

SMARTPHONE ADDICTION AND ACADEMIC PROCRASTINATION IN UNIVERSITY STUDENTS: PSYCHOLOGICAL WELLBEING AS A MODERATOR

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Abstract

Smartphones have become essential tools in modern life, facilitating communication, education, and business. However, excessive use can lead to addiction, disrupting daily routines and negatively affecting social, academic, and practical functioning. This study examines how psychological well-being moderates the relationship between smartphone addiction and academic procrastination among university students. A total of 168 students (86 men, 82 women) completed a paper-based survey. The study employed a cross-sectional correlational design using purposive sampling. The instruments included the Smartphone Addiction Scale, the Procrastination Assessment Scale-Students, and the Psychological Well-Being Scale. The results indicated positive but non-significant correlations among smartphone addiction, academic procrastination, and psychological well-being. However, moderation analysis revealed that psychological well-being significantly moderates the effect of smartphone addiction on academic procrastination. Gender differences showed that men scored significantly higher on smartphone addiction and academic procrastination than women. In contrast, women reported higher psychological well-being scores, although this difference was not statistically significant. The study discusses implications for student welfare, acknowledges its limitations, and offers recommendations for future research.

Keywords: Smartphone Addiction, Academic Procrastination, Psychological wellbeing.

Introduction

A smartphone is a device that executes various functions of a computer and typically possesses a touchscreen, internet connectivity, and an operating system capable of running downloaded applications (Cordella et al., 2021; Melumad & Pham, 2020; Michels et al., 2020;

Shaikh et al., 2023). These devices have revolutionized communication and daily life, with over 3.5 billion users worldwide (McHaney, 2023; Miller et al., 2021). However, the widespread adoption of smartphones has raised concerns regarding smartphone addiction, which has been linked to psychological, social, and academic issues, particularly among young adults (King & Dong, 2017; Haug et al., 2015; Pera, 2020).

A survey conducted in 2017 found that 54% of adults felt they used their smartphones excessively, and 34% experienced disruptions in sleep patterns (Horwood & Anglim, 2019). Research on technology addiction, including gaming and social media, often overlaps with smartphone addiction (Harris et al., 2020; Khan et al., 2022). Excessive smartphone use shares traits with addiction, such as obsessive checking and neglecting responsibilities, which can hinder academic performance (Billieux et al., 2015). The increasing time spent on smartphones detracts from students' focus, leading to procrastination and poor academic performance (Ahmed et al., 2020; Kutluay & Karaca, 2024; Malla, 2021; Wang, 2022).

Procrastination, defined as the act of delaying or postponing tasks (Codina et al., 2020; Lim & Javadpour, 2021), is a common issue among students. Academic procrastination specifically refers to the unnecessary delay in completing academic tasks, such as assignments, projects, and activities (Hong et al., 2021; Peixoto et al., 2021; Tao et al., 2021). This behavior is a widespread challenge, affecting both emotional well-being and academic performance, with research showing that between 80% and 95% of students engage in procrastination (O'Brien, 2002). Procrastination often arises from a disconnect between goals and actions, leading to increased stress and avoidance (Sirois, 2023). In addition to negatively impacting academic outcomes, procrastination is associated with emotional distress (ERTELEME, 2019; Jochmann et al., 2024; Стоянов, 2024). To effectively address procrastination, it may be necessary to target underlying emotional factors and enhance motivation through academic support (Grunschel et al., 2016; Kachgal et al., 2001; Nábělková & Ratkovská, 2015; Rebetez et al., 2015).

Psychological well-being encompasses mental, physical, and social health (Pressman et al., 2020), including factors like self-acceptance and personal growth, which are linked to academic success (Diener et al., 2018; Ryff, 1989). Improving students' well-being can lead to better academic engagement and performance (Guamanga et al., 2024; Lo & Ip, 2022). Moreover, social media use, self-regulation, and career development goals significantly affect psychological well-being, which in turn positively impacts academic performance (Zhang et al., 2023).

Despite considerable research on smartphone addiction, a comprehensive theoretical framework is still lacking. Davis's cognitive-behavioral model (2001) and the uses and gratifications theory (Kuss & Griffiths, 2017) help explain why smartphones are prone to addiction. Additionally, evidence links smartphone addiction to academic procrastination, particularly through its effect on self-regulation and time management (Li et al., 2020; Yang et al., 2019). Gender differences have also been observed, with men more likely to develop smartphone addiction, especially due to increased online social interactions (Khan et al., 2024). This addiction is associated with deteriorating psychological well-being and mental health problems like depression and aggression due to rumination and loneliness (Lian et al., 2021; Shahid et al., 2024). Moreover, a previous study on adolescents and young adults revealed that problematic smartphone use increases the risk of deteriorating academic performance, increases academic procrastination, and negatively impacts psychological well-being (Kaya, 2024).

Although considerable research has examined the impact of smartphone addiction on academic procrastination, the role of psychological well-being as a moderating factor in this relationship has not been sufficiently explored—particularly within the Pakistani context. The present study aims to address this gap by investigating how psychological well-being moderates the relationship between smartphone addiction (predictor) and academic procrastination (outcome) among university students. Understanding this dynamic could help inform the development of targeted interventions aimed at improving both academic performance and mental health.

Hypotheses

1. Smartphone addiction is likely to relate with academic procrastination positively and negatively with psychological wellbeing in university students.
2. Psychological wellbeing is likely to moderate the relationship between smartphone addiction (independent variable) and academic procrastination (dependent variable) in university students.
3. Gender differences are expected in the study variables, including smartphone addiction, academic procrastination, and psychological wellbeing, among university students.

Method

Study Design

The study adopted cross-sectional correlational study design to examine the relationship between smartphone addiction, academic procrastination, and psychological well-being among university students.

Sampling

A random purposive sampling technique was used to collect data from 168 university students comprising 86 men and 82 women, aged 18 to 25.

Inclusion Criteria

The inclusion criteria comprised being university students (men and women) aged 18 to 25, having owned a smartphone for at least one year, and being residents and citizens of Pakistan.

Research Instruments

Smartphone Addiction Scale-Short Version

The SAS-SV (Kwon et al., 2013) measures smartphone addiction, consisting of 10 items rated on a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). The scale has a high reliability coefficient of 0.96.

Procrastination Assessment Scale-Students

The Procrastination Assessment Scale–Students (PASS), developed by Solomon and Rothblum (1988), consists of 44 items rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The Cronbach's alpha for the PASS is reported to be 0.93, indicating excellent internal consistency.

Psychological Well-Being Scale

The Psychological Wellbeing Scale is a 42-item instrument was developed by Ryff and Keyes in 1995. The scale uses a 7-point Likert format (1 = strongly disagree to 7 = strongly agree) and has a reliability coefficient ranging from 0.86 to 0.93.

Ethical Considerations

The study adhered to strict ethical guidelines. Permission to use the scales was obtained from the original authors, and approval for data collection was secured from the relevant authorities. Informed consent was obtained from all participants, and confidentiality and anonymity were ensured. Participants were

informed about the study's objectives and were free to withdraw at any time without any consequences. Ethical approval was granted by the research ethics committee prior to data collection. Data were analyzed using SPSS version 26.

Results

Demographic Characteristics

Table 1

Characteristics of Respondents (N=168)

Characteristics	<i>f</i>	%	<i>M</i>	<i>SD</i>
Gender				
Men	86	51		
Women	82	49		
Age			22.39	2.02
Education				
Bachelor	116	69		
Master	52	31		

Note. *f*= Frequency, %= Percentage, *M*= Mean, *SD*= Standard Deviation

The sample consisted of 168 participants, including 51% men (86 participants) and 49% women (82 participants). The mean age was 22.39 years, with a standard deviation of 2.02. Regarding educational status, 69% were enrolled in bachelor's programs (116 participants), while 31% were enrolled in master's programs (52 participants).

Correlational Analysis

Table 3

Correlation Matrix between Study Variables (N=168)

Variables	1	2	3	<i>M</i>	<i>SD</i>
1.Smartphone addiction	-	.12	.06	43.02	5.61
2.Academic procrastination		-	.09	118.53	33
3.Psychological wellbeing			-	62.44	11

Note. *M*=Mean, *SD*= Standard Deviation,

The above table indicated that Smartphone addiction, academic procrastination and psychological wellbeing are positively related to one another but that relationship is not statistically significant.

Moderation Analysis

Table 4

Moderation Analysis Using Hayes Process Macro 4.2, Model 1 (N=168)

Variables	β	<i>SE</i>	<i>t</i>	<i>P</i>	<i>R</i> ²	<i>F</i>	<i>LLCI</i>	<i>ULCI</i>
					.04	2.61		
SA	-6.02**	2.66	-2.26	<.01			-11.28	-.77
PW	-4.37*	1.93	-2.25	<.05			-8.2	-.54
SPA X PW	.10**	.04	2.41	<.01			.02	.19

Note. **p*<.05. ***p*<.01, SA= Smartphone Addiction, PW=Psychological Wellbeing

Hayes' Process 4.2, Model 1 was used to explore the moderating role of psychological well-being in the relationship between smartphone addiction and academic procrastination. The

results indicate a significant direct effect of smartphone addiction on academic procrastination. Psychological well-being also significantly predicts academic procrastination. Additionally, the interaction between smartphone addiction and psychological well-being is significant, suggesting that psychological well-being significantly moderates the effect of smartphone addiction on academic procrastination in university students.

Independent Sample *t* test

Table 5

Mean Comparison of Study Variables between Men and Women (N=168).

Variables	Men		Women		<i>t</i> (166)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
SMA	44.02*	5	42	6.05	2.34	.02	0.36
PW	62.23	10.34	62.65	11.65	-.25	.80	0.03
AP	125.36**	31.85	111.37	32.62	2.81	.006	0.43

Note. * $p < .05$, ** $p < .01$, SMA= Smartphone Addiction, PW= Psychological Wellbeing, AP= Academic Procrastination

The above table depicts that men scored significantly high on smartphone addiction and academic procrastination than women. The mean score for women in study variable psychological wellbeing is higher than men though not significantly.

Discussion

Previous research has highlighted the negative impact of smartphone addiction on academic performance among university students. However, the moderating role of psychological well-being in this relationship—particularly within the context of Pakistan—remains underexplored. This study aims to fill this gap by examining how psychological well-being may influence the relationship between smartphone addiction and academic procrastination in university students.

Correlational analysis revealed a positive, though non-significant, relationship between smartphone addiction, academic procrastination, and psychological well-being. Previous studies have reported similar trends, suggesting that smartphone use can enhance social connections and serve as a coping mechanism against loneliness, particularly among university students (Chen & Lyu, 2024). In the Pakistani context, smartphones are frequently used for social media engagement, which can elevate mood and reduce feelings of isolation. Moreover, the present findings are consistent with research showing a positive link between smartphone addiction and academic procrastination (Li et al., 2020; Liu et al., 2022). A recent Pakistani study also reported that problematic smartphone use is significantly associated with academic performance (Anwar et al., 2025). Additionally, studies have found that excessive smartphone use—particularly involving online games, social media, and general overuse—not only contributes to negative outcomes such as cyberbullying, low self-esteem, depression, and aggression but also increases academic procrastination (Anwar et al., 2025; Bashir et al., 2024; Shahid et al., 2024; Shahid et al., 2025; Sindhu et al., n.d.; Zehra et al., 2025).

It is noteworthy that although the associations between the study variables were positive, they were not statistically significant. This could be due to several factors, such as a small sample size, partial use of smartphones for academic purposes, or exposure to entertaining content (e.g., reels) that may not adversely affect well-being. These insignificant associations warrant further investigation in future research.

Hayes Process 4.2 was used to examine the moderating role of psychological well-being in the relationship between smartphone addiction and academic procrastination. The results indicated that psychological well-being significantly moderates this relationship among university students. Research has shown that low psychological well-being and academic procrastination are interrelated, suggesting the need for interventions targeting both areas (Mortazavi, 2016). Similarly, problematic smartphone use has been shown to predict academic procrastination and anxiety, with self-regulation playing a key mediating role (Yang et al., 2019). Additionally, a significant positive relationship has been reported between smartphone addiction and academic procrastination, along with a negative link to quality of life (Albursan et al., 2022). However, there is very limited literature specifically addressing the moderating role of psychological well-being in the association between smartphone addiction and academic procrastination among university students. This study contributes to that gap, suggesting that intact psychological well-being may buffer the negative effects of smartphone addiction on academic behavior. When students experience less mental distress—supported by strong psychological well-being—they may be less likely to procrastinate academically, even when smartphone use is high.

An independent samples t-test depicts that men scored significantly higher than women in both smartphone addiction and academic procrastination. In contrast, women reported higher psychological well-being, although this difference was not statistically significant. These findings align with previous research showing greater smartphone addiction among men (Khan et al., 2024). While Nada and Sari (2023) reported no significant gender differences in procrastination, the present findings suggest that men are more likely to engage in academic procrastination. Although some studies, such as Bashir et al. (2024), observed slightly higher psychological well-being among men, others, like Shahid et al. (2024), reported higher depression scores among women. In this study, the slightly elevated psychological well-being among women may be due to men's greater reliance on smartphones, which could negatively impact their mental health. This is further supported by Balkis and Duru (2017), who found that male undergraduate students exhibited higher academic procrastination and lower academic life satisfaction compared to females.

In the Pakistani context, societal expectations often place greater academic and professional pressure on men, contributing to increased stress, smartphone use, and procrastination. On the other hand, women are typically subject to closer family supervision and emotional support, fostering healthier routines and emotional regulation. Moreover, restricted social mobility and traditional gender roles may limit distractions, potentially supporting better psychological well-being among female students.

Implications

These findings underscore the importance of taking active steps to address smartphone addiction among students. Introducing digital literacy programs, raising mental health awareness, and implementing supportive institutional policies can help promote healthier and more responsible smartphone use. These efforts can also educate students about how excessive phone use can affect their academic performance and increase procrastination. Promoting

psychological well-being through interactive workshops, seminars, social media campaigns, and support from parents can go a long way in helping students stay mentally and academically balanced. It's also important to encourage young adults to seek help when they're struggling. The government can play a key role by running awareness campaigns through the media and developing effective policies that promote digital literacy across the country.

Limitations and Recommendations

A key limitation of this study is its focus on university students aged 18 to 25, which restricts the generalizability of the findings. Future research should include a broader age range to provide a more comprehensive understanding. Additionally, the relatively small sample size of 168 participants limits the robustness of the findings. Future studies should aim to use larger, more diverse samples. Another limitation is the use of purposive sampling; future studies should consider employing stratified or random sampling to enhance representativeness. Most importantly, the lack of significant associations among the study variables suggests the need for further research to explore these relationships more deeply, possibly using longitudinal designs and qualitative approaches.

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