

Investigating the Impact of Smartphone Addiction on Perseverative Thinking among Pakistani University Students: A Case of Islamabad

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ABSTRACT

Aim of the Study: Technology of 21st century has turned into a global dilemma characterized by smartphone addiction that results in persistent negative thinking, known as perseverative thinking. This research has investigated the relationship between smartphone addictions and perseverative thinking among the Islamabad-based university students.

Methodology: This cross-sectional correlational survey of 351 students of Islamabad-based universities was conducted through purposive sampling technique including 176 male and 175 female active smartphone users between 18-35 years of age by employing Smartphone Addiction Scale-Student Version (Kwon et al., 2013) and Perseverative Thinking Questionnaire (Ehring et al., 2011).

Findings: The results indicated a significant moderate correlation between smartphone addiction and perseverative thinking among the study participants. The study also revealed that smartphone addiction positively (moderate) predicted perseverative thinking among the Islamabad-based Pakistani university students. Furthermore, female, younger age group and undergraduate respondents scored have been more inclined towards smartphone addiction and perseverative thinking than their counterparts.

Conclusion: The administrations in academic institutions can develop policy guidelines, abandoning smartphone usage in classroom settings. They may organize smartphone and digital media literacy workshops to raise awareness on smartphone addiction and perseverative thinking. Furthermore, establishing psychological counseling centers and providing psychological support to the students, teachers and administrative staff who suffer smartphone addiction and perseverative thinking may help counter the dilemma.

Keywords: Smartphone Addiction, Smartphone Users, Perseverative Thinking, University Students, Pakistani Students.

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BACKGROUND

Smartphones, the modern gadgets for information and communication access and dissemination have been instrumental to contemporary high-tech life that offer instant global connectivity and support for work and entertainment. Equipped with features like social media applications, navigation, e-commerce and e-banking, these digital devices have reshaped societies. As of December 2023, 85.74% of the global population that translates to 6.92 billion individuals own smartphones (Bankmycell, 2023). Besides massive utilization of the smartphones and the widespread facilitation offered by these contraptions, many potential risks have also been observed on individuals and society. Excessive smartphone use may cause diminished real-world interactions leading to social isolation, disturbed sleep patterns, anxiety and stress (Škařupová et al., 2016). A severe decline in productivity impacting professional and personal life of addictive smartphone users have also been reported by many researchers (Lee et al., 2018; Tams et al., 2018; Wang et al., 2022). Among such challenges that the smartphone addicts may face include perseverative thinking, characterized by repetitive negative thinking about some problem or issue.

INTRODUCTION

Smartphone addiction, characterized by excessive and compulsive smartphone usage, is characterized by a range of adverse outcomes such as impaired concentration, disturbed sleep, and increased stress (Mascia et al., 2022). Such digital addicts exhibit signs akin to the ones observed in various substance abuse disorders including loss of control, neglect responsibilities and withdrawal. The smartphone addiction may be attributed to different factors like constant digital connectivity offered by these devices, the appeal carried by various social media platforms, and the instant gratification derived from digital media usage in terms of cognitive, social interactive, personal integrative, affective and escapist needs of the users (Fryman & Romine, 2021). As these smartphones have seamlessly integrated into personal and professional spheres of the individuals, the boundaries between work and leisure blurred to exacerbate the potential for smartphone addiction.

Diverse digital platforms of modern times available on smartphone devices have transformed people's behaviors across the globe (Walsh, 2022). Smartphone users have become heavily dependent and overly reliant on these digital devices for social connectivity to office work, and information seeking to businesses. A lot of studies associate this dependence to aggressive behavior including anxiety and depression among the smartphone users. Such an anxiety and depression when persists for longer times leads to development of consistent negative thinking, termed as perseverative thinking (Asha & Zinna, 2021). The relationship between smartphone addiction and perseverative thinking may become complex, characterizing the perseverative thinkers, being repeatedly thinking about a problem. The January 2023 statistics reveal that 59% of the world population actively uses different social media platforms, supported by smartphones, with an addition of 137 million new users in 2022 alone (Chaffey, 2023). Data also suggests that number of smartphone users has reached to 70 million in Pakistan (Chaudhary, 2023; PTA, 2022).

Perseverative thinking is understood as a cognitive design, defined by the repetitive meddling thinking, focusing on a particular problem or issue. Perseverative thinkers depict trouble in attention and focus that leads anxiety and depression. These people portray irrational, obsessive and non-productive overthinking, stubbornness in altering cognitive focus, inconvenience in solving problems, impaired concentration and, and emotional agony (Lindqvist et al., 2018). Patterns of perseverative thinking vary among the people, impacting people with varied severity and effects on them (Birk et al., 2019). Perseverative thinking is manifested among individuals in two different ways including rumination and worry (Devyneck et al., 2017; Ehring et al., 2011; Sorg et al., 2012). It is closely linked to fear process, marked by a series of repetitive negative thinking, almost uncontrollable and depressingly effecting the sufferers while rumination is characterized by unconstructed repetitive depressive thoughts (Rood et al., 2010). Perseverative thinking results from repetitive chronic psychological stressors. Under such repetitive circumstances, the stressful situations and events affect mental and physical health of people individuals

(Verkuil et al., 2010). Depression, anxiety, and stress are mostly associated to the addictive use of smartphones (Karim et al., 2020). The addictive smartphone use and psychological health are interlinked, with the former one causing depression, anxiety, and stress (Hou et al., 2019).

Objective of the Study

The study has focused to investigate the relationship between smartphone addiction and perseverative thinking among the Islamabad-based Pakistani university students. It has also aimed to measure the impact of smartphone addiction on perseverative thinking among the respondents.

Statement of the Problem

The sharp rise of ICTs, particularly the smartphones have revolutionized the world, and transformed the interaction between human beings and technology. However, there is a growing concern about the negative impact of excessive smartphone usage, defined as smartphone addiction in the shape of depression, anxiety, and stress that lead to repetitive negative thinking, known as perseverative thinking. The relationship between these two dilemmas of the digital world; smartphone addiction and perseverative thinking, warrants the contemporary media psychology scholars to investigate this domain in view of scarcity of the available literature, especially in Pakistani context. This study has focused to investigate the relationship between smartphone addiction and perseverative thinking. It has also aimed to measure the impact of smartphone addiction on perseverative thinking among the Islamabad-based Pakistani university students.

Significance of the Study

Keeping in view the increased smartphone usage in the recent times, the smartphone usage and perseverative thinking, characterized by depression, anxiety, and stress leading to repetitive negative thinking (Marciano et al., 2022; Mascia et al., 2022; Pandya & Lodha, 2021; Villani et al., 2021). Furthermore, many studies suggest that perseverative thinking also leads to physiological impacts of increased heartbeat and hypertension (Asha & Zinna, 2021; Sheehan et al., 2022; Stade et al., 2022). In this context, an investigation into the association between the smartphone addiction and perseverative thinking significantly fills the research gaps and contributes to the body of literature. It helps understand the prevalence of smartphone addiction and perseverative thinking among the Pakistani youth. It also guides to developing strategies to counter smartphone addiction and develop mitigation or intervention strategies to counter perseverative thinking among the youth. Similarly, it also paves ways for the future researchers to further explore the phenomena by employing different research methodologies.

The Study Hypotheses

- H1.** There exists a significant positive relationship between smartphone addiction and perseverative thinking among Islamabad-based Pakistani university students.
- H2.** Smartphone addiction positively predicts perseverative thinking among Islamabad-based Pakistani university students.
- H3.** Demographic groups of Islamabad-based Pakistani university students differ on the variables of smartphone addiction and perseverative thinking with respect to their Gender, Age and Academic Qualification.

METHODOLOGY

This cross-sectional, correlational survey employed convenience sampling technique to collect data from Islamabad-based university students. The researchers approached more than 500 students from the International Islamic University, Islamabad, National University of Modern Languages-Islamabad and Quaid-e-Azam University, Islamabad, Iqra University, Islamabad, SZABIST, Islamabad, and Bahria University, Islamabad. Out of the conveniently approached sample, 351 students (176 male and 175 female) who were active smartphone users agreed to respond to the digitally distributed questionnaire.

The study considered, gender (male and female) age (18-22 years, and 23-27 years, 28 years and above), and academic qualification (undergraduate and graduate) as demographic factors to assess any differences between various groups. of the respondents ranged between 18 to 35 years. The researchers employed already developed and validated survey measures in the shape of Smartphone Addiction Scale-Student Form (Kwon et al., 2013) and Perseverative Thinking Questionnaire (Ehring et al., 2011) for the independent and dependent variables.

Ethical Considerations: The researchers adhered to the ethical considerations of informed consent, data confidentiality and anonymity. Furthermore, permission to employ the Smartphone Addiction Scale-Student Form (Kwon et al., 2013) and Perseverative Thinking Questionnaire (Ehring et al., 2011) was also sought before using these questionnaires.

Table 1: *Cronbach's Alpha Reliability Coefficient for Smartphone Addiction Scale-Student Form and the Perseverative Thinking Scale (N = 351)*

Scales	No. of items	α
PTQ	15	.91
SAS-SV	10	.89

Table 1 reflected the Cronbach's Alpha reliability coefficient (α) value for Smartphone addiction Scale-Student Form and the Perseverative Thinking Scale. The results revealed that both instruments for independent and dependent variables of the study showed excellent to very good reliability for the Perseverative Thinking Scale ($\alpha = .91$), and Smartphone Addiction Scale-Student Form ($\alpha=.89$) respectively.

Datta Analysis and Hypotheses Testing

The researchers analyzed data using SPSS. They applied Pearson's correlation, regression analysis, and independent samples t-test for to test hypotheses of the study.

Table 2: *Frequencies and Percentages of Demographic Variables (N = 351)*

Variables	Categories	F	%
Gender	Male	176	50.14
	Female	175	49.86
Academic Qualification	Undergraduate	209	59.54
	Graduate	142	40.46
Age	18-24 Years	230	65.53
	25-30 Years	121	34.47

The Table 2 demonstrates the demographic profile of respondents. It reveals that total male respondents were 50.14% ($f=176$) compared to their female counterparts = 49.86% ($f=175$). Similarly, the undergraduate respondents = 59.54% ($f=209$) outperformed the undergraduate respondents = 40.46% ($f=142$). Moreover, with respect to age of the respondents, the study participants of 18-24 years = 65.53% ($f=230$) outnumbered the 25-30 Years =34.47% ($f=121$) age group.

Table 3: *Descriptive Statistics of Study Variables (N=351)*

Variables	M	SD	Range		Skewness	Kurtosis
			Actual	Potential		
Smartphone Addiction	28.45	6.72	10-50	12-46	-0.55	-0.25
Perseverative Thinking	49.78	10.15	15-75	18-72	-0.70	-0.35

The table 3 presents the descriptive statistics for Smartphone Addiction, the independent variable and Perseverative Thinking, the dependent variable. It reflects the substantial measures of central tendency, variability, and distribution figure of the sample. The mean score for Smartphone Addiction ($M = 28.45$, $SD = 6.72$) reveals a moderate smartphone addiction with brief variability, whereas the (slightly) negative skewness value of -0.55 depicts some respondents reported the higher-than-average smartphone addiction. Similarly, the kurtosis value of -0.30 reveals a (relatively) normal but (slightly) flatter distribution. Moreover, the mean score value for the Perseverative Thinking ($M = 49.78$, $SD = 10.15$) demonstrates an inclination towards higher value on the scale employed, with more variability in comparison to scale used for Smartphone Addiction. A higher noticeable negative skewness value of -0.35 demonstrates that majority of the students registered higher perseverative thinking, whereas the kurtosis value of -0.35 points out a flatter and dispersed distribution.

Investigating the Relationship between Smartphone Addiction and Perseverating Thinking among Pakistani University Students

Pearson correlation test statistically measures the linear relationship between independent and dependent (Metsämuuronen, 2022; Schober et al., 2018). Its values range from -1 to 1 (-1 depicts a significant negative relationship—when one variable increases, the other one decreases), 1 reveals a significant positive relationship—when one variable increases, the other one also increases, and 0 reflects no relationship between the variables—the variables are independent of each other. This study measured the relationship between smartphone addiction and perseverative thinking.

Table 4: *Relationship between Smartphone Addiction and Perseverative Thinking among Islamabad-based Pakistani University Students (N=351)*

Variables	1	2
Smartphone Addiction	-	.42*
Perseverative Thinking	.42*	-

Table 4 the findings of Pearsons' Product Moment Correlation test. It indicates smartphone addiction has a moderate positive correlation with perseverative thinking, ($R = .42$, $p < 0.01$). The results of the study partially support the hypothesis 1 that proposed that smartphone addiction and perseverative thinking among Islamabad-based Pakistani university students had significant positive correlation.

Table 5: *Regression Coefficient of Smartphone Addiction on Perseverative Thinking among Islamabad-based Pakistani University Students (N=351)*

Variable	B	β	SE	F
Constant	32.15		2.30	97.02***
Smartphone Addiction	0.72	.49	0.07	
R^2	.24			

Note: $N=351$, *** $p < .001$

The regression analysis reveals that smartphone addiction among positively (moderate) predicts perseverative thinking ($R^2 = .24$) among Islamabad-based Pakistani university students with .24% variance in the dependent variable caused by the independent variable. This finding supports hypothesis 2 that stated that smartphone addiction positively predicted perseverative thinking among Islamabad-based Pakistani university students.

Table 6: *Independent Samples t-test for Smartphone Addiction and Perseverative Thinking among Islamabad-based Pakistani University Students (N = 351)*

Variable	Group	n	M	SD	t	df	p	Cohen's d
Smartphone Addiction	Male	176	27.62	6.60	-2.34	349	.020*	0.25
	Female	175	29.24	6.79				
Perseverative Thinking	Male	176	48.72	9.96	-2.76	349	.006**	0.29
	Female	175	51.18	10.02				
Smartphone Addiction	18–24 Years	230	28.92	6.74	2.11	349	.036*	0.22
	25–30 Years	121	27.45	6.61				
Perseverative Thinking	18–24 Years	230	50.48	10.14	2.54	349	.011*	0.27
	25–30 Years	121	47.89	10.09				
Smartphone Addiction	Undergraduate	209	29.58	6.89	2.61	349	.009**	0.28
	Graduate	142	27.38	6.45				
Perseverative Thinking	Undergraduate	209	51.32	10.21	2.89	349	.004**	0.31
	Graduate	142	48.12	10.05				

Table 6 demonstrates the results of the *Independent Samples t-test*, indicating significant differences on the variables of smartphone addiction and perseverative thinking among Islamabad-based Pakistani university students with respect to their gender (male/female), age (18-24 years/25-30 years), and academic qualification (undergraduate/graduate) groups. The findings reveal that respondents who are females, fall in younger age group, and have or study undergraduate degree score higher than males, older age group respondents and have or study graduate degree. These findings suggest that female respondents are more inclined towards smartphone addiction and also suffer perseverative thinking more than male counterparts. Similarly, the study participants who fall in the younger age group (18-24 years) also are more likely to suffer smartphone addiction and perseverative thinking than older age group of respondents. Moreover, the undergraduate students also are more inclined towards smartphone addiction and perseverative thinking than graduate students. These results support hypothesis 3 that proposed that demographic groups of the Islamabad-based Pakistani university students differed on the variables of smartphone addiction and perseverative thinking with respect to their Gender, Age and Academic Qualification.

DISCUSSION AND CONCLUSION

The data analysis depicts a moderate positive relationship between the independent and dependent variables of the study. It has found that smartphone addiction has moderate positive relationship (correlation) with perseverative thinking among the respondents. Moreover, smartphone addiction positively (although in a moderate manner) predicted perseverative thinking among the study participants. Furthermore, female, younger, and undergraduate respondents have scored higher than males, older age group respondents and who have or study graduate degree. All three hypotheses have been supported by the findings. However, the hypothesis 1 that proposed significant positive relationship between smartphone addiction and perseverative thinking among Islamabad-based Pakistani university students can be said to have been partially supported by the findings as the statistics reveal a moderate positive relationship instead of significant positive relationship. Findings of the study fall in conformity of existing literature as Ahmed et al. (2023) also found out positive correlation between digital media usage and perseverative thinking among psychology students of Islamabad-based public sector universities. These results are valuable for the students, teachers and the university administrations to develop mitigation strategies to counter smartphone addiction that potentially leads to perseverative thinking. The students can reduce smartphone usage while being in the classroom, in university campus or otherwise to ensure

their psychological wellbeing. Academicians cannot only keep a check on students but also on themselves in terms of health smartphone usage. They may counsel the students for healthy use of digital devices. The administrations in academic institutions can develop policy guidelines, abandoning smartphone usage in classroom settings. They may organize smartphone and digital media literacy workshops to raise awareness on smartphone addiction and perseverative thinking. Furthermore, establishing psychological counseling centers and providing psychological support to the students, teachers and administrative staff who suffer smartphone addiction and perseverative thinking may help counter the dilemma.

Recommendations for the Future Research

In view of findings of this research, it is recommended to explore more dimensions of smartphone addiction and perseverative thinking. It is also recommended to conduct mixed-methods research in the future involving in-depth interviews and focus group discussions to explore personalized effects, opinions, and perceptions of both experts and victims. Furthermore, research may be also conducted to recommend remedies and interventions to manage smartphone addiction and perseverative thinking. Future studies may also explore the related aspects of smartphone and digital addictions as well as the impacts on individuals.

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Conflict of Interest


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