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ORIGINAL ARTICLE

Assessing the Impact of Mobile Phone Usage on Mental Health, Biochemical Stress Markers and Academic Performance of Medical Students of Sheikh Zayed Medical College Rahim Yar Khan

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ABSTRACT

Introduction: Mobile phones have revolutionized the way we communicate, access information, and navigate our daily lives. Medical students, in particular, have embraced mobile technology as a vital tool for learning, socialization, and stress management. However, the excessive use of mobile phones has raised concerns about its impact on physical and mental health, as well as academic performance. Medical students are already vulnerable to high levels of stress, anxiety, and burnout due to the demands of their rigorous academic programs.

Objectives: The objective of the study is to investigate the relationship and the impact between mobile phone usage and health outcomes (stress, anxiety, sleep quality) and academic performance (marks, study habits) among medical students of Sheikh Zayed Medical College Rahim Yar Khan.

Methodology: A cross-sectional study was conducted on medical students of all five years of Sheikh Zayed Medical College, Rahim Yar khan. Sample of 270 MBBS students of Sheikh Zayed Medical College from 1st year MBBS to final year MBBS was taken in this study. Data was collected from 270 medical students interpersonally through hard copy. Data was analyzed using SPSS version 23 software and results were interpreted in the form of tables and figures.

Results: During the period of inquiry, medical students of Sheikh Zayed Medical College were investigated for the purpose of impact on their academic performance as well as their health by the usage of mobile phones. Total 270 students of SZMC participated in research. Out of which 82.6% students are of age 20-25 years of age. 82 students are of 1st year MBBS, 42 of 2nd year MBBS, 46 of 3rd year MBBS, 54 of 4th year MBBS and 46 of final year MBBS. More than half of students uses mobile phone for more than 4hrs/day, 41.7% males and 39.4% females stated decline in their academic performance by using mobile phone. 43.7% students state negative impact of phone use on retention of information 40% males and 43.9% females agreed that usage of mobile phone is necessary for academic success, 60.0% males and 56.10% females state that there is eyestrain by using mobile phone. 67% males and 73.5% females state that there is no anxiety by using phone. 72.2% males and 59.4% female students state headache by mobile phone usage, 53% males and 47% females' states sleep disturbance with mobile phone use. 46% students using phone for more than 5 hours have decline in their performance. 58.10% participants have eyestrain by phone.

Keywords: Impact of Mobile Phone, Mental Health, Academic Performance, Medical Students

INTRODUCTION

The rapid advancement in mobile technology over the past two decades has led to a significant increase in the use of electronic devices across all age groups. Among these, smartphones have emerged as the most commonly used devices, especially among young adults, including university and medical students. These devices have become an integral part of daily life, offering not just communication but also internet access, multimedia functions, and educational support through countless mobile applications. The portability and multi functionality of smartphones have transformed them into essential tools for learning and staying connected[1,2].

Medical students, in particular, rely heavily on mobile phones for academic and clinical purposes. Smartphones provide immediate access to online textbooks, research articles, clinical practice guidelines, drug databases, and educational videos[2,3]. They also serve as platforms for communication, collaboration, and interaction with peers and faculty. Used appropriately, smartphones can enhance motivation, facilitate learning, improve efficiency, and help students stay updated with the latest advancements in medicine[4,5].

However, despite these advantages, there is growing concern over the excessive and sometimes inappropriate use of mobile phones among students. This overreliance on mobile phones has been linked to several negative consequences. Numerous studies report that prolonged usage can lead to distraction, procrastination, and reduced academic engagement[6]. In academic settings, students who frequently use phones during lectures may struggle to focus, miss important information, and underperform in examinations. The misuse of social media, gaming apps, and non-academic content further contributes to a decline in academic performance[7].

Beyond academics, mobile phone overuse can negatively affect physical and mental health. Prolonged screen time, especially during nighttime, disrupts sleep patterns due to blue light exposure and mental stimulation. This can lead to poor sleep quality, insomnia, fatigue, and reduced daytime alertness[8,9]. Repeated and prolonged use of mobile phones has also been associated with musculoskeletal issues such as neck pain, eye strain, and repetitive strain injuries like "text neck" and "smartphone thumb." These issues are exacerbated by poor posture and lack of physical activity during screen use[10,11].

Psychologically, high mobile phone dependency has been associated with anxiety, depression, stress, and reduced self-esteem[12]. Terms like nomophobia (fear of being without a mobile phone), textaphrenia (phantom text message sensation), and ringxiet**y** (phantom ringing) have been coined to describe modern-day psychological conditions linked to smartphone addiction. These conditions affect users' ability to concentrate, regulate emotions, and maintain face-to-face communication, often leading to social withdrawal and reduced academic productivity[15,16].

Mobile phone addiction is increasingly recognized as a behavioral disorder, characterized by compulsive usage, dependence, and withdrawal symptoms when access is restricted. The World Health Organization (WHO) has emphasized the

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importance of addressing such behavioral addictions due to their far-reaching impact on personal well-being and productivity[17,18].

In the context of medical education, where academic pressure is high and time management is crucial, it becomes imperative to understand how mobile phone usage affects students' health and academic outcomes. Although mobile phones are widely used among medical students in Pakistan, limited local data exist on the extent of their usage and its effects[19,20].

Objective: This study aims to assess mobile phone usage patterns among medical students, including the duration and reasons for usage. It further explores the associated impacts on health—such as eyestrain, headaches, musculoskeletal discomfort, and sleep disturbances—as well as on academic performance. By identifying both the benefits and risks of smartphone use, the study seeks to provide evidence-based insights to help medical educators, students, and policymakers develop balanced approaches to mobile phone use in academic environments.

METHODOLOGY

Study Setting: The study was conducted on MBBS students of Sheikh Zayed Medical College Rahim Yar Khan.

Duration of Study: The duration of the study was January 2023 to May 2023.

Study Design: Cross-Sectional Study

Sampling Technique: Sampling was non-probability convenient sampling.

Sample Size: The sample size was consisting of 270 MBBS students of Sheikh Zayed Medical College from 1st -year MBBS to final-year MBBS.

Inclusion Criteria: This research only includes MBBS students of Sheikh Zayed Medical College Rahim Yar Khan.

Exclusion Criteria: No other departments (DPT, MLT and nurses) and medical college students were allowed to take part in this research.

Data Collection: Data was collected interpersonally through hard copy.

Analysis: Data was analyzed by SPSS version 23 software.

RESULTS

The research conducted at Sheikh Zayed Medical College (SZMC) involved 270 students, predominantly aged 20-25 years (82.6%), with a significant portion (41.1%) reporting mobile phone usage of more than 4 hours daily. The study revealed that 40.4% of participants experienced a decline in academic performance, with 43% indicating that mobile phone usage significantly distracted them during lectures. Additionally, 43.7% of students reported that their retention of information was negatively affected by mobile phone use. Health-related issues were also prevalent, with 58.7% of students experiencing eye strain, 64.8% suffering from headaches, and 50% reporting sleep disturbances. Anxiety was noted in 29.3% of participants, highlighting the health implications of excessive mobile phone usage. The data further indicated that gender differences existed, with 41.7% of male students and 39.4% of female students reporting a decline in academic performance due to mobile phone use. Overall, the findings underscore the dual impact of mobile phone usage, serving as both a valuable educational tool and a source of distraction and health concerns, necessitating a balanced approach to mobile phone integration in academic settings.

Table 1: Age of Students

Age	Frequency	Percentage
19 or under 19 years	46	17
20-25 years	223	82.6
26 or above 26 years	1	0.4
total	270	100

Table 2: Study year of students

Classes	Frequency	Percentage
First Year	82	30.4
Second Year	42	15.6
Third Year	46	17
Fourth Year	54	20
Final Year	46	17
Total	270	100

Table 3: Number of hours spent on mobile

Time	Frequency	Percentage
Less than 1 hour	4	1.5
1-3 hours	52	19.3
4-5 hours	111	41.1
More than 5 hours	103	38.1
Total	270	100

Table 4: Change in Academic Performance

Performance	Frequency	Percentage
Improved	66	24.4
Not Effected	95	35.2
Decline	109	40.4
Total	270	100

Table 5: Essential for Academic Success

Essential for Academic Success	Frequency	Percentage
Disagree	11	4.1
Neutral	145	53.7
Agree	114	42.2
Total	270	100

Table 6: Anxiety according to Gender of students

			Gender of Students		Total
Anxiety			Male	Female	
	Yes	Count	38	41	79
		% Within Gender	33%	26.50%	29.30%
	No	Count	77	114	191
		% Within Gender	67%	73.50%	70.70%
Total		Count	115	155	270
		% Within Gender	100%	100%	100%

Table 7: Headache According to Gender of Students

			Gender of Students		Total
Headache			Male	Female	
	Yes	Count	83	92	175
		% Within Gender	72.20%	59.40%	64.80%
	No	Count	32	63	95
		% Within Gender	27.80%	40.60%	35.20%
Total		Count	115	155	270
		% Within Gender	100%	100%	100%

Table 8: Sleep Disturbance

			Gender of Students		Total
Sleep Disturbance			Male	Female	
	YES	Count	54	81	135
		% Within Gender	47%	52.30%	50.0%
	NO	Count	61	74	135
		% Within Gender	53%	47.70%	50%
Total		Count	115	155	270
		% Within Gender	100%	100%	100%

DISCUSSION

The increasing prevalence of mobile phones among students, particularly within the realm of medical education, has generated substantial interest in assessing their impact on academic performance and mental health. This discussion synthesizes the findings from a research conducted at Sheikh Zayed Medical College (SZMC) alongside pertinent literature to examine the complex effects of mobile phone usage.

The research involved 270 students, predominantly aged 20-25 (82.6%), with diverse representation across academic years. Notably, the data revealed that a significant portion of students (41.1%) spent more than 4 hours daily on their mobile devices. Research found that college students spent a lot of time on their phones almost nine hours daily[19]. This aligns with the assertion that mobile phones have become integral to students' lives, serving various purposes from communication to academic resources[20] However, the excessive use of these devices raises concerns about potential negative consequences on academic performance and mental health

The findings indicate a concerning trend regarding academic performance. Approximately 40.4% of participants reported a decline in their academic performance attributed to mobile phone usage This decline can be linked to several factors, including distractions during lectures and study sessions. The data showed that 43% of students felt that mobile phone usage significantly distracted them during lectures. This distraction is corroborated by literature suggesting that mobile phone addiction can lead to inattention and academic procrastination, ultimately affecting student's ability to engage with their studies effectively[21] The results of a meta-analysis showed that smartphone addiction has negative effects on students' academic performance

Moreover, the research highlighted that 43.7% of students believed that mobile phone usage negatively impacted their retention of information. This finding is particularly alarming as retention is crucial for medical students who must assimilate vast amounts of information. The literature supports this, indicating that excessive mobile phone use can lead to cognitive overload and hinder learning[22]

The health implications of mobile phone usage are equally significant. The study found that 58.7% of students experienced eye strain, 64.8% reported headaches, and 29.3% experienced anxiety related to mobile phone use. These physical symptoms are often precursors to mare severe mental health issues, including stress and depression, which have been documented in medical students globally. The relationship between mobile phone addiction and mental health issues is well-established, with studies indicating that high usage correlates with increased anxiety and depressive symptoms.

Furthermore, the research indicated that 50% of participants experienced sleep disturbances, a critical factor that can exacerbate both academic performance and mental health.

Sleep deprivation is particularly concerning for medical students, who already face high levels of stress and demanding schedules. The literature suggests that poor sleep quality can lead to cognitive deficits, further impairing academic performance. The analysis also revealed gender differences in the impact of mobile phone usage on academic performance and mental health. Males reported a higher percentage of decline in academic performance (41.7%) compared to females (39.4%). This disparity may reflect differing usage patterns or social expectations regarding mobile phone use among genders, warranting further investigation.

CONCLUSION

The research conducted at Sheikh Zayed Medical College (SZMC) highlights the significant impact of mobile phone usage on both academic performance and health among students. The findings indicated a troubling correlation between excessive mobile phone use and academic decline, with 40.4% of students acknowledging a decrease in their academic performance, primarily due to distractions during lectures. Additionally, the study identified various health issues associated with mobile phone usage, including eye strain (58.7%), headaches (64.8%), and sleep disturbances (50%), which further exacerbate the challenges faced by students. Anxiety was reported by 29.3% of participants, indicating a notable mental health concern linked to mobile phone dependency.

In conclusion, the findings from the research conducted at SZMC highlight the complex nature of mobile phone usage among students. While mobile phones can serve as effective educational tools, their excessive use poses considerable risks to both academic performance and mental health. The data indicate a critical need for educational institutions to develop and implement strategies that encourage responsible mobile phone usage. This could include initiatives such as digital literacy programs and awareness campaigns addressing the potential negative effects of excessive screen time.

Moreover, the current research reveals an insufficient distinction between various categories of mobile phone usage particularly educational versus recreational and their respective impacts on academic outcomes and mental well-being. Future research should further investigate these dynamics, emphasizing interventions that can alleviate the detrimental effects of mobile phone usage on student's academic performance and mental health.

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