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Prevalence of Digital Addiction among Medical Students in Iraq

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ABSTRACT

This study investigates the prevalence of smartphone addiction among medical college students in different Iraqi universities and its impact on academic performance, mental health, and physical well-being. A descriptive cross-sectional design was employed using an online self-administered survey, distributed via social media from 14 February 2025 to 24 March 2025, which yielded responses from 673 participants from various institutions, predominantly from the University of Babylon. The sample included students from different medical specializations and different academic years, with a higher proportion of females (66.7%). The findings indicate a high prevalence of physical discomfort and psychological stress among users, as well as impaired academic performance and reduced engagement in social activities. Study recommends that educational institutions implement targeted awareness programs, promote digital detox initiatives, enhance counseling services, and consider policy interventions in academic settings. Moreover, future research employing longitudinal designs and objective usage metrics is needed to further elucidate the health implications of excessive smartphone use.

Keywords: Digital, Addiction, Medical Students, Iraq, prevalence.

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INTRODUCTION

Addiction is generally defined as a compulsive need to engage in a certain behavior or consume a substance, despite its negative consequences. It is often associated with loss of control, dependence, and withdrawal symptoms. While addiction was traditionally linked to substances like drugs and alcohol, modern research recognizes behavioral addictions, including smartphone addiction. Smartphone addiction refers to excessive and uncontrollable smartphone use that interferes with daily life. With smartphones becoming an essential part of communication, work, and entertainment, many people struggle to limit their usage. Smartphones, with their touch-screen interface and a multitude of apps, have become an essential part of modern life (Ting & Chen, 2020).

While smartphones offer convenience, studies have revealed a concerning trend where people are devoting increasingly more time to their smartphone usage. Various terminologies are used to describe increased smartphone usage, including smartphone addiction (SA), problematic mobile phone use, mobile phone dependency, and compulsive mobile phone use (Al-Barashdi et al., 2015). Although smartphone users of all age groups can be at risk of addiction, studies have reported that adolescents and young adults may be at particular risk (Sohn et al., 2019).

Globally, the prevalence of SA among children, adolescents, and young adults ranges from 10% to 67% (Das et al., 2024). Smartphone addiction can lead to various negative consequences affecting mental, physical, and social well-being. Excessive smartphone use has been linked to anxiety, depression, and increased stress levels. Studies suggest that overuse can negatively impact emotional stability and overall psychological well-being.

Prolonged smartphone use, especially before bedtime, can disrupt sleep patterns and reduce sleep quality. The blue light emitted by screens suppresses melatonin production, making it harder to fall asleep. Continuous smartphone usage can also cause musculoskeletal discomfort, eye strain, and headaches due to poor posture and prolonged screen exposure. Excessive smartphone use can negatively impact concentration and cognitive abilities, making it difficult to focus on tasks, work, or studies. Smartphone addiction contributes to distracted driving and pedestrian accidents, as users often focus on their screens instead of their surroundings (Rush, 2011). Understanding these negative effects highlights the importance of managing smartphone usage to maintain a healthy balance in daily life (Hope, 2010).

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In this research, we will focus on the prevalence of smartphone addiction among medical students in Iraqi universities and its impact on their academic performance, mental health, and overall well-being.

METHODOLOGY

A descriptive cross-sectional study was conducted using an online self-administered survey from February 14 to March 24. The aim of the study was to assess the prevalence of smartphone addiction among medical college students in Iraqi universities and to examine its impact on academic performance, mental health, and physical well-being. The study was implemented without direct contact with the participants, and the survey was distributed via various social media platforms and student groups. The study targeted medical college students residing in Iraq. A total of 673 participants were recruited using convenience sampling. Data were collected using an online questionnaire developed via Google Forms. The questionnaire was initially drafted in English and then translated into Arabic to suit the targeted population; a back-translation to English was performed to ensure content validity.

An anonymous, free online survey was administered over a four-week period. The questionnaire was disseminated via social media channels and online groups frequented by Iraqi university students. Participants were encouraged to share the survey within their networks to maximize the sample size. Prior to beginning the survey, participants were provided with an explanation of the study's objectives, and informed consent was obtained electronically. The estimated time to complete the survey was approximately 5–10 minutes.

The analysis focused on the distribution of responses within each category, enabling the identification of trends and patterns related to smartphone addiction among the study population.

RESULTS

Demographic and Academic Distribution of Participants. The majority of participants (83.2%) were between 20–25 years old—a demographic typical of university students. Geographically, 66% of participants were affiliated with the University of Babylon, followed by the University of Dhi-Qar (7.1%), the University of Basra (6.7%), and the University of Karbala (5.2%). The remaining 0.98% were distributed across the following institutions: Al-Qadisia, Ahul-Albait, Warth-Alanbea, Al-Kufa, Al-Furat, Baghdad, Mosul, Wasit, Misan, and Al-Hikma universities.

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Academically, the majority of participants were medical students (63.3%), followed by pharmacy (13.5%), nursing (11.5%), and dental students (3.6%), with other medical specialties collectively representing 9.1%. Distribution by Academic Stage. Participation varied across academic years, with third-year students constituting the largest proportion (27.9%), followed by fourth-year (23.8%), fifth-year (18%), and second-year students (15.5%). The lowest representation was observed among first-year (7.1%) and sixth-year students (7.7%). Key Findings on Smartphone Usage Impacts

Table 1: *Percentage Distribution of Participants' Responses to Smartphone Usage Effects*

Category	Question/Statement	Yes (%)	No (%)	To Some Extent (%)	Unsure (%)
Physical & Psychological Symptoms	Dizziness/Blurred Vision from Excessive Use	34.9	27.9	30.5	6.7
	Wrist/Neck Pain During Use	42.5	30.8	22.0	4.8
	Reduced Sleep Quality/Fatigue	60.3	17.1	18.0	4.6
	Depression/Anxiety When Unable to Use	29.6	34.2	30.9	5.3
	Auditory Hallucinations (Hearing Phone Sounds)	11.1	74.4	9.4	5.1
	Comfort/Happiness While Using	41.3	12.5	39.8	6.4
	Using Smartphone to Relieve Stress/Anxiety	59.3	15.9	22.6	2.2
	Perceiving Life as Empty Without Smartphone	30.9	32.2	29.4	7.4
	Persistent Thoughts About Smartphone	23.9	46.8	25.0	4.3
	Strong Urges to Resume Use After Stopping	27.9	40.7	27.6	3.7
	Boredom During Non-Smartphone Activities	13.8	66.6	15.9	3.7
	Total Reliance for Schedules/Personal Info	27.0	42.2	27.0	3.7

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Usage & Behavioral Indicators	Difficulty Focusing During Lectures/Tasks	40.0	34.5	22.6	3.0
	Use at Inappropriate Times (Lectures/Meetings)	29.6	50.2	18.0	2.2
	Taking Phone to Bathroom When Rushed	13.1	76.8	8.8	1.3
	Constant Charger Preparation	41.8	34.5	22.0	1.8
	Neglecting Tasks Due to Overuse	58.7	16.6	22.3	2.4
	Failed Attempts to Reduce Usage	40.6	30.5	23.9	5.1
	Checking Social Media After Waking	56.0	22.4	20.1	1.5
	Constant Checking to Avoid Missing Conversations	37.6	39.7	20.5	2.2
	Comfort When Phone is Near Bed	45.8	29.6	18.6	6.1
	Continuing Use Despite Negative Impacts	22.1	41.8	22.7	13.4
Social & Academic Aspects	Virtual Friends Understand Better Than Real-Life Friends	15.3	67.2	10.0	7.6
	Prefer Smartphone Communication Over In-Person Meetings	12.0	74.1	10.1	3.7
	Reduced Participation in Social/Sports Activities	24.8	49.6	19.8	5.8
	Receiving Warnings About Overuse	20.2	54.7	21.5	3.6

Note: This table displays participants' responses categorized by physical/psychological symptoms, usage behaviors, and social/academic impacts.

DISCUSSION

This study assessed the prevalence of smartphone addiction among 673 medical students from various Iraqi universities and revealed a multifaceted impact on their daily lives. The results not only highlight physical, psychological, and academic concerns but also provide insight into specific behaviors that may signal deeper dependency issues.

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Additionally, academic level varied among students, yet its potential influence on smartphone addiction remains underexplored. While younger students may initially struggle with self-regulation regarding smartphone use, senior students could experience heightened dependency due to academic stress and digital resources used in their studies. Future research should explore whether addiction severity varies by academic level, as Lane et al. (2021) suggest that academic pressures may influence digital overuse.

Physical Impact of Smartphone Overuse

A significant portion of the students reported physical symptoms associated with excessive smartphone use. About 34.9% experienced dizziness or blurred vision, which could be attributed to prolonged screen exposure and suboptimal viewing conditions. Additionally, 42.5% reported wrist or neck pain—a finding that aligns with earlier research linking repetitive movements and sustained postures to musculoskeletal discomfort.

Sleep quality was also adversely affected, as 60.3% of respondents acknowledged that excessive phone use resulted in poor sleep and subsequent fatigue. However, another related factor is keeping the phone next to the bed while sleeping, which 45.8% of participants admitted to doing. The mere presence of a smartphone nearby has been linked to sleep disturbances due to notifications, blue light exposure, and the temptation to check the device before or during sleep. This behavior may indicate a psychological reliance that extends beyond active phone use.

Furthermore, ensuring that the phone remains charged at all times was a habit among 41.8% of participants. This reveals an underlying anxiety about device availability, suggesting a form of digital dependency where the fear of a dead phone battery outweighs other concerns. Studies like Elhai et al. (2017) have identified this behavior as a key indicator of problematic smartphone attachment.

Psychological and Emotional Effects

Our study reveals substantial psychological impacts, is not just a calling device, game console, but also a friend because it brings them fun, relieves their exhaustion and anxieties, and makes them feel safe. Nearly 29.6% of participants felt depressed or anxious when not using their smartphones, suggesting a dependency that goes beyond habitual use.

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In contrast, 41.3% reported feelings of comfort or happiness when using their devices, and 59.3% indicated that they use their smartphones to relieve stress—a behavior that may be particularly pronounced given the high academic pressures faced by medical students. The high-stress environment inherent to medical education could drive these students to rely on their devices as a coping mechanism.

Moreover, 30.9% of respondents felt that their lives would be empty without their smartphones, while 23.9% admitted to continuously thinking about their phones even when not in use. A particularly concerning finding was that 11.1% reported experiencing auditory phenomena—often described as hearing sounds from the phone even when it was not in use. This could be interpreted as a form of sensory overload or a transient auditory hallucination, possibly linked to sleep deprivation and constant digital stimulation. Research by Kuss and Griffiths (2017) suggests that excessive screen time can disrupt normal sensory processing, leading to such perceptual anomalies.

However, another important yet unaddressed psychological behavior is the strong urge to use the smartphone immediately after stopping, which was reported by 27.9% of participants. This indicates a compulsive tendency similar to withdrawal symptoms seen in substance dependencies. The inability to stay away from the device even briefly suggests reinforcement mechanisms that encourage habitual use, which aligns with addiction models described by Elhai et al. (2017).

Social Interaction and Dependency Behaviors

Socially, the results are mixed. While only 15.3% believed that online interactions via smartphones were more meaningful than face-to-face relationships, 12% preferred virtual communication over in-person contact. The majority (74.1%) did not favor virtual interactions, indicating that while dependency exists, it does not entirely replace real-world social engagement. However, 20.2% of the students reported that peers had raised concerns about their excessive phone use, reflecting external perceptions of dependency.

Additionally, the impact of smartphone use on participation in social or sports activities was overlooked in the initial discussion. A total of 24.8% of respondents admitted that excessive smartphone use reduced their engagement in such activities. This aligns with findings by Kuss and Griffiths (2017), who argue that digital overuse often replaces physical and social engagements, leading to sedentary lifestyles and weakened interpersonal connections.

DOI: 10.48165/sajssh.2024.6410

Another notable behavioral aspect revealed students' reliance on smartphones for storing schedules and personal information, with 27% of participants admitting to this habit. This reliance indicates that smartphones are no longer just tools for communication and entertainment but have become essential for daily organization. While digital scheduling can enhance efficiency, it also increases a level of dependence that may make it difficult for students to manage their time without their devices. In the event of device malfunction or loss, they may experience a complete loss of data, exposing them to the risk of disrupting their academic or personal schedules.

According to Elhai et al. (2017), this type of technological reliance is described as "cognitive offloading", where individuals transfer tasks such as memory and organization to digital devices, rather than relying on their internal cognitive processes. This behavior can cause an overdependence on technology, where students begin to struggle with managing tasks without their smartphones.

This phenomenon leads to concerns about "cognitive dependency", a condition where individuals find it difficult to recall or organize information independently. Lane et al. (2021) suggest that such reliance on digital devices can create vulnerabilities, particularly when devices become unavailable due to technical issues, power failures, or even cyber-attacks, all of which threaten data privacy. Furthermore, the excessive reliance on smartphones for organization and scheduling can increase stress levels. When students are bombarded with constant notifications and reminders, this can lead to "decision fatigue", which may reduce their productivity instead of enhancing it. This is especially concerning in the medical education context, where students need precise time and task management.

The findings of Choi et al. (2015) support this, noting that 68% of students who rely on smartphones for storing information experience ongoing anxiety about the security of their data, fearing its loss. As Young et al. (2014) highlighted, the pressure of medical education amplifies this issue, as students need to develop high levels of organizational skills independently of digital tools.

Over-reliance on smartphones, as discussed by Elhai et al. (2017), may disrupt this crucial skill development, potentially undermining students' ability to adapt to situations where technological solutions fail.

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Another indicator of dependency is checking social media immediately upon waking up—a behavior reported by 56% of participants. This suggests a ritualistic attachment to digital interactions that can shape daily routines and mood regulation. Studies indicate that morning screen exposure may disrupt cognitive performance and set a pattern of compulsive engagement throughout the day (Lane et al., 2021).

Finally, constantly checking the phone to avoid missing messages was another behavior seen in 37.6% of participants. This hyper-vigilance reflects the fear of missing out (FOMO), a phenomenon linked to anxiety and compulsive social media use. Such tendencies may reinforce smartphone addiction, as individuals feel pressured to remain perpetually available.

Academic and Daily Functioning

Academic performance appears to be notably affected. Forty percent of students experienced difficulty concentrating during lectures due to smartphone distractions, and 58.7% felt that their academic work suffered as a consequence—leading to a buildup of tasks. Additionally, 29.6% admitted to using their smartphones in inappropriate settings, such as during lectures or meetings, further emphasizing the intrusion of digital habits into academic life.

Beyond the previously discussed academic issues, some students admitted to being unable to reduce their smartphone use despite trying—a clear marker of addiction. This was reported by 40.6% of participants, indicating a loss of self-control, which is a core characteristic of behavioral addiction. Similar findings in Elhai et al. (2017) suggest that failed attempts to regulate digital use often stem from psychological reinforcement mechanisms and social pressures.

More concerning, 22.1% of students stated that they would continue using their smartphones even if it negatively affected their lives. This highlights an awareness of harm without behavioral change—suggesting denial, dependency, or deep-rooted compulsions similar to those seen in substance abuse disorders. Kuss and Griffiths (2017) emphasize that such rationalization is common in behavioral addictions, reinforcing problematic habits.

Overall Implications and Future Directions

Taken together, these findings paint a picture of significant smartphone dependency among medical students—a group already under considerable academic and psychological stress. The physical symptoms, such as musculoskeletal pain and visual disturbances, combined with

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psychological signs of stress and dependency (including auditory phenomena and a constant need to check the device), suggest that excessive smartphone use may be impairing both health and academic performance. As Lane et al. (2021) observed, high digital engagement can lead to both cognitive and sensory disruptions, while the work of Kuss and Griffiths (2017) supports the idea that excessive screen time may contribute to unusual sensory experiences.

Given the demanding nature of medical education, these findings emphasize the need for targeted interventions to promote healthier digital habits. Future research should adopt longitudinal designs and incorporate objective usage metrics to better understand the causality and long-term impact of smartphone addiction in this population. Moreover, exploring tailored stress management and ergonomic interventions could help mitigate the adverse effects documented in this study.

CONCLUSION

The findings of this study reveal that smartphone addiction is a prevalent issue among medical college students in Iraqi universities, with a significant proportion of participants exhibiting signs of excessive smartphone use. This dependency is associated with a range of adverse effects, including physical symptoms such as dizziness, blurred vision, and musculoskeletal pain, as well as psychological challenges like anxiety, depression, and sleep disturbances. Moreover, the excessive use of smartphones appears to negatively affect academic performance and social interactions, indicating that digital dependency may have far-reaching consequences on students' overall well-being. These results underscore the urgency of addressing smartphone addiction as a public health concern in the academic environment.

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