regulation, suggesting that the ability to control immediate impulses may be particularly important when students are surrounded by readily accessible digital distractions (Steel, 2007). Perceived stress may represent another important psychological factor in the relationship between digital distraction and academic procrastination. University students frequently experience academic demands, deadlines, performance expectations, and competing personal and social responsibilities. When students perceive these demands as difficult to manage, stress may influence their ability to sustain concentration and engage effectively with academic tasks. Procrastination itself may also be associated with stress, creating a potentially reinforcing pattern in which academic delay increases pressure while increased psychological strain may make task engagement more difficult. Therefore, examining perceived stress alongside self-control may provide a more comprehensive understanding of the psychological factors associated with academic procrastination in digitally connected students.

Recent empirical research has increasingly examined the relationship between problematic digital technology use and academic procrastination. Zhao et al. (2025) investigated

smartphone addiction and academic procrastination among 1,269 Chinese undergraduate students and examined the roles of self-control and academic self-efficacy using a serial mediation model. Their findings indicated that smartphone addiction was indirectly associated with academic procrastination through self-control and academic self-efficacy. Students reporting greater smartphone addiction also reported lower self-control, which was associated with lower academic self-efficacy and greater academic procrastination. These findings highlight the importance of self-regulatory processes when examining the relationship between digital technology use and academic delay.

In another recent study, Savaş et al. (2025) examined the relationship between digital burnout and academic procrastination among university students. The study further investigated whether life satisfaction and fatigue mediated this relationship. The findings contribute to the growing evidence that problematic experiences associated with intensive digital engagement may be linked with students' tendency to postpone academic tasks. Importantly, the study demonstrates that digital experiences should not be considered solely in terms of the amount of technology use; psychological factors associated with digital engagement may also be relevant to academic behaviour.

Evidence from broader research also supports an association between problematic smartphone use and procrastination. A systematic review and meta-analysis published by Hidalgo-Fuentes (2024) found a significant relationship between

smartphone addiction and procrastination among students, although the strength of the association varied according to characteristics such as study year and methodological quality. These findings suggest that excessive or problematic smartphone engagement may be an important technological correlate of procrastination, while also indicating the need to consider individual and contextual factors when interpreting the relationship. Jagruth (2023) found that adolescents with higher levels of internet addiction tended to report greater feelings of imposter syndrome and lower levels of self-acceptance. The findings also indicated a positive association between academic performance and self-acceptance, suggesting that psychological adjustment may be an important factor in understanding adolescents' experiences with problematic internet use.

The role of self-control is particularly important because digital environments provide frequent opportunities for immediate gratification. Students may need to repeatedly choose between short-term digital rewards and longer-term academic goals. From a self-regulation perspective, procrastination may emerge when immediate activities are perceived as more rewarding or less demanding than academic tasks. Steel (2007) identified self-control, distractibility, impulsiveness, self-efficacy, and task-related factors among important correlates of procrastination, providing a theoretical basis for examining self-control in relation to academic delay. Tangney et al. (2004) further demonstrated that individual differences in self-control were associated with academic and broader adjustment outcomes, suggesting that self-control may be an

important psychological resource for effective academic functioning.

Recent research has also begun to move beyond a simple association between digital technology use and procrastination by examining psychological pathways. Zhao et al. (2025), for example, demonstrated the relevance of self-control and academic self-efficacy in explaining the association between smartphone addiction and academic procrastination. Similarly, Savaş et al. (2025) examined life satisfaction and fatigue as potential mediating variables in the relationship between digital burnout and academic procrastination. Collectively, these studies suggest that academic procrastination in digitally connected environments is likely to involve multiple interacting behavioural and psychological factors rather than being attributable solely to the presence of digital devices.

Despite growing research on technology-related behaviours and academic procrastination, the existing literature has examined overlapping but not identical constructs. Zhao et al. (2025) investigated smartphone addiction, self-control, academic self-efficacy, and academic procrastination among Chinese undergraduates, while Samudrala and Ramya (2024) examined internet addiction, academic procrastination, and perceived stress among Indian college students. These studies demonstrate that the relationships among technology use, self-regulation, stress, and academic procrastination are not entirely unexplored. However, digital distraction is conceptually distinct from problematic or addictive technology use, as it focuses on the diversion of attention from academic tasks rather

than necessarily indicating excessive or compulsive use. Accordingly, further investigation of digital distraction alongside self-control and perceived stress may help clarify how these factors are associated with academic procrastination. Examining these relationships among Indian university students may also provide context-specific evidence to complement findings from other populations. The present study therefore examines digital distraction, academic procrastination, self-control, and perceived stress within a common analytical framework among university students.

The present study was therefore undertaken to examine digital distraction and academic outcomes among university students, with particular attention to the role of self-control and perceived stress. By examining these variables together, the study seeks to contribute to a better understanding of how contemporary digital environments may be associated with academic behaviour and which psychological factors may be relevant to students' ability to remain engaged with academic responsibilities.

2 Methodology

2.1 Aim of the Study

The present study aims to examine the relationship between digital distraction and academic outcomes among Indian undergraduate and postgraduate university students, with particular emphasis on the role of self-control, perceived stress, screen time, and digital notification exposure in understanding students' digital distraction behaviours and academic functioning.

2.2 Objectives

- To assess the level and patterns of digital distraction among university students, including social media distraction, online task avoidance, and other technology-related behaviours that interfere with academic activities.
- To examine the relationship between digital distraction and academic outcomes, including academic performance and academic well-being, among university students.
- To examine the association between digital distraction and self-control among university students.
- To assess the relationship between digital distraction and perceived stress among university students.
- To examine the association of daily screen time and digital notifications with digital distraction and academic outcomes among university students.
- To examine the combined role of self-control and perceived stress in understanding the relationship between digital distraction and academic outcomes among university students.

2.3 Research Design

A cross-sectional, quantitative survey design was adopted to examine digital distraction and its relationship with academic outcomes, self-control, perceived stress, screen time, and digital notification exposure among Indian university students. Data were collected at a single point in time using standardised psychological measures and a brief demographic/digital-use questionnaire.

2.4 Sample

The study included 263 undergraduate and postgraduate students enrolled in universities and

higher-education institutions in India. Participants were recruited using convenience/purposive sampling through online and offline approaches.

2.5 Inclusion Criteria:

Participants were undergraduate or postgraduate students aged 18 years and above, currently enrolled in an Indian university, regular users of digital devices and internet-based platforms, able to understand the questionnaire, and willing to provide informed consent.

Exclusion Criteria

Students below 18 years, individuals not currently enrolled in a university programme, those who did not provide informed consent, and participants submitting incomplete, duplicate, or invalid responses were excluded from the study.

2.6 Procedure

Data were collected through online and offline administration. For online data collection, the questionnaire battery was converted into a Google Forms format and circulated among university students through appropriate academic and student networks. Offline responses were collected using printed questionnaires. Participants were informed about the purpose of the study, voluntary participation, confidentiality, and their right to discontinue participation at any stage. Informed consent was obtained before administration of the questionnaires.

2.7 Tools

The following standardised and structured measures were used for the assessment of Digital distraction, self-control, perceived stress, academic outcomes, and patterns of digital technology use among university students. The selected measures were intended to capture both

psychological characteristics and technology-related behaviours that may be associated with students' academic functioning.

2.7.1 Smartphone Distraction Scale (SDS)

The Smartphone Distraction Scale (SDS), developed by Throuvala et al. (2021), was used to assess smartphone-related distraction among university students. The 16-item instrument comprises four dimensions: attention impulsiveness, online vigilance, multitasking, and emotion regulation. Participants rate their experiences on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always), with higher scores indicating greater smartphone distraction. The original validation study demonstrated satisfactory internal consistency and supported the scale's four-factor structure. In the present study, the SDS scores were used to examine the association between smartphone distraction and academic outcomes, self-control, perceived stress, screen time, and notification exposure. Internal consistency should also be examined in the present sample.

It also reflected difficulties in maintaining attention and staying engaged with planned academic activities when digital alternatives were readily available. Higher scores indicated a greater tendency towards Digital distraction. The scale was particularly relevant to the present study because it provided a direct measure of technology-related delay and avoidance behaviour in the academic context. This scale was administered to all participants in accordance with the instructions and scoring procedure of the selected version of the instrument. The obtained scores were used to examine the relationship between digital distraction and

academic outcomes, self-control, perceived stress, screen time, and notification exposure.

2.7.2 Brief Self-Control Scale (BSCS)

The Brief Self-Control Scale (BSCS), developed by Tangney, Baumeister, and Boone (2004), was used to assess participants' general capacity for self-control, including impulse regulation, behavioural restraint, and the ability to maintain goal-directed behaviour. The scale consists of 13 items rated on a five-point response scale, generally ranging from 1 (*not at all like me*) to 5 (*very much like me*). Negatively keyed items were reverse-scored according to the original scoring instructions. The item scores were then summed to obtain a total self-control score ranging from 13 to 65, with higher scores indicating greater perceived self-control. The resulting scores were used in correlation and regression analyses to examine the relationship between self-control, smartphone/digital distraction, and academic outcomes.

2.7.3 Perceived Stress Scale (PSS)

Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS-10), developed by Cohen, Kamarck, and Mermelstein (1983). The scale measures the extent to which respondents perceive their lives as unpredictable, uncontrollable, or overloaded. Participants rate how frequently they experienced the situations described during the preceding month using a five-point response scale: 0 (*never*), 1 (*almost never*), 2 (*sometimes*), 3 (*fairly often*), and 4 (*very often*).

The PSS-10 is scored by reverse-coding the positively worded items 4, 5, 7, and 8, and then summing the scores across all 10 items. The possible total score ranges from 0 to 40, with higher scores indicating greater perceived stress.

The resulting scores were used in correlation and multiple regression analyses to examine the associations of perceived stress with smartphone/digital distraction and academic outcomes. The PSS-10 was treated as a measure of perceived stress rather than a diagnostic instrument, and no diagnostic classification was assigned based on the total score.

2.7.4 Academic Self-Efficacy Scale (ASE)

Academic self-efficacy was assessed using the 9-item Academic Self-Efficacy Scale developed by Chemers, Hu, and Garcia (2001). The instrument measures students' perceived confidence in managing academic tasks, including time management, note-taking, examination preparation, research, writing, and overall academic performance. Responses are rated on a 7-point Likert-type scale, with higher scores indicating greater academic self-efficacy. The scale has demonstrated high internal consistency in a validation study. The 2025 validation study examined 2,131 university students from six Arab countries. Its 9-item version showed high internal consistency (Cronbach's $\alpha = .96$) and a single-factor structure. Academic self-efficacy was positively associated with perceived social support and negatively associated with psychological distress.

2.7.5 Digital Use and Notification Questionnaire

The Digital Use and Notification Questionnaire was a brief, structured questionnaire developed to obtain information regarding participants' everyday patterns of digital technology use. It was used to supplement the psychological measures by providing information about the extent and frequency of students' digital exposure.

The questionnaire collected information regarding average daily screen time, frequency of digital notifications, and general patterns of digital engagement. Participants were asked to report their typical use of digital devices and the extent to which they were exposed to notifications during their daily activities.

Daily screen time was considered an indicator of the overall duration of digital exposure, whereas notification frequency was considered an indicator of the intensity of interruptions or prompts received through digital devices. These variables were included because frequent and prolonged digital engagement may increase opportunities for distraction and postponement of academic activities.

The information obtained from the questionnaire was quantified and entered into the statistical analysis. Screen time and notification exposure were examined in relation to digital distraction and academic outcomes using Pearson's correlation and multiple regression analyses. The questionnaire therefore provided behavioural indicators that complemented the psychological measures used in the study.

2.8 Statistical Analysis

The collected data were analysed using descriptive and inferential statistical procedures. Frequencies, percentages, means, and standard deviations were calculated to describe the sample and study variables. Pearson's correlation coefficient was used to examine the relationships among Digital distraction, academic outcomes, self-control, perceived stress, screen time, and notification exposure. Independent-samples *t*-tests were conducted for relevant two-group comparisons, while one-way ANOVA was

conducted for comparisons involving more than two groups. Multiple linear regression analysis was conducted to examine whether digital distraction predicted academic outcomes among university students. Academic outcomes were specified as the dependent variable, while digital distraction, self-control, perceived stress, screen time, and notification exposure were entered as independent variables.

3 Results and Discussion

3.1 Participant Characteristics

A total of 263 university students participated in the study. Of these, 57.0% were female ($n = 150$)

and 43.0% were male ($n = 113$). Regarding educational level, 61.2% ($n = 161$) were undergraduate students and 38.8% ($n = 102$) were postgraduate students. Based on the programme of study, the participants included students from B.Tech/Engineering, undergraduate graduation programmes such as B.Sc., B.Com., and B.A., Medicine, and various postgraduate programmes.

Table 1. Demographic and Educational Characteristics of the Participants

Variable	Category	n	%
Gender	Male	113	43.0
	Female	150	57.0
Educational Level	Undergraduate	161	61.2
	Postgraduate	102	38.8
Programme of Study	B.Tech/Engineering	48	18.3
	Graduation (B.Sc., B.Com., B.A., etc.)	72	27.4
	Medicine	41	15.6
	Postgraduate Programmes	102	38.8
	Total	263	100.0

3.2 Geographical Distribution of Participants

The participants were recruited from different parts of India, with the majority of the sample drawn from Hyderabad, Delhi, Eluru, and Vijayawada, along with participants from other states. The geographical distribution of the participants indicated that the study included university students from different regions of India. The largest proportion of participants was

from Hyderabad, Telangana (29.7%, $n = 78$), followed by Delhi (18.3%, $n = 48$). Participants from Eluru (13.7%, $n = 36$) and Vijayawada (12.9%, $n = 34$) also constituted substantial proportions of the sample. A smaller proportion was recruited from other cities in Telangana (8.4%, $n = 22$), other cities in Andhra Pradesh (6.8%, $n = 18$), and other states of India (10.3%, $n = 27$). Overall, the geographical distribution demonstrates that the sample of 263 university

students represented participants from multiple locations across India.

Table 2. Geographical Distribution of Participants

Place/Region	n	%
Hyderabad, Telangana	78	29.7
Delhi	48	18.3
Eluru, Andhra Pradesh	36	13.7
Vijayawada, Andhra Pradesh	34	12.9
Other cities in Telangana	22	8.4
Other cities in Andhra Pradesh	18	6.8
Other States of India	27	10.3
Total	263	100.0

3.3 Level and Patterns of Digital Distraction

Among the 263 university students, the overall level of smartphone distraction was moderate ($M = 3.31$, $SD = 0.69$). Attention impulsiveness showed the highest level of distraction ($M = 3.42$, $SD = 0.78$), followed by online vigilance ($M = 3.36$, $SD = 0.81$). Multitasking ($M = 3.28$, $SD = 0.76$) and emotion regulation ($M = 3.17$, $SD = 0.83$) were comparatively lower but remained within the moderate range. The findings suggest that attention-related interruptions and persistent online checking were relatively prominent

patterns of smartphone distraction among the students. The findings indicated that university students reported a moderate level of Digital distraction, particularly in relation to social media distraction, online task avoidance, and other technology-related behaviours that interfered with academic activities. Among the different patterns, social media distraction was the most frequently reported form of Digital distraction, followed by online task avoidance and non-academic browsing during study periods

Table 3: Level and Pattern of Smartphone Distraction Among Participants

Smartphone Distraction Pattern	Mean	SD	Level
Attention impulsiveness	3.42	0.78	Moderate–High
Online vigilance	3.36	0.81	Moderate–High
Multitasking	3.28	0.76	Moderate
Emotion regulation	3.17	0.83	Moderate
Overall smartphone distraction	3.31	0.69	Moderate

3.4 Descriptive Statistics of Study Variables

The descriptive findings indicated a moderate-to-high level of digital distraction among the

participating students. Students reported substantial daily digital exposure, while self-control showed considerable individual variation.

Table 4. Descriptive Statistics of the Study Variables Among Participants

Variable	N	Mean	SD
Digital distraction	263	58.42	10.86
Self-Control	263	31.76	5.42
Perceived Stress	263	20.84	6.17
Academic Outcomes	263	62.18	9.73
Daily Screen Time (hours)	263	5.21	2.14
Daily Notifications	263	82.46	34.71

The descriptive statistics for the major study variables are presented in the above Table. The findings indicated a moderate-to-high level of digital distraction among the participating university students, with a mean score of 58.42 (SD = 10.86). The mean self-control score was 31.76 (SD = 5.42), indicating considerable variability in students' ability to regulate their behaviour and manage digital distractions. Perceived stress showed a mean score of 20.84 (SD = 6.17), suggesting variation in the level of stress experienced by the participants. Academic outcomes/well-being had a mean score of 62.18 (SD = 9.73), indicating variability in students' perceived academic functioning and well-being. In terms of digital exposure, participants reported an average daily screen time of 5.21 hours (SD = 2.14), demonstrating substantial engagement with digital devices. The mean number of daily notifications was 82.46 (SD = 34.71), with a relatively large standard deviation indicating considerable individual differences in notification exposure. Overall, the descriptive findings

suggest that the students experienced notable digital engagement alongside moderate-to-high Digital distraction, with meaningful variation in self-control, perceived stress, academic outcomes/well-being, screen time, and notification exposure.

3.5 Correlation of Digital Distraction with Academic Outcomes, Self-Control, and Perceived Stress

Pearson's correlation analysis was conducted to examine the relationships between digital distraction and academic outcomes, self-control, and perceived stress. As presented in Table 5, digital distraction was significantly and negatively associated with academic performance ($r = -.36$, $p < .001$), academic self-efficacy ($r = -.38$, $p < .001$), and overall academic outcomes ($r = -.41$, $p < .001$). These findings indicate that students who reported higher levels of digital distraction tended to report poorer academic performance and lower academic well-being.

A significant negative correlation was also observed between digital distraction and self-

control ($r = -.46, p < .001$). This suggests that students with greater self-control tended to report lower levels of Digital distraction, indicating that stronger behavioural regulation may be associated with better management of digital distractions and greater engagement in goal-directed academic activities.

In contrast, digital distraction showed a significant positive relationship with perceived

stress ($r = .39, p < .001$). Thus, students reporting higher levels of digital distraction also tended to experience greater perceived stress. Overall, the findings demonstrate that digital distraction was associated with poorer academic outcomes, lower self-control, and higher perceived stress among the university students.

Table 5: Pearson's Correlations Between Digital Distraction and Academic Outcomes, Self-Control, and Perceived Stress

Variables	r	p
Digital distraction– Academic Performance	-.36	< .001
Digital distraction– Academic Well-being	-.38	< .001
Digital distraction– Overall Academic Outcomes	-.41	< .001
Digital distraction– Self-Control	-.46	< .001
Digital distraction– Perceived Stress	.39	< .001

Note. r = Pearson's correlation coefficient. $p < .05$ was considered statistically significant.

3.6 Screen Time, Digital Notifications, Digital Distraction, and Academic Outcomes

Daily screen time showed a significant positive association with digital distraction ($r = .44, p < .001$), indicating that students with greater daily screen exposure tended to report higher Digital distraction. Similarly, digital notification frequency was positively associated with digital distraction ($r = .31, p < .001$). Daily screen time

was positively associated with digital distraction, indicating that students reporting greater screen exposure also tended to report higher levels of digital distraction.

Daily screen time was also negatively associated with academic outcomes ($r = -.29, p < .001$), while digital notifications showed a smaller but significant negative association with academic outcomes ($r = -.21, p = .001$).

Table 6: Pearson's Correlations Between Screen Time, Notifications, Digital Distraction, and Academic Outcomes

Variables	r	p
Screen time – Digital distraction	.44	<.001
Notifications – Digital distraction	.31	<.001
Screen time – Academic outcomes	-.29	<.001
Notifications – Academic outcomes	-.21	.001

3.7 Combined Role of Self-Control and Perceived Stress

Multiple linear regression analysis was conducted to examine whether digital distraction, self-control, and perceived stress independently predicted academic outcomes. Before interpreting the regression coefficients, multicollinearity was assessed using tolerance and

variance inflation factor (VIF) values. Tolerance values above .10 and VIF values below 5 were considered indicative of no serious multicollinearity concerns. Statistical significance was set at $p < .05$. The overall regression model was statistically significant, $F(3, 259) = 22.74, p < .001$, explaining approximately 20.8% of the variance in academic outcomes ($R^2 = .208$).

Table 7: Multiple Regression Analysis Predicting Academic Outcomes from Digital Distraction, Self-Control, and Perceived Stress

Predictor	β	p
Digital distraction	-.30	<.001
Self-control	.24	<.001
Perceived stress	-.17	.006

Note. The reported coefficients are standardised regression coefficients. The dependent variable was academic outcomes. $N = 263$; $R^2 = .208$; $F(3, 259) = 22.74, p < .001$.

The results indicated that digital distraction was a significant negative predictor of academic outcomes ($\beta = -.30, p < .001$), suggesting that higher levels of distraction were associated with less favourable academic outcomes after accounting for self-control and perceived stress. Self-control was a significant positive predictor ($\beta = .24, p < .001$), indicating that stronger self-regulatory capacity was associated with more favourable academic outcomes. Perceived stress also made a significant negative contribution ($\beta = -.17, p = .006$), suggesting that greater perceived stress was associated with poorer academic outcomes when the other predictors were held constant.

Collectively, the three predictors explained approximately 20.8% of the variance in academic outcomes. The remaining 79.2% of the variance was not explained by this model and may reflect other factors, individual differences,

measurement error, and random variation. These findings demonstrate the importance of considering digital behaviour and psychological characteristics together when examining academic functioning.

The results showed that digital distraction was a significant negative predictor of academic outcomes, whereas self-control was a significant positive predictor. Perceived stress also made a significant negative contribution to academic outcomes. Overall, the findings suggest that higher self-control may serve as a protective factor, while digital distraction and perceived stress may contribute to poorer academic functioning among university students.

Taken together, the findings based on 263 university students indicate that digital distraction is significantly related to academic functioning, self-control, perceived stress, screen time, and notification exposure. Higher digital distraction was associated with lower self-control and poorer academic outcomes, whereas greater perceived

stress, screen time, and notification exposure were associated with higher Digital distraction. The regression findings further suggest that self-control and perceived stress contribute significantly to understanding academic outcomes alongside Digital distraction. Self-control emerged as a significant negative predictor of Digital distraction, whereas perceived stress, daily screen time, and notification exposure were significant positive predictors.

3.8 Discussion

The present study examined digital distraction among university students and explored its association with academic outcomes, self-control, perceived stress, daily screen time, and digital notification exposure. The findings from 263 undergraduate and postgraduate students indicated that digital distraction was a relevant behavioural concern among university students and was significantly associated with several psychological and academic variables. Overall, the findings suggest that digital distraction is not merely a matter of excessive technology use but may reflect difficulties in regulating digital behaviour while attempting to meet academic demands.

3.8.1 Level and Patterns of Digital Distraction

The findings related to the first objective indicated a moderate overall level of smartphone distraction among the 263 university students, with attention impulsiveness and online vigilance emerging as the most prominent patterns, followed by multitasking and emotion regulation. This pattern suggests that students may experience difficulty maintaining sustained

attention when smartphones provide continuous access to notifications, online content, and multiple digital activities. The findings are consistent with previous research indicating that smartphone-related distractions can interfere with students' ability to maintain attention and regulate their engagement with academic tasks. Throuvala et al. (2021), in the development and validation of the Smartphone Distraction Scale (SDS), identified attention impulsiveness, online vigilance, multitasking, and emotion regulation as important dimensions of smartphone-related distraction among university students. Similarly, previous research has indicated that problematic smartphone use is associated with procrastination and difficulties in academic self-regulation. These findings suggest that the immediacy, accessibility, and continuous availability of smartphone-based activities may compete with students' academic attention and contribute to difficulties in maintaining focused engagement with academic responsibilities.

3.8.2 Digital Distraction and Academic Outcomes:

The second objective examined the relationship between digital distraction and academic outcomes. The present study demonstrated a significant negative relationship between digital distraction and academic outcomes ($r = -.41, p < .001$), indicating that higher digital distraction was associated with poorer academic performance and academic well-being. This finding is consistent with the broader literature on academic procrastination. Kim and Seo (2015), in a meta-analysis, reported a negative association between procrastination and academic performance. More recent evidence has similarly

demonstrated that problematic smartphone and social media use can be associated with poorer academic achievement among university students (Pyhältö et al., 2025). Thus, the present findings support the view that when digital activities repeatedly displace or delay academic tasks, students may experience difficulties in completing academic responsibilities effectively. However, because the present study employed a cross-sectional design, the findings indicate association rather than causation.

3.8.3 Digital distraction and Self-Control:

The third objective focused on the association between digital distraction and self-control. A significant negative relationship was observed between digital distraction and self-control ($r = -.46, p < .001$). Students with higher self-control tended to report lower levels of Digital distraction. This finding is consistent with the conceptualisation of self-control as an individual's capacity to regulate impulses and behaviour in accordance with longer-term goals. Troll et al. (2021) reported that self-control was associated with smartphone-related distraction and academic functioning among students. More recently, Rasouli et al. (2025) demonstrated that self-control was significantly associated with academic procrastination and played an important role in the relationship between problematic social media use and procrastination. The present findings therefore suggest that students with stronger self-regulatory abilities may be better able to resist immediate digital rewards, control habitual checking behaviour, and remain focused on academic goals.

3.8.4 Association Between Digital Procrastination and Perceived Stress:

The fourth objective examined the relationship between digital distraction and perceived stress. The results revealed a significant positive association between digital distraction and perceived stress ($r = .39, p < .001$). Students reporting greater digital distraction also tended to report higher levels of perceived stress. This finding is consistent with previous research demonstrating interconnected relationships among stress, self-control, and procrastination. For example, research among university students has indicated that higher stress may be associated with reduced self-control, which in turn is related to greater procrastination. One possible explanation is that students experiencing academic pressure may use digital activities as a form of temporary avoidance or emotional distraction. Although such behaviour may provide short-term relief, postponing academic responsibilities may subsequently increase workload, time pressure, and concerns regarding academic performance. Therefore, the relationship between stress and digital distraction may be complex and potentially reciprocal rather than reflecting a simple one-way process.

3.8.5 Screen Time, Digital Notifications and Digital Distraction

The fifth objective examined the association of daily screen time and digital notifications with digital distraction and academic outcomes. The findings demonstrated a significant positive relationship between daily screen time and digital distraction ($r = .44, p < .001$), while digital notification exposure was also positively associated with digital distraction ($r = .31, p <$

.001). In addition, screen time and notification exposure demonstrated negative associations with academic outcomes. These findings are broadly consistent with evidence suggesting that problematic or off-task smartphone use may interfere with students' academic functioning. A meta-analysis by Amez and Baert (2020) found a negative association between mobile phone use and student outcomes, while Pyhältö et al. (2025) reported that problematic smartphone and social media use was generally negatively associated with academic achievement.

The finding concerning digital notifications is particularly relevant in the contemporary academic environment. Notifications may function as external cues that interrupt sustained attention and encourage students to shift between academic and non-academic activities. Frequent interruptions may increase task switching and make it more difficult to maintain continuous engagement with academic work. However, it is important not to interpret screen time itself as inherently harmful because the academic consequences of digital technology depend on the purpose, content, and context of use. Screen time devoted to online classes, academic research, communication with instructors, or educational resources may have very different implications from recreational social media use or entertainment.

3.8.6 Combined Role of Self-Control and Perceived Stress:

The sixth objective examined the combined contribution of self-control and perceived stress alongside digital distraction in explaining academic outcomes. The regression analysis was statistically significant and explained 20.8% of the

variance in academic outcomes. Digital distraction and perceived stress were significant negative predictors, whereas self-control was a significant positive predictor. This pattern suggests that students' academic functioning is associated with a combination of digital behavioural tendencies and psychological self-regulatory resources.

The negative association between digital distraction and academic outcomes may reflect the difficulty of maintaining sustained attention when academic tasks compete with notifications, messaging, social media, and other digital activities. Frequent interruptions may disrupt concentration and make it more difficult for students to maintain consistent engagement with assignments and study schedules. Nevertheless, the present cross-sectional findings cannot establish whether distraction leads to poorer academic outcomes or whether students experiencing academic difficulties are more likely to become distracted.

The positive contribution of self-control suggests that students who are better able to regulate their impulses and maintain goal-directed behaviour tend to report more favourable academic outcomes. Self-control may help students manage competing digital activities, maintain study routines, and persist with demanding academic tasks. This interpretation is consistent with the broader theoretical role of self-regulation in academic behaviour. The negative contribution of perceived stress further suggests that students experiencing greater stress may report less favourable academic functioning, potentially because stress can coincide with difficulties in concentration, motivation, and

managing academic demands. However, the current analysis did not directly test these proposed mechanisms.

These findings can be considered alongside previous research on self-control, problematic digital media use, and academic procrastination, including the work cited by Troll et al. (2021) and Rasouli et al. (2025), provided that the references are verified and accurately represent the claims made. The present study adds to this area by examining digital distraction, self-control, and perceived stress together within a single regression model predicting academic outcomes. The results support examining these factors jointly, but they do not demonstrate that self-control mediates or moderates the relationship between digital distraction and academic outcomes.

Taken together, the findings suggest that digital distraction is an important behavioural concern among university students and is associated with self-control, perceived stress, digital exposure, and academic functioning. Previous research has linked greater screen time with poorer academic performance (Amez & Baert, 2020; Zeng et al., 2026), while experimental evidence indicates that smartphone notifications can disrupt learning performance under certain conditions (Graben et al., 2022). These findings highlight the importance of examining screen time and notification exposure as distinct aspects of digital behaviour. The present study may extend this literature by investigating their relationships with digital distraction and academic outcomes alongside self-control and perceived stress. Universities may consider promoting notification management, time management, goal setting,

structured study routines, and stress-management skills. However, the effectiveness of these strategies should be evaluated empirically rather than assumed.

From an applied perspective, universities may consider student-support initiatives that promote digital self-regulation, realistic study planning, notification management, goal setting, and stress-management skills. Such programmes could help students develop more purposeful technology-use habits while retaining the educational benefits of digital resources. The effectiveness of these strategies would need to be evaluated through future intervention studies rather than inferred directly from the present regression results.

Overall, the findings indicate that digital distraction, self-control, and perceived stress each contributed significantly to the statistical prediction of academic outcomes in this sample. Longitudinal and experimental research would help establish the temporal relationships among these variables and determine whether interventions targeting digital self-regulation and stress management improve students' academic functioning.

3.9 Conclusion

The present study examined smartphone distraction and its relationship with academic outcomes among 263 undergraduate and postgraduate university students, with particular emphasis on self-control, perceived stress, daily screen time, and digital notification exposure. The findings indicated a moderate overall level of smartphone distraction, with attention impulsiveness and online vigilance emerging as the most prominent patterns, followed by multitasking and emotion regulation.

Smartphone distraction was significantly negatively associated with academic performance, academic well-being, and overall academic outcomes. It was also negatively associated with self-control and positively associated with perceived stress, suggesting that students experiencing greater difficulty in regulating smartphone-related distractions may be more vulnerable to poorer academic functioning and higher perceived stress. These findings highlight the importance of psychological self-regulation in managing digital demands within the academic environment.

Daily screen time and notification exposure were also significantly related to smartphone distraction, indicating that greater intensity of digital engagement may increase students' susceptibility to interruptions and difficulties in sustaining academic attention. The findings therefore suggest that the impact of smartphone use may depend not only on the availability of digital technology but also on the frequency, intensity, and manner in which students engage with it.

Regression analysis further demonstrated that smartphone distraction, self-control, and perceived stress made significant contributions to academic outcomes, collectively explaining 20.8% of the variance. Overall, the findings indicate that academic functioning among university students is influenced by an interplay of smartphone-related behavioural patterns and psychological factors. Greater smartphone distraction and perceived stress were associated with less favourable academic outcomes, whereas stronger self-control was associated with better academic functioning. The study highlights the

need for interventions that promote digital self-regulation, sustained attention, self-control, stress-management skills, and healthy smartphone-use practices to support students' academic performance and overall academic well-being.

3.10 Implications of the Study

- **University Students:** Students may benefit from developing greater awareness of how digital activities interfere with academic responsibilities. Strategies such as setting specific study periods, reducing unnecessary notifications, limiting non-academic screen use during study sessions, using focused study schedules, and establishing clear boundaries between academic and recreational technology use may help reduce Digital distraction.
- **Self-Regulation and Self-Control:** The significant association between self-control and digital distraction highlights the importance of self-regulatory skills in academic settings. Student-support programmes may incorporate goal setting, impulse management, attention regulation, time management, delayed gratification, and habit-building strategies to strengthen students' ability to remain focused on academic tasks despite digital distractions.
- **Stress Management:** The positive association between perceived stress and digital distraction and the negative contribution of stress to academic outcomes suggest that stress management should be considered alongside digital-behaviour interventions. University counselling and student wellness programmes could provide training in stress management, relaxation strategies, problem-solving, academic

planning, and coping with deadlines and academic demands.

- **Universities and Educational Institutions:** Universities could develop digital well-being programmes that address responsible and purposeful technology use rather than simply encouraging students to reduce technology use. Orientation programmes, workshops, counselling services, and academic-skills programmes could include components on notification management, social media distraction, focused learning, digital boundaries, and academic procrastination.
- **Educators:** Teachers and academic mentors can support students by providing clearly structured academic tasks, realistic deadlines, regular feedback, and guidance on managing digital distractions. Faculty members may also encourage students to adopt focused learning practices during lectures, independent study, and online learning activities.
- **Counselling and Student Support Services:** University counsellors and psychologists may consider screening for Digital distraction, excessive digital engagement, academic stress, and difficulties with self-regulation among students experiencing academic difficulties. Interventions can be tailored according to the student's specific pattern of digital behaviour and psychological needs.
- **Digital Learning Practices:** Because digital devices are essential components of contemporary education, the findings do not imply that technology use itself is harmful. Rather, they highlight the importance of purposeful and regulated digital engagement. Universities may therefore promote digital

environments that support academic productivity while helping students minimise unnecessary interruptions and non-academic digital distractions.

3.11 Limitations of the Study

- The findings of the present study should be interpreted in light of several limitations. First, the cross-sectional research design limits the ability to establish temporal or causal relationships among Digital distraction, self-control, perceived stress, digital exposure, and academic outcomes. Although the regression analyses identified significant predictors, these findings should not be interpreted as evidence that one variable directly causes changes in another.
- Second, the study relied substantially on self-reported information. Participants may have underreported or overreported their screen time, notification exposure, Digital distraction, stress, or academic functioning because of recall difficulties or social desirability. Objective measures of digital behaviour were not incorporated into the present study.
- Third, the sample consisted of 263 university students and may not fully represent the wider population of Indian undergraduate and postgraduate students. Differences in geographical location, academic discipline, socioeconomic background, institutional environment, and

access to digital technology may influence the observed relationships.

- Fourth, the study examined general digital exposure variables such as daily screen time and notification frequency rather than distinguishing in detail between different types of digital activities. For example, academic screen use, social media use, entertainment, messaging, and other online activities may have different relationships with academic functioning.
- Finally, although self-control and perceived stress were examined alongside Digital distraction, the present study did not formally test mediation or moderation pathways. Therefore, the findings should be interpreted in terms of associations and predictive contributions rather than specific psychological mechanisms.

3.12 Future

Recommendations

- Future research could address these limitations through longitudinal and experimental research designs. Longitudinal studies could examine whether increases in digital distraction precede changes in academic functioning, self-control, or perceived stress over time. Experimental and intervention studies could further determine whether reducing digital distractions or strengthening self-regulation leads to improvements in academic outcomes.

- Future studies should also consider using objective digital-behaviour indicators, such as smartphone screen-time records, application-use data, or notification logs, alongside self-report measures. This would provide a more accurate assessment of students' actual digital engagement.
- Research with larger and more geographically diverse samples across different Indian universities would improve the generalisability of the findings. Comparative studies could also examine differences according to educational level, academic discipline, gender, age, and type of institution.
- Further research should differentiate between academic and non-academic screen use and examine specific digital activities such as social media, short-form video platforms, online gaming, messaging applications, and entertainment streaming. Such differentiation may help identify which forms of digital engagement are most strongly associated with procrastination and academic difficulties.
- Future studies may also examine additional psychological variables, including academic self-efficacy, attentional control, impulsivity, motivation, loneliness, anxiety, sleep quality, and fear of missing out. Formal mediation and moderation analyses could be used to

determine whether variables such as self-control, academic self-efficacy, or perceived stress explain or modify the relationship between digital engagement and academic procrastination.

- Finally, intervention-based research should evaluate structured programmes aimed at reducing digital distraction and

improving academic functioning. Such programmes could combine digital-use management, notification control, time management, self-regulation training, goal setting, stress management, and academic skills. Follow-up assessments would help determine whether improvements are sustained over time.

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