EFFECT OF SMARTPHONE ADDICTION AND MENTAL DISTRESS ON UNIVERSITY STUDENT'S ACADEMIC PROCRASTINATION

Dr. Mahreen Siddiqui[*1], Zainab Siddiqui[2], Faiqa Aziz[3], Serwish[4], Zeshan Tahir[5]

[*1,2,3,4,5]*Research Supervisor & lecturer, Department of Psychology University of Balochistan Quetta*

[*1]mehreenjabeenqta@gmail.com, [2]zainisid777@gmail.com, [3]faiqaaziz36@gmail.com, [4]serwish76@gmail.com, [5]zeeshanharifal4@gmail.com

Corresponding Author: *
Dr. Mahreen Siddiqui

Abstract

Smartphone addiction is becoming progressively predominant in 21st-century life as the world cultivates more digital. The structures of smartphone such as lightness, direct contact to information, and capacity to enable statement make them controlling possessions. Therefore, this study is planned to find out the association between Smartphone Addiction, Academic Procrastination and Mental Health among young adults. Sample of the study were selected through convenient sampling technique and it consisted of 260 students from Bachelors of Science. A total of 130 male and 130 female students from University of Balochistan and Balochistan University of Information Technology, Engineering and Management Sciences with ages ranged from 18-25 years. Measures of the study were a) Smartphone Addiction Scale – Short Version (SAS-SV, Kwon et al., 2013), b) Depression Anxiety Stress Scale (Dass-21, Lovibond & Lovibond, 1995) and d) Academic Procrastination Scale (APS, McCloskey, 2011). Findings of the study revealed that smartphone addiction was significantly and positively correlated with mental health issues, indicating that higher levels of smartphone addiction is associated with more mental health problems. There is a significant positive association between smartphone addiction and academic procrastination.

INTRODUCTION

Smartphone dependency is becoming increasingly prevalent in 21st-century life as the world grows more digital. The features of Smartphone such as portability, instant access to information, and ability to facilitate communication make them powerful assets. However, the same features have given rise to smartphone addiction, associated with compulsive checking of the phone, excessive use to avoid boredom and reduced face to face social interactions (Jameel et al., 2019).

Studies have shown time and again that students are most at risk of falling into the addiction trap posed by smartphones because of its educational and social function, the convergence of these functionalities in a single device blurs the boundary between productive and unproductive use. In other terms, smartphones have become deeply integrated into their daily lives. A meta-analysis from 24 nations revealed moderate smartphone addiction on the Smartphone Addiction Scale (SAS) its short version (Olson et al., 2020). A study conducted in Islamabad and Rawalpindi specifies that approximately 60% of students exhibit signs of addiction with the use of social networking applications as a major indicator of addiction (Khalily et al., 2020). Another study among medical and dental students in Karachi found that 48% of students displayed mobile phone addiction-like

behaviors, with a higher prevalence among females (Kamal et al., 2022). Additionally, the contributing factors of smartphone addiction were identified to be impulsivity, stress levels, and social pressures (Lashari et al., 2023)

Smartphone addiction, also termed as "problematic smartphone use (PSU)", is increasingly being recognized as a behavioral addiction. According to the American Psychological Association (APA), behavioral addictions can lead to significant impairment in personal, social, and occupational domains, even in the absence of substance use. Among university students, it proves harmful in two ways, firstly, the addiction affects academic productivity due to constant procrastination; secondly, it undermines academic performance due to mental health Issues, as students might enhance the use of smartphones as a coping mechanism to deal with their stresses.

As mentioned above, one of the consequences of smartphone addiction in students is academic procrastination, defined as the tendency to delay or postpone the starting and completion of academic tasks. According to Steel (2007), procrastination is closely tied to self-regulation failure and is often fueled by task aversion, fear of failure, perfectionism, and poor time management. Based on a study, between 80% and 95% of college students procrastinate, with about 50% of them doing so frequently and problematically (Konca & Semiz, 2009).

There is a consistent negative impact of smartphone addiction on student's academic performance. According to Simbolon and Daulay (2022) higher levels of academic procrastination are significantly correlated with increased smartphone addiction, this suggests that excessive smartphone use impairs students' capacity to effectively manage academic tasks. In the same way, Albursan et al. (2022) conducted a study on university students in different nations during the COVID-19 pandemic and found that smartphone addiction was very common and that it was closely linked to higher levels of academic procrastination, particularly among female students. Benjamin (2022) found a number of behavioral and psychological characteristics associated with smartphone addiction that adversely affect academic performance with procrastination being a significant mediating factor in a study of Pakistani university students.

The second negative aspect associated with smartphone addiction as mentioned above was mental health. The World Health Organization defines mental health as a state of mental well-being that allows people to manage life's stressors, reach their full potential, learn and work effectively, and give back to their community (World Health Organization, 2022). It is not merely the absence of mental disorders but rather a dynamic continuum influenced by biological, social, psychological, and environmental factors (Bhugra et al, 2013). The relationship among smartphone addiction, academic procrastination, and mental health appears to be reciprocal and cyclical. Excessive smartphone use can lead to procrastination through increased distraction and avoidance behaviors. In turn, procrastination exacerbates psychological distress, such as anxiety, guilt, and low self-worth (Sirois & Tosti, 2012). As mental health deteriorates, individuals may increase their smartphone use as a maladaptive coping strategy, further reinforcing the cycle.

Smartphone usage continues to increase globally, especially among young adults and university students, concerns have grown regarding its potential for addictive behaviors and the psychological implications. (Elhai et al., 2017). Previous studies have established that excessive smartphone use is associated with symptoms of depression, anxiety, and stress (Demirci et al., 2015). Similarly, academic procrastination has been linked to negative psychological outcomes, including lower academic achievement, increased stress, and diminished life satisfaction (Sirois et al., 2013). Given that smartphones often serve as a source of distraction, their role in fostering procrastination behaviors is also increasingly recognized (Duke & Montag, 2017). Rozgonjuk et al. (2018) found that smartphone overuse was significantly related to academic procrastination and psychological distress, suggesting that digital behaviors may mediate students' mental health Despite the growing body of literature, relatively few studies have explored these three phenomena—smartphone addiction, academic procrastination, and mental health— in one study. By addressing this gap, the present

research provides a holistic examination of how behavioral addiction (i.e., smartphone addiction) interacts with behavioral regulation (i.e., procrastination) and mental health outcomes.

Literature Review

The existing body of research points towards increasing prevalence of smartphone addiction, its influence on academic procrastination and other associated factors. Sujadi and Ahmad (2023) concluded that both academic burnout and smartphone addiction were predictors of procrastination in Indonesian students, with smartphone usage being the more significant predictor. Also, Nadarajan et al. (2023) indicated a positive correlation between procrastination and internet addiction among Thai students, with the observation that procrastinators are more likely to be victims of online excesses.

A review of 34 South Korean studies published between 2012 and 2022 by Achangwa et al. (2023) established that smartphone addiction is associated with academic procrastination and can contribute to mental health concerns such as anxiety, depression, and sleep disturbances, as well as physical discomfort and decreased social interaction.

Most researches confirm this positive correlation between smartphone addiction and academic procrastination, yet Subba and Chingnunhoih (2023) reported a negative correlation between the two in Indian students, indicating that smartphones can be used efficiently for studious purposes, which lessens procrastination.

Bignotti and Bison (2020) reported that regular mobile or social media use while studying has a detrimental impact on academic performance. Tian et al. (2021) tested 3,500 Chinese medical students and observed that both smartphone addiction and procrastination were associated with poorer academic performance. Yang et al. (2019) also observed that problematic smartphone use forecasted academic procrastination and anxiety but was decreased by self-regulation, indicating a need for improved control of phone use.

Rationale

Most of the existing research originated from Asian countries—including Pakistan, China, India, Thailand, and South Korea—but there is still a lack of focused studies examining the academic environment in Balochistan. Furthermore, the most of the researches relies on designs that focuses only on the associations between these variables, which restricts the capacity to establish causal relationships. Moreover, in most of the studies mental health issues are not directly studied along with smartphone addiction and academic procrastination but are assumed to be associated with them.

To address these issues, the current research aims to examine how smartphone addiction and Mental Health influences academic procrastination in students from Balochistan. This study aims to enhance the comprehension psychological mechanisms related to academic procrastination. Furthermore, variations in the demographic characteristics like age, gender, education level, and institutional affiliation can provide a more sophisticated understanding of the ways in which these demographic variables interact with smartphone usage, mental health issues and academic procrastination.

Method
Problem Statement

In recent years, there has been an alarming increase in the use of smartphones by university students. The developing problems are academic procrastination and mental health issues like depression, anxiety, and stress which also appears to add to the problem of procrastination. Thus, the purpose of this study is to examine how Smartphone Addiction and Mental Health relate to Academic Procrastination.

Objectives

The main objectives of this study are:

- To assess the relationship between Smartphone Addiction, Academic Procrastination and Mental Health.
- To determine the impact of Smartphone Addiction and Mental Health on Academic Procrastination.

- To compare Smartphone Addiction, Mental Health, and Academic Procrastination across demographic groups, examining differences based on age, gender, level of education, and institution.

Hypotheses

Following are the hypotheses of the study

1. There will be significant and positive correlation between Smartphone Addiction, Mental Health and Academic Procrastination.
2. Smartphone Addiction and Mental Health will have significant impact on Academic Procrastination
3. There will be significant differences in Smartphone Addiction, Mental Health and Academic Procrastination across age, gender, level of education and Institutes.

Research Design

The study employed a quantitative, cross-sectional, correlational research design. The goal was to explore the inherent relationship between Smartphone Addiction, Mental Health, and Academic Procrastination within an actual academic environment.

Variables

This study includes the following variables:

1. Smartphone Addiction

The term "smartphone addiction" refers to a phenomenon in which individuals display excessive, compulsive, or harmful behaviors associated with their utilization of smartphones (Abuhamdah & Naser, 2023).

2. Mental Health

Mental Health is defined as a state of mind characterized by emotional well-being, good behavioral adjustment, relative freedom from anxiety and disabling symptoms, and a capacity to establish constructive relationships and cope with the ordinary demands and stresses of life (American Psychological Association, n.d.).

3. Academic Procrastination

Academic procrastination is defined as the tendency of students to delay or postpone completing academic tasks, such as studying for an exam, doing homework, or writing an essay, even though they know they should perform

these actions and have a specific deadline for completion (Gonzalez-Brignardello et al., 2023).

Measures

The following measures were used to collect data for the study:

a) Informed Consent

Prior to the start of the study, an informed consent document was given alongside the survey. Participants were informed about the study's purpose, their rights of confidentiality, optional participation, and the right to withdraw from the research at any moment. Only those participants who consented proceeded with the study.

b) Demographic Information Form

At the beginning of the questionnaire, a short demographic form was added. It inquired about the age, gender, semester and Institution of the participants with the name being optional. These details helped in determining the sample's composition and analyzing the data across various age groups and educational levels.

c) Smartphone Addiction Scale – Short Version (SAS-SV, Kwon et al., 2013)

Smartphone Addiction Scale- Short Version is developed by Min Kwon, Dai-Jin Kim, Hyun Cho and Soo Yang. It is used to assess the level of addiction to smartphones by evaluating behaviors such as withdrawal, overuse, tolerance, and interference with daily functioning. It is a 10-item scale, each rated on a 6-point Likert scale ranging from.

d) Depression Anxiety Stress Scale (Dass-21, Lovibond & Lovibond, 1995)

The DASS-21 is developed by Peter F. Lovibond and Sharyn H. Lovibond. It includes 21 items rated on a 4-point Likert scale.

e) Academic Procrastination Scale (APS, McCloskey, 2011)

Academic Procrastination Scale, developed by Justin McCloskey contains 25 items that measure the tendency to delay academic tasks such as assignments, studying, and class preparation.

Sample

Sample of the study was selected through convenient sampling technique and it consisted of 260 students from Bachelors of Science. A total of 130 male and 130 female students from University of Balochistan and Balochistan University of Information Technology, Engineering and Management Sciences with ages ranged from 18-25 years. Students were selected from various academic programs and semesters to enhance the diversity of the sample and generalizability of the findings.

Ethical consideration

This study was carried out while making sure that all research ethics were strictly followed. All participants gave their informed consent prior to any data collection, and participation in the study was entirely voluntary. The goal of the study, their right to discontinue participation at any time, and the confidentiality of their answers were all explained in detail to the participants. Throughout the study, participant anonymity was preserved, and no personally identifiable information was gathered or shared. The information gathered was securely stored to preserve participant privacy and used only for academic purposes. There was no risk or harm associated with taking part in this study. The research supervisor granted ethical approval to conduct this study.

Procedure

Data was collected after receiving approval from the respective universities. Once the approval was granted, students were given informed consent form. Those students who were willing to participate signed the form and proceeded with the demographic information form and other three standardized scales; Smartphone Addiction Scale- Short version (SAS-SV), Depression Anxiety Stress Scale (DASS-21) and Academic Procrastination Scale (APS). After the completion of data collection, we applied SPSS-2025 (Statistical Package for Social Sciences) to analyze the data. Descriptive statistics, Reliability analysis, Spearman Correlation, Linear Regression and independent sample t-test, were used.

Results

The analysis conducted were; descriptive analysis, reliability analysis, spearman correlation, linear regression and t-test analysis The findings revealed that 66.2 % of students have Smartphone Addiction, while 51.9 % students have Academic Procrastination.

Table 1

The Score Distribution for SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale (N=260)

S.no	Scale	No. of Items	Mean	Std. Deviation	Median	Range		Skewness	
						Min	Max	Skew	Std. Error
1	SAS	10	35.15	9.03	35	11	57	-.063	.151
2	DASS	21	26.71	11.08	28	2	54	-.037	.151
3	APS	25	77.55	14.23	77	42	115	.075	.151

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 1 displays the score distribution of Smartphone addiction Scale, DASS and Academic Procrastination Scale. The results show the mean, standard deviation, median, range and skew static of all three scales. The score suggests small negative skewness in smartphone addiction and DASS distributions, while it shows small positive skewness in Academic Procrastination distribution. These values of skew demonstrated non-significant skew in score distribution.

Table 2

Reliability Coefficient for SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale (N=260)

S.no	Scales	No. of Items	Cronbach's Alpha
1	Smartphone Addiction	10	.748
2	DASS	21	.852
3	Academic Procrastination	25	.841

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 2 demonstrates the reliability coefficient of Smartphone Addiction Scale, DASS and Academic Procrastination Scale. Smartphone Addiction Scale has moderate reliability while DASS and Academic Procrastination Scale have relatively good reliability.

Table 3

Pearson Correlation among for SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale (N=260)

S.no	Variables	1	2	3
1	SAS	_		
2	DASS	.296**	_	
3	APS	.410**	.190**	_

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale; **= $p < 0.01$.

Table 3 displays the correlation coefficient of the three study variables, indicating that Smartphone Addiction is positively correlated with Mental health ($r = .296$. $p < .01$) which signifies that higher levels of Smartphone Addiction is associated with higher levels of Mental Health issues. Smartphone Addiction is also positively correlated with Academic Procrastination ($r = .410$, $p < .01$), indicating that higher levels of Smartphone Addiction is associated with higher levels of Academic Procrastination. Lastly, the result shows positive correlation between Academic Procrastination and Mental Health ($r = .190$, $p < .01$), indicating that higher levels of Academic Procrastination is associated with higher levels of Mental Health issues.

Table 4

Regression Coefficient for APS- Academic Procrastination Scale (N=260)

Variable	R^2	B	SE	B	t	p
SAS	.16	.64	.09	.41	7.21	.000

Note. SAS= Smartphone Addiction Scale; $p < .001$

Table 4 shows the impact of Smartphone Addiction on Academic Procrastination. It reveals that Smartphone Addiction is significantly ($p < .001$) predicting Academic Procrastination as 16% variance in the scores of Academic Procrastination is influenced by Smartphone Addiction. ($R^2= .16$, F- change (1, 258) = 52.10, $p < .001$).

Table 5

Regression Coefficient for APS- Academic Procrastination Scale (N=260)

Variable	R^2	B	SE	B	t	p
DASS	.03	.24	.07	.19	3.10	.002

Note. DASS= Depression Anxiety Stress Scale; $p < .01$

Table 5 shows the impact of Mental Health on Academic Procrastination. It reveals that poor Mental Health is significantly ($p < .01$) predicting Academic Procrastination as 3% variance in the scores of

Academic Procrastination is influenced by poor Mental Health. (R^2 = .03, F- change (1, 258) = 9.62, p < .01).

Table 6

Difference in Mean and Standard Deviation on Scores of SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale Based on Education Level (N=260)

Scales	No. of Items	1-4 Semesters (n= 130)		5-8 Semesters (n= 130)		t	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
SAS	10	34.28	8.28	36.03	9.67	-1.57	.118	-3.95	0.44	0.19
DASS	21	26.68	9.92	26.73	12.17	-.034	.973	-2.75	2.66	.004
APS	25	76.16	13.05	78.94	15.25	-1.57	.116	-6.24	0.69	0.19

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 6 indicates the difference in mean and standard deviation between Smartphone Addiction Scale, DASS and Academic Procrastination Scale based on education level. It shows that the mean differences in 1-4 and 5-8 semester groups are non-significant on all three scales. Furthermore, it represents small effect size on each scale.

Table 7

Difference in Mean and Standard Deviation on Scores of SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale Based on Gender Groups (N=260)

Scales	No. of Items	Men (n= 130)		Women (n= 130)		t	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
SAS	10	34.86	8.86	35.45	9.21	-.521	.603	-2.79	1.62	0.06
DASS	21	25.97	9.92	27.45	12.13	-1.07	.284	-4.18	1.23	0.13
APS	25	78.77	14.32	76.33	14.09	1.38	.168	-1.03	5.90	0.17

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 7 indicates the difference in mean and standard deviation between Smartphone Addiction Scale, DASS and Academic Procrastination Scale based on gender. It shows that the mean differences in men and women are non-significant on all three scales. Furthermore, it represents small effect size on each scale.

Table 8

Difference in Mean and Standard Deviation on Scores of SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale Based on Age Groups (N=260)

Scales	No. of Items	18-21 (n= 130)		22-25 (n= 130)		t	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
SAS	10	34.76	7.84	35.55	10.09	-.700	.485	-2.99	1.42	0.08
DASS	21	26.52	10.29	26.90	11.86	-.279	.780	-3.09	2.32	0.03
APS	25	77.51	13.45	77.59	15.02	-.048	.968	-3.56	3.39	.005

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 8 indicates the difference in mean and standard deviation between Smartphone Addiction Scale, DASS and Academic Procrastination Scale based on age groups. It shows that the mean differences in these age groups are non-significant on all three scales. Furthermore, it represents very small effect size on each scale.

Table 9

Difference in Mean and Standard Deviation on Scores of SAS- Smartphone Addiction Scale, DASS- Depression Anxiety Stress Scale and APS- Academic Procrastination Scale Based on Institute (N=260)

Scales	No. of Items	BUITEMS (n= 130)		UOB (n= 130)		t	p	95% CI		Cohen's d
		M	SD	M	SD			LL	UL	
SAS	10	35.28	9.37	35.02	8.70	.233	.816	-1.94	2.47	0.02
DASS	21	26.22	10.87	27.20	11.31	-.715	.475	-3.69	1.72	0.08
APS	25	80.00	14.66	75.10	13.40	2.81	.005	1.46	8.33	0.34

Note. SAS= Smartphone Addiction Scale; DASS= Depression Anxiety Stress Scale; APS= Academic Procrastination Scale.

Table 9 indicates the difference in mean and standard deviation between Smartphone Addiction Scale, DASS and Academic Procrastination Scale based on Institutes. It shows that the mean differences in BUITEMS and UOB groups are non-significant on Smartphone Addiction Scale and DASS, while the mean difference in these institutes is significant on Academic Procrastination Scale. Furthermore, it represents very small effect size on Smartphone Addiction scale and DASS, while the effect size on Academic Procrastination Scale is small to moderate.

Discussion

The presenting study investigated the relationship between Smartphone Addiction, Academic Procrastination and Mental Health. The findings revealed that smartphone addiction was significantly and positively correlated with mental health issues, indicating that higher levels of smartphone addiction is associated with more mental health problems. There is a significant positive association between smartphone addiction and academic procrastination This suggests that excessive time spent on smartphone can distract students from their academic responsibilities and reduce their ability to effectively manage time and meet deadlines. These findings support our first hypothesis, which are consistent with previous researches, which revealed that smartphone use is positively associated with mental health problems, which suggests that it can alleviate such problems (Kil et al., 2021). According to studies smartphone addiction has garnered attention from research scholars from the past few years in the academic setting, and it was revealed that problematic smartphone uses or smart-phone addiction is associated with academic procrastination (e.g. Rozgonjuk, Kattago, & Taht, 2018).

Our findings revealed a moderate prevalence rate of academic procrastination 51.9% and relatively high prevalence rate of smartphone addiction among our sample 66.2%. Compared to previous studies it is more than what other studies found, such as (Buctot et al 2020), who reported that 62.6% of the participants had smartphone addiction. Likewise, Kwak, et al. However (Kwak et al 2018) reported that about 70% of adolescents had moderate to severe addiction to smartphones.

The third hypothesis, suggested that there will be significant differences in smartphone addiction, mental health, and academic procrastination scores based on age, gender, level of education, and institutes. However, that results did not support the hypothesis for most factors, as no significance difference were found across the age groups, genders, or education

levels. This result suggests that these demographics may not substantially influence the levels of smartphone addiction, academic procrastination or mental health within the sample. Interestingly, a significant difference was observed between the students of Balochistan University of Information Technology, Engineering and Management Sciences and University of Balochistan on Academic Procrastination Scale. This finding indicate that institutional factors may influence particular behaviors among students.

However previous researches suggested that gender impacts academic Procrastination. It further stated that male members were found to have greater risks to procrastinate their academics as compared to female members (Khan, et.al. 2014) and (Demir, & Ferrari 2009). Another research shows that male students are found to be procrastinating more than the female students. Whereas, female students are more prone to smartphone addiction as compared to male students (Subba & Chingnunhoih 2023).

These findings highlight the importance of addressing the overuse of smartphones to effectively reduce academic procrastination among students. Previous research has shown that one possible strategy for lowering academic anxiety or overcoming academic procrastination could be a suggestion of training or recognition of general self-regulatory skills and approaches to smartphone use. However, such interventions require rigorous development and evaluation (Yang Z et al., 2019).

Implications

The results of this study may assist university administrators, counselors, and educators in designing evidence-based interventions aimed at reducing problematic smartphone use and procrastination, ultimately improving students' mental health and academic performance. Given the global concern about rising mental health challenges among youth and the pervasive role of smartphones in everyday life, the findings from this study hold both academic and practical significance.

Limitations and Recommendation

The current research offers valuable information regarding the relationship between smartphone addiction, academic procrastination, and mental health among university students of Balochistan. However, some limitations of the study must be noted. To begin with, the study's cross-sectional nature limits the power to imply temporal direction to the variables thus, future studies should consider using longitudinal designs to investigate the dynamics of these associations across time. Second, the use of self-report measures might have introduce social desirability which could affect the validity of the data. The use of objective measures, such as smartphone app tracking or academic record performance, would make future findings more robust in terms of validity.

Additionally, the sample of the study was limited to students from only two universities within Balochistan, which limits the generalizability of the results to all the students of Balochistan. Expanding future studies to include diverse educational institutions including schools and colleges would enhance the external validity of the findings. To account for this limitation, future studies should use larger sample sizes. Finally, the research did not control other possible confounding variables like academic load, social economic status, or access to the internet, which might have affected both smartphone usage and academic behaviors. Addressing these variables in subsequent studies would provide a more comprehensive interpretation of the interplay between technology use and student achievement. It is also suggested that intervention studies be carried out to measure the efficacy of targeted interventions aimed at minimize problematic smartphone use and procrastination.

REFERENCES

Albursan, I. S., Al Qudah, M. F., Al-Barashdi, H. S., Bakhiet, S. F. A., Darandari, E. Z., Al-Asqah, S. S., Hammad, H. I., Al-Khadher, M. M., Qara, S. M. S., Al-Mutairy, S. H.

S., & Albursan, H. I. (2022). Smartphone addiction among university students in light of the COVID-19 pandemic: Prevalence, relationship to academic procrastination, quality of life, gender and educational stage. International Journal of Environmental Research and Public Health.(https://doi.org/10.3390/ijerph191610439)

Achangwa, C., Ryu, H. S., Lee, J. K., & Jang, J.-D. (2023). Adverse effects of smartphone addiction among university students in South Korea: A systematic review. Healthcare. https://doi.org/10.3390/healthcare11010014

Abuhamdah, S. M. A, & Naser, A. Y. (2023).Smart phone addiction and its mental health risks among university students in Jordan: A cross-sectional study. BMC Psychiatry. https://doi.org/10.1186/s12888-023-05322-6

American Psychological Association. (n.d.). Mental health. APA. Retrieved June 25, 2025, from https://www.apa.org/topics/mental-health
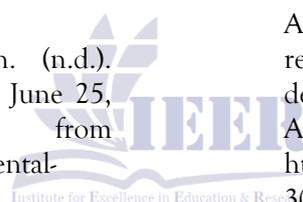
Bignotti, E., & Bison, I. (2020). Mobile social media usage and academic performance [Preprint]. arXiv. https://doi.org/10.48550/arxiv.2004.01392

Bhugra, D., Till, A., & Sartorius, N. (2013). What is mental health. International Journal of Social Psychiatry. https://doi.org/10.1177/0020764012463315

Buctot, D. B., Kim, J., & Kim, S. H. (2020). Predictors of smartphone addiction and its effect on health-related quality of life: A cross-sectional study among Filipino adolescents. Children and Youth Services Review. https://doi.org/10.1016/j.childyouth.2020.104575

Benjamin, L. (2022). Smartphone addiction factors effecting university student performance.

NUML International Journal of Business & Management, 16(2), 1–13.(https://doi.org/10.52015/nijbm.v16i2.70)

Demirci, K., Akgönül, M., & Akpınar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. Journal of Behavioral Addictions. https://doi.org/10.1556/2006.4.2015.010

Duke, É. and Montag, C. (2017) Smartphone Addiction and Beyond: Initial Insights on an Emerging Research Topic and Its Relationship to Internet Addiction. In: C. Montag and M. Reuter, Eds., Internet addiction: Neuroscientific approaches and therapeutical interventions, Springer International Publishing. https://doi.org/10.1007/978-3-319-46276-9_21

Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. Journal of Affective Disorders. https://doi.org/10.1016/j.jad.2016.08.030

González-Brignardello, M. P, Sánchez-Elvira Paniagua, A., & López-González, M. Á. (2023). Academic procrastination in children and adolescents: A scoping review. Children. https://doi.org/10.3390/children10061016

Jameel, S., Shahnawaz, M. G., & Griffiths, M. D. (2019). Smartphone addiction in students: A qualitative examination of the components model of addiction using face-to-face interviews. Journal of Behavioral Addictions. https://doi.org/10.1556/2006.8.2019.57 Johansson, F., Rozental, A., Andersson, G., & Edlund, K. (2023). Associations between procrastination and subsequent health outcomes among university students: A prospective cohort study. JAMA Network Open. https://doi.org/10.1001/jamanetworkopen.2022.54292

Kwon, M., Kim, D.-J., Cho, H., & Yang, S. (2013). The Smartphone Addiction Scale:

Development and validation of a short version for adolescents. PLoS ONE. https://doi.org/10.1371/journal.pone.0083558

Konca, M. Y., & Semiz, Ö. (2009). An investigation into the nature of academic procrastination. In Proceedings of the First International Symposium on Sustainable Development.

Kamal, S., Kamal, S., Mubeen, S. M., Shah, A. M., Samar, S. S., Zehra, R., Khalid, H., & Naeem, R. (2022). Smartphone addiction and its associated behaviors among medical and dental students in Pakistan: A cross-sectional survey. Journal of Education and

Health Promotion. (https://doi.org/10.4103/jehp.jehp_494_21)

Khalily, M. T., Loona, M. I., Bhatti, M. M., Ahmad, I., & Saleem, T. (2020). Smartphone addiction and its associated factors among students in twin cities of Pakistan. Journal of Pakistan Medical Association. (https://doi.org/10.5455/JPMA.23054)

Kil, N., Kim, J., McDaniel, J. T., Kim, J., & Kensinger, K. (2021). Examining associations between smartphone use, smartphone addiction, and mental health outcomes: A crosssectional study of college students. Health Promotion Perspectives. https://doi.org/10.34172/hpp.2021.06

Lovibond, S. H., & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scales

(2nd Ed.). Psychology Foundation of Australia.

Lashari, K., Ilyas, M., Bazai, R., Saahil, K., Jawaid, R., & Kaleem, M. B. (2023). Prevalence of smartphone addiction and its association with impulsivity among undergraduate medical students. Pakistan Journal of Medical & Health Sciences.

(https://doi.org/10.53350/pjmhs202317877)

McCloskey, J. D. (2011). Finally, my thesis on academic procrastination. University of Texas at Arlington. (https://mavmatrix.uta.edu/psychology_theses/30/)

Nadarajan, S., Hengudomsub, P., & Wacharasin, C. (2023). The role of academic procrastination on internet addiction among Thai university students: A crosssectional study. Belitung Nursing Journal. https://doi.org/10.33546/bnj.2755

Olson, J. A. Sandra, D. A, Colucci, É. S, Al Bikaii, A., Chmoulevitch, D., Nahas, J., Raz, A.,

& Veissière, S. P. L. (2021). Smartphone addiction is increasing across the world: A meta-analysis of 24 countries. Computers in Human Behavior. https://doi.org/10.1016/j.chb.2021.107138

Rozgonjuk, D., Kattago, M., & Täht, K. (2018). Social media use in lectures mediates the relationship between procrastination and problematic smartphone use. Computers in

Human Behavior. https://doi.org/10.1016/j.chb.2018.08.003

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. Psychological Bulletin.

https://doi.org/10.1037/0033-2909.133.1.65

Sirois, F. M., & Tosti, N. (2012). Lost in the moment? An investigation of procrastination, mindfulness, and well-being. Journal of Rational-Emotive & Cognitive-Behavior

Therapy. https://doi.org/10.1007/s10942-012-0151-y

Simbolon, P. A., & Daulay, N. (2022). The effect of smartphone addiction on students' academic procrastination. Jurnal Basicedu, 6(4), 5580–5688.

(https://doi.org/10.31004/basicedu.v6i4.3101)

Sujadi, E., & Ahmad, B. (2023). Academic procrastination in college students: Do academic burnout and smartphone addiction matter? Psychocentrum Review. https://doi.org/10.26539/pcr.531511

Subba, S., & Chingnunhoih, M. (2023). A study on smartphone addiction and academic procrastination among college students. International Journal of Indian Psychology. https://doi.org/10.25215/1101.179

Tian, J., Zhao, J., Xu, J., Li, Q., Sun, T., Zhao, C. & Zhang, S. (2021). Mobile phone addiction and academic procrastination negatively impact academic achievement among Chinese medical students. Frontiers in Psychology. https://doi.org/10.3389/fpsyg.2021.758303

World Health Organization. (2022, June 17). Mental health. https://www.who.int/newsroom/fact-sheets/detail/mental-health

Yang, Z., Asbury, K., & Griffiths, M. D. (2019). An exploration of problematic smartphone use among Chinese university students: Associations with academic anxiety, academic procrastination, self-regulation and subjective wellbeing. International Journal of Mental Health and Addiction. https://doi.org/10.1007/s11469-018-9961-1