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Prevalence Of Smartphone Addiction Among Undergraduate Students in Khyber Pakhtunkhwa, Pakistan

Original Article

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ARTICLE INFORMATION

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ABSTRACT

Background: The rising prevalence of addiction to smartphones, particularly among undergraduate students, is a major public health issue, potentially affecting academic activities and overall well-being.

Objective: The aim of this study was to find the prevalence of addiction to smartphone in undergraduate students at Khyber Pakhtunkhwa (KPK), Pakistan.

Methods: The study, conducted across six universities, involved 369 participants (69.1% male, aged 17-24 years). Data was collected from July to September 2024 using a cross-sectional survey approach, using Smartphone Addiction Scale-Short Version (SAS-SV).

Results: Results indicated a significant smartphone addiction rate of 60.4%, with higher prevalence rates in males (65.1%) than females (50.0%). Notably, 82.1% of students reported constant smartphone possession, underscoring the device's integration into daily life. The study highlighted several addiction-related behaviors: excessive usage beyond planned time, physical discomfort (e.g., wrist/neck pain), and interference with academic concentration and task completion.

Conclusion: The findings indicate the urgent initiation of targeted interventions; the high prevalence of smartphone addiction poses a significant risk to academic and personal outcomes. Collaboration between mental health professionals and educators is essential for developing strategies to promote responsible smartphone use and mitigate addiction effects. This study highlights the urgent need for comprehensive measures to assist undergraduate students in managing smartphone use, necessary for protecting academic success and overall well-being

Introduction:

Technological Evolution and Dependency

The concept of addiction has evolved significantly over time. Historically, it described a state of complete devotion to a person or activity, often leading to either positive or negative outcomes.[1] According to Griffiths (1999, 2000), addictions to technological devices are defined as non-chemical addictions involving the human-machine interaction. One contemporary example of this is smartphone addiction, which has emerged due to the increased accessibility and functionality of smartphones.[2] The advent of the smartphones significantly transformed civilizations around the globe, transforming communication, education, and entertainment for individuals of all ages.[3] Smartphones dominate the market with their computer-like functions, including email, calendar, and office tools. They offer advanced multimedia features like cameras and video recording, rivaling specialized devices. With a growing range of apps, they excel in social media, GPS, and gaming.[4] "To have the globe in the palm of your hand" perfectly describes smartphones.[3]

Impact of Smartphone Overuse on Students:

Conventional mobile phones mainly handle calls and texts. In contrast, smartphones offer internet access and app downloads, providing a versatile and interconnected experience that enhances communication and functionality.[5] Smartphones feature web browsers for entertainment, education, banking, games, and GPS apps. They're essential for online communication and social networking on platforms like Twitter and Facebook. However, they can be distracting while driving, in classrooms, and at work, including in healthcare settings.[6] Due to its numerous advantages, including convenience access to information, social media, useful apps for work, portability, and more, smartphones are now essential part of daily activities. [9] Mobile phone technologies have simplified global access to information. While improved communication made life easier, more productive, and more efficient, its overuse had detrimental effects on one's health.[10] Although mobile phones enhance communication and interaction, they also pose a risk of problematic or addictive use.[11] Smartphones are essential for many undergraduate students. Research explores usage trends and effects, highlighting benefits for nursing education. They support learning, provide quick access to medical information, and improve decision-making. However, excessive use harms communication skills.[12] In a 2019 study conducted in Pakistan revealed that smartphone addiction negatively impacts academic activities. Additionally, it has been demonstrated that students who manage their time well tend to achieve the higher grades or GPAs compared to those who struggle to manage the time, often because they spend too much part of time using the platforms like Instagram, Facebook and Twitter.[13] Another study conducted in Pakistan revealed that male students use the smartphones more likely than textbooks and self-study, in contrast to female students.[14]

Also study revealed that more female students than male students showed higher prevalence rates, and the rates were also higher among older students compared to adolescents.[15] Students depend on smartphones for more than just internet-related tasks. They use apps for communication, aiding shy individuals in interacting. Smartphones offer entertainment through games and provide access to information, serving to escape uncomfortable situations. This reliance is expected to increase smartphone usage over time.[7] Smartphone addiction occurs when excessive smartphone use begins to interfere with daily activities. This excessive use can also cause mental and behavioral issues.[8] People can develop habits or addictions such as playing the video games, using the computers, watching TV, shopping, or using the internet, like how they can become addicted to alcohol or drugs. These behavioral addictions involve repetitive engagement in certain actions. Like how individuals can become addicted to the internet, the growing prevalence of smartphones and their numerous functions is giving rise to the issue of smartphone addiction. As smartphone usage increases and users engage with various features, concerns about addiction are becoming more prominent.[5]

Literature Gaps and Study Objective:

Smartphone usage among students has been widely studied, but significant gaps remain, particularly concerning its extent among undergraduate populations in regions like Khyber Pakhtunkhwa (KPK), Pakistan. This study aims to cover the existing gap by determining the prevalence of addiction to the smartphones in undergraduate level students in KPK. Understanding how this issue affects students is key to designing effective strategies and policies that promote healthier usage habits and academic achievement.

MATERIAL AND METHODS:

Study Design:

The study used a descriptive cross-sectional design to determine the prevalence of addiction to smartphones among undergraduate students in KPK.

Study Population:

The study was carried out at six universities in Khyber Pakhtunkhwa, including Khyber Medical University, Islamia College University Peshawar, City University of Science and Technology Peshawar, University of Peshawar, University of Science and Technology Bannu and Abasyn University Peshawar.

Sample Size:

Out of 399 undergraduate students from various universities in KP, ten students chose not to participate in the research project. In addition, 20 students with mental illnesses or experienced injury to head and neck were excluded, resulting in a total exclusion of 30 individuals. Therefore, the study concentrated on the remaining 369 students. Participants were recruited using a convenient sampling method. Among the participants, 255 (69.1%) were males and 114 (30.9%) were females, ranged from 17 to 24. On average, the participants were 21.02 years old.

Sample Size Calculation:

This study's sample size was computed by applying the sample size formula designed for proportion or prevalence studies,[16] with a presumed prevalence of 60%,[17] 95% confidence interval of and a 95% of margin of error. The following formula was used to calculate the sample size:

$$n = Z^2 \times p \times (1 - p)/E^2$$

where n is the required sample size, Z is the Z-score for the confidence interval, P is the estimated prevalence, and E represents the margin of error. In our case, with a Z-score of 1.96 for a 95% confidence level, a prevalence estimate of 60%, and a margin of error set at 5%, the calculated sample size was 369.

Study Duration:

The time frame comprising from June to November 2024 constitutes a duration of six months.

Inclusion Criteria:

The focus of this study was on undergraduate students, Due to their significantly greater involvement with smartphones and diverse technological applications in comparison to other demographic groups.[18]

Exclusion Criteria:

The study excluded students with a history of head trauma or those who had been diagnosed with mental disorders.

Data Collection Procedure:

Approval from the Institutional Review Board (IRB) Khyber Medical University was obtained for ethical considerations, (Ref No: IRC/KMU/IPMS/2024/08). A cross-sectional survey was done to collect the required data from the month of July 2024 to September 2024. Formal approval from the institution was obtained to ensure participants' safety prior to starting data collection. A consent form explaining the research objectives was provided to participants along with the questionnaire. The data was collected using paper based and online survey methods. Data collected through paper surveys distributed at different universities and an online questionnaire via Google Forms, with access provided through WhatsApp. Approximately 41.34% of responses were collected via online surveys, while 58.66% were obtained through self-administered paper surveys.

Instrument:

To gather the required data, we applied a systematically arranged questionnaire as our data collection tool. The aim of this survey was to find the prevalence of addiction to smartphones and to find the correlation of demographics with addiction. The variables used in the study were obtained from published papers. [10,19,20]

The SAS-SV scale was used to determine the prevalence of addiction to smartphones.[19] The self-reported instrument comprised 10 statements. The participants rated their responses on a 06-point Likert scale, where the 1 indicated a fundamental disagreement and the 6 indicated a strong level of agreement. Intermediate values included 3 for weak disagreement and 4 for weak agreement. The score ranged from 10 to 60, where the greater scores indicate a higher level of addiction to smartphones. Following Kwon et al.'s suggestion, the recommended cut-off point was set 31 for men and 33 for the women.[19] Using SAS-SV analysis, we found that the Cronbach's alpha coefficient in our study was 0.801.

Data Analysis Procedure:

Utilizing IBM SPSS 26 version, we carried out the analysis of the data. Descriptive measures, including the frequencies, standard deviations, percentages, and means, were employed

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to analyze the general characteristics of undergraduate students.

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RESULTS

Table 01: Gender, Distribution

		Frequency	Percent
	Male	255	69.1
	Female	114	30.9

Out of the total 369 participants in the study, 255 were male, representing 69.1%, while 114 were female, constituting 30.9%.

Table 2: Smartphone, Carrying Behavior *Do* you keep your smartphone always with you

		Frequency	Percent
	Yes	303	82.1
	No	66	17.9

This Table illustrates the frequency and percentage of individuals who keep their smartphones always with them, with 303 respondents (82.1%) answering "Yes" and 66 respondents (17.9%) indicating "No."

Table 3: Smartphone Addiction

		Non-Addicted	Addicted
Gender of the participant	Male	89 (34.9%)	166 (65.1%)
	Female	57 (50.0%)	57 (50.0%)
Overall		146 (39.6%)	223 (60.4%)

Table 3 presents the distribution of smartphone addiction among participants based on gender, revealing that 60.4% of all individuals participated in the study were found addicted to the smartphone, with a higher percentage of addicted males (65.1%) compared to females (50.0%).

Table 4: Chi-Square Test, of the Independence Between Gender and Smartphone Addiction

Test	χ^2	df	p
Pearson, Chi-Square	7.51	1	.006
Continuity, Correction	6.89	1	.009
Likelihood, Ratio	7.43	1	.006
Linear-by-Linear, Association	7.49	1	.006
p=0.06			

The Chi-Square Test of Independence was used to investigate the association between gender and addiction to smartphones (Table 4). The association find as statistically significant, $\chi^2(1, N = 369) = 7.510$, $p = .006$. This suggests that gender is significantly related to smartphone addiction status. Specifically, males were found more addicted to the smartphones (n = 166), than females (n = 57).

Table 5: The Independent Samples t-Test Comparing Smartphone Addiction Scores by Gender

Gender	N	Mean	SD	SE	T	df	p-value	Mean Diff.	95% CI (Lower–Upper)
Male	255	34.57	9.65	0.60	2.00	367	.046	2.22	0.04 – 4.40
Female	114	32.35	10.26	0.96					

The independent sample t-test was applied to compare smartphone addiction levels in both genders. The findings revealed a major difference in scores between the males (M = 34.57, SD = 9.65) and females (M = 32.35, SD = 10.26); $t(367) = 2.00$, $p = .046$. The mean difference was 2.22 (95% CI: 0.037 to 4.398), indicating that male participants reported significantly increase levels of addiction to smartphone compared to female participants.

Table 6 Smartphone, Addiction Scale-Short Version (SAS-SV):

	Mean	Std. Deviation
Missing the planned work due to the use of smartphone	3.48	1.751
Having a hard time focusing in classroom while doing the task or while working due to the smartphone use	3.34	1.645
Pain feeling at the wrists or at cervical of the neck while the using smartphone	3.63	1.681
Without smartphones I won't be able to stand	3.05	1.627
Feeling fretful and impatient when I am not having the smartphone	3.28	1.666
Having in mind my smartphone even though I'm not using it	2.91	1.624
I continue using the smartphone even when it interferes with routine activities.	3.18	1.621
I persistently monitor my smartphone to keep up with the discussions	3.41	1.686
I lose track of time while using the smartphone	3.82	1.507
I have been told by others that I use the smartphone excessively.	3.77	1.702

Using the smartphone longer than intended (Mean: 3.82):
Students observed that they frequently exceeded the time that they had initially planned to spend on their smartphones, indicating challenges in regulating their screen time.
I have been told by others that I use the smartphone excessively. (Mean: 3.77):
The report highlights a general awareness among the students that others perceive them as spending a considerable length of time on their smartphones.
Pain feeling at the wrists or at cervical of the neck while using smartphone (Mean: 3.63):
The reported mean indicates a relatively high level of physical discomfort associated with smartphone use, emphasizing the possible physical consequences.
Missing the planned work due to the use of smartphone (Mean: 3.48):
Respondents reported the distraction level, with a considerable variation in the extent to which planned work was affected by smartphone usage.

Persistently checking the smartphone not to miss the conversations on Twitter or Facebook (Mean: 3.41):

The data showed that respondents frequently checked their smartphones to keep up with social media conversations, indicating a significant level of social connection through these platforms.

Discussion

The SAS-SV score revealed that 60.4% of the individuals in our research were addicted to smartphones. This means a lot of people are really attached to their smartphones. This finding aligns with those observed in a similar study among different students in twin cities of Islamabad and Rawalpindi, Pakistan, where 60% of students were found addicted to the smartphones.[17] Many students use smartphones a lot for their studies because there is a lot of learning stuff on the internet. Also, they find it easier to use a phone than a computer. That is why so many students are into it**.** Different studies looked at how much people in different countries are addicted to smartphones. In 2017 study carried out in Saudi Arabia, 36.5% of people were found addicted [3], in South India it was 44.7%,[21] in China it was 10.4%,[22] Another study carried out in Saudi Arabia from 2019 to 2021 addiction smartphone prevalence was 67%,[23] in Switzerland it was 16.9%.[24] Our findings might be different from others because we used different samples, looked at diverse groups of people, or had different numbers of people in our study**.** The results of our research indicated that more males than females have smartphone addiction problems. This is like what some other studies have found.[3]

The average score for smartphone addiction was higher among participants, especially for male students (34.57 ± 9.65). Female students, on the other hand, had lower scores in comparison (32.35 ± 10.26). There was a significant difference between genders, 65.1% of males and 50.0% of females were addicted to smartphones. This difference might be due to male participant ratio was more than female participant and the the criteria, which set the addictive score for male is lower than female.[21]

The study's findings reveal a notable prevalence of smartphone addiction among undergraduates in KPK, indicating the need for the targeted interventions. Educational institutions should implement awareness campaigns that address responsible smartphone use and its impact on academic activities and their well-being. Further research is required to explore gender-specific differences in smartphone addiction. Understanding these factors will facilitate the establishment of targeted prevention and intervention strategies for both genders.

LIMITATIONS:

The research provides valuable insights into the prevalence of addiction to smartphone but there are some limitations. Firstly, the research used a cross-sectional approach which offers a brief view of participants at a specific moment. Secondly, relying on a simple and convenient sampling method may result in selection bias, missing out the rich diversity of undergraduate students. Lastly, the research used self-reported surveys for data collection, which predisposes it to response bias as they might inaccurately report their actual usage.

CONCLUSION

This study on the addiction to smartphone prevalence revealed 60.4% of the undergraduate students addicted to smartphone with notably higher prevalence in male students (65.1%) compared to female students (50.0%). The findings highlight the need of specialized actions to address this issue, such as awareness programs in educational institutes.

Due to cross-sectional design of this study, further studies need longitudinal research methods that tracks individuals over extended periods, which would provide valuable insights into how smartphone addiction progresses and what long term effects it might have on individuals.

Smartphone addiction presents a significant issue among undergraduate students in Khyber Pakhtunkhwa (KPK). Addressing this problem requires a coordinated action from educators, mental health professionals, and policymakers. It is important to develop and execute solutions that promote a balanced attitude to smartphone usage, ensuring that students can engage with technology in a way that supports their well-being and academic success

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CONFLICT OF INTEREST

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The data that support the findings of this study are available from the corresponding author upon reasonable request

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