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The Association between Smartphone Addiction and Headache among Adults

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Abstract

Background: Limited studies that adequately explain the cause-and-effect relationships have linked mobile phone use to various health consequences. Several studies have examined how exposure to mobile phones may affect various symptoms. To find out an association between smartphone addiction and headaches among adults.

Materials and Methods: In this cross-sectional survey, data was collected through a non-probability sampling technique from 400 adults of either gender aged between 18 to 35 years from Rawalpindi, Islamabad and Taxila. Data was collected via the Smartphone Addiction Scale Short Version (SAS-SV), Headache Disability Index (HDI) and Visual Analogue Scale (VAS). The data were analyzed using the SPSS version 23.

Results: There were 400 participants, n=187(46.8%) male and n= 213(53.3%) female, with mean age (23.20 ± 4.41) years. The descriptive statistics of the study population were Functional HDI (21.10 ± 11.62), Emotional HDI (19.99 ± 12.47), HDI-Sum (41.09 ± 22.90) and SAS-Sum (33.48 ± 11.35). The correlation of smartphone addiction with pain (r =0.258, p=0.000), Functional HDI (r =0.349, p=0.000), Emotional HDI (r =0.364, p=0.000), and HDI-Sum (r =0.375, p=0.000) respectively.

Conclusion: Headache due to smartphone addiction affects adults because of unrestricted usage of smartphones.

Keywords

Headache, Pain, Smart Phones, Young Adults.

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Introduction

Most people today have access to smartphones. Global mobile phone usage in 2017 was anticipated to reach 4.7 billion users. Smartphones are regarded as a crucial tool, particularly for young people[1]. According to a recent study, 79% of persons between the ages of 18 and 44 kept a smartphone with them virtually always, meaning the typical person spends only two hours without it[2]. Due to the growing popularity of smartphones, they have increased in functions and have a wide range of applications. The changes in the impact of global technology are felt deeply in everyone's lives. The two main categories of addiction are behavior and drug addiction.

The former involves dependence on substances such as caffeine, alcoholic beverages, cannabis, hallucinogens, inhaled substances, opioids, sedatives, hypnotics, and stimulants. The latter involves dependence on digital media like games, the internet, and phones[3]. Academicians claim that some users depend more on their smartphones than they know[4,5]. Several studies have been conducted on the issues caused by excessive smartphone use. Some mobile phone users experience headaches, insomnia, amnesia and vertigo[6,7]. Smartphone addiction is also referred to as "smartphone dependence". It can harm a student's ability to focus and interact[8], and this may cause psychological migraine. It is also the second leading cause of disability worldwide caused by smartphone addiction. Examining the negative consequences of this technical breakthrough on its users is imperative[9]. Several issues have been attributed to the increasing internet usage, such as exposure to offensive images and content, invasions of privacy, and, in rare cases, addiction to the internet. Studies have consistently shown that a small proportion of individuals who use the internet excessively may experience psychological and behavioral problems, including concerns about their physical health (such as dry eyes, pain in the neck, back, and shoulders, frequent headaches, and numbness in the thumb, index, and middle fingers). Even if compulsive internet use is not considered an addiction, this still holds. Whether it is a dependency, addiction, or issue, several studies have demonstrated the detrimental effects of excessive teenage internet usage, which include unhealthy eating habits, physical inactivity, insufficient sleep, heightened feelings of depression and loneliness, and social anxiety[10]. The four main components of the recommended criteria to determine whether a person is dependent on a smartphone are withdrawal symptoms, obsessive phone use, tolerance shown by more extended and more frequent use, and functional impairment, as shown by interference with other daily activities. There have been suggestions that it is linked to physical health issues such as migraines, ear discomfort, musculoskeletal issues, and sleep disorders[11]. Cell phones excite youth because they make them feel robust, authentic, and credible. It also serves as a form of entertainment[12].

Mobile phone usage has been associated with several adverse health effects, although these links have only been sufficiently explained by a few studies[13]. Numerous research studies have examined how different symptoms may be impacted by mobile phone usage. Acute effects have been the main focus of arousal-based research in controlled environments. The biases prevalent in cross-sectional population research that relate mobile phone usage to an increased risk of headaches, sleeplessness, concentration challenges, or poor well-being restrict their interpretation. It is not only adults who experience restricted everyday activities due to headaches.

Frequent headaches can lower the quality of life and limit social connections, academic achievement, and career options in kids and teenagers. Increasing evidence suggests that underreporting of headaches in kids and teens occurs. As a result, society can give it less attention regarding prevention and therapy. Consequently, it is imperative to accurately demonstrate the worldwide scope of the social and economic ramifications of children's and teens' frequent headaches[14,15]. According to the study, higher smartphone usage (51%) was associated with more headache issues than lower smartphone usage (34.4%) ($p=0.02$). Compared to light or non-users of smartphones, heavy smartphone users had headaches more frequently and for more extended periods ($p<0.05$). The frequency and length of headache attacks showed a substantially higher positive correlation ($r=0.549$, $p=0.001$, and $r=0.523$, $p=0.001$ respectively) with the scores on the Smartphone Addiction Scale. Moreover, smartphone users had higher headaches than non-users (p 0.001) while using analgesics. The findings of the present analysis reveal that headaches may be associated with using a smartphone. As a result, smartphone users should be considered for headache monitoring[16].

Methodology

This analytical cross-sectional study was conducted on the general population of Rawalpindi, Islamabad and Taxila. We did not specify any city for data collection, and the data availability was easy. After approval, the questionnaires were given to adults aged 18 to 35. The duration of the study was four months. The participant should be healthy both mentally and physically, while participants having any disease like epilepsy, Alzheimer's MS, Schizophrenia and OCD were excluded from this study.

The data was collected using non-probability convenience sampling. The primary purpose of convenience sampling is to collect information from subjects who are easily accessible to the researcher[17]. The questionnaires used for the study were the Smart Phone Addiction Scale (SAS-SV), Headache Disability Index and Visual Analogue Scale. The sample size was n=377, calculated through Rao software with a 20,000 population size, 95% confidence interval, and 5% margin of error. The data collected was from 400 people.

- ***The Smart Phone Addiction Scale (SAS-SV)*** mentioned below has ten items, closed-ended. Items are scored on a 6-point Likert scale: 6 = strongly agree, 5 = agree, 4 = weakly agree, 3 = weakly disagree, 2 = disagree, 1 = strongly disagree.

- ***Headache Disability Index*** was used to measure disability caused by smartphone addiction, both emotionally and functionally. It has 25 items, of which 13 are functional, and 12 are emotional domains. It was scored as Yes, Sometimes or No. Yes = 4 points, Sometimes = 2 points, No = 0. A score of 10-28 was considered a mild disability, 30-48 was moderate disability, 50-68 was severe disability, and 72 or more was complete disability.

- ***Visual Analogue Scale*** was used to measure the severity of headaches caused by smartphone addiction. It showed a straight line from 0 to 10, with 0 showing no pain, 5 showing distressing pain, and 10 showing unbearable pain.

The frequency and percentages of the categorical variables were calculated as a part of the data analysis, which was done using SPSS version 23. For continuous variables, mean and standard deviation were computed. The pearson correlation test was used to identify the variables that are connected to headaches and smartphone addiction.

Results

There were 400 adults in this study. Of these, 187 (46.8%) were male and 213 (53.3%) were female. Most participants were from Islamabad, with 160, then 143 from Taxila, and 97 from Rawalpindi, having the lowest participation. The participants aged between 18 -23 years were 262 (65.5%), the 24-29 years category had a frequency of 88 (22%), and the 30-35 years category had a frequency of 50 (12.5%). According to the results, the majority of the population were smartphone users because smartphones are necessary for everyone's life. In our population, people belong to different occupations. Out of 400 participants 259 (64.8%) were students, 126 (31.5%) were professionals and 15(3.8%) were others. The descriptive statistics of the study population were Functional HDI (21.10 ± 11.62), Emotional HDI (19.99 ± 12.47), HDI-Sum (41.09 ± 22.90) and SAS-Sum (33.48 ± 11.35). The correlation of smartphone addiction with pain (r =0.258, p=0.000), Functional HDI (r =0.349, p=0.000), Emotional HDI (r =0.364, p=0.000), and HDI-Sum (r =0.375, p=0.000) respectively as mentioned in Table-1.

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Table-1 Correlation of Variables SAS, Pain, Functional HDI, Emotional HDI, HDI Sum

	SAS Sum		Pain		Functional HDI		Emotional HDI	
	R	p-value	R	p-value	R	p-value	R	p-value
Pain	.258**	.000						
Functional HDI	.349**	.000	.464**	.000				
Emotional HDI	.368**	.000	.478**	.000	.813**	.000		
HDI Sum	.375**	.000	.494**	.000	.955**	.000	.949**	.000

**Significant correlation*
The Smart Phone Addiction Scale (SAS-SV)
Headache Disability Index
Visual Analogue Scale

Discussion

This research aimed to investigate the relationship between adult headaches and smartphone addiction. The results of the current study showed that there is a significant association between smartphone addiction and headache according to variables of gender, functional and emotional HDI, and there was no significant difference in pain among adults. Youths were likelier to become addicted to smartphones due to their user-friendly and modern applications. Young adults and teenagers both use smartphones for employment. In addition to professions, students are attached to their smartphones.

Our findings indicate that 99% of adults depend on their smartphones, which lowers their standard of living and gives them headaches. Men have headaches less frequently than females do; therefore, females, when compared with Men who are addicted to their smartphones, report experiencing worse headaches. The high degree of smartphone addiction, per the mobile phone addiction scale questionnaire, is linked to total impairment. With a significant p-value of 0.0001, there is a substantial positive relation between smartphone addiction and headache. Young adults do not experience different levels of headache severity, with a non-significant value of 0.242. Users of smartphones may devote over 3 hours a day to them, using them over 100 times per day, as per studies. Besides encouraging addiction, excessive usage of a cell phone may cause several health-related, psychological, behavioural, and sleeplessness. This unmanaged entanglement of persons' interest in smartphones could cause dependency, although it could be more prevalent among young individuals than in the aged. Students attending universities or college (youngsters) have become more inclined to have mobile phones, so they encounter higher mental burdens throughout their studies and exams, making them far more vulnerable to organizations' interest-grabbing techniques that garner our interest in helping regulate or

address the problem. Most people think this phone dependence occurs and, therefore, can harm customers' health, especially as resulting in mental as well as social problems and abnormal food habits. Yet, according to individual traits, extreme cell phone use could differ[18]. Most individuals, particularly the younger generation, are now so dependent upon mobile devices for communication and photo-sharing that they cannot operate them. Procrastination behaviour has now been recognized as a significant component of smartphone addiction. Suicidal thoughts, abnormal sleep habits, as well as a range of symptoms of depression are just a few of the prevalent psychiatric issues brought on by mobile phone addiction that result in a negative impact on psychological wellness[19].

According to stats, those groups are different from one another. There was no significant difference in the kinds of headaches between groups. Most smartphone users who reported headaches had used this device for a year. Most headache-related smartphone users have used their first smartphone. Higher phone users experienced headache bouts that lasted longer than those of lower smartphone users and smartphone non-users for each case. Heavy smartphone users had headache episodes more commonly than those who did not use them, and also, women who used smartphones regularly had headaches at a higher rate than men. Smartphone users took painkillers more often than those who did not own a phone. Intensity of mobile use was strongly correlated to the duration and number of headache episodes. There was no correlation between mobile usage intensity and VAS. Recent research found that mobile phones significantly increase the incidence of headaches. Notably, most people who have used his device for four years or more reported headaches. The research found that individuals who used mobile phones mainly for social media would have many headaches. In contrast, individuals who utilized devices from 3 to 4 hours per day could have a high incidence of headaches[20].

Most research on high levels of screen time among adolescents in Brazil has concentrated on how much they spend on TV, collecting data from younger age groups and employing different ideas. The bulk of them also happened inside the south and southeast, which restricts the applicability of the findings. This is because these areas have more advanced nations, which promotes better utilization of gadgets (such as computers and the net), which could encourage people to adopt sluggish habits[21]. According to the Technology Acceptance Model (TAM), which claims that elements influencing one's adaptability include being portable, trendy, multifunctional, compact, configurable, etc., phones have become increasingly portable, trendy, multifunctional, and compact are quite an evident candidate for their more excellent perceived value and ease of use as contrasted to other gadgets very convenient. The advancement of technology has impacted all of us, which may benefit everyone in both our lives at home and work. As more users relax by fiddling with their phones in the 21st generation, the abuse of cell phones continues to upswing[22]. In contrast with other research, our study found that women who use smartphones are far more likely than men to get headaches. Additional research results showed how distress causes headaches to become more intense. In our study, headache severity does not differ significantly between people who have a severe smartphone addiction, yet its levels rise.

Recommendations and Limitations

This study could not address headache treatment, which was just as crucial. There remains a lot to learn about different forms of headaches and additional difficulties involving Neurological illnesses, eyesight, and auditory disorders. It is also critical to spread knowledge about the disorders linked to prolonged use of screens. More longitudinal studies on the general public of all years must be conducted because of its widespread use around the world and the fact that it also harms older adults.

Conclusion

It has been determined that adults get headaches as a result of smartphone addiction due to their unlimited use of smartphones. Adults who own smartphones suffer from both functional and emotional harm.

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Conflict of Interest
None.

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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design: Gill U

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Manuscript Writing & Approval: Mehmood Z

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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