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Smartphone Addiction Effect on Vision Syndrome and Fatigue for Students Colleges at Mosul City Universities, Iraq

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Abstract **Background**: College students worldwide are using smartphones more frequently. These users' health is suffering and they are wasting their valuable study time. **Aim**: This study aimed to identify the effects of smartphone addiction on vision syndrome and fatigue of college students. **Methods**: Cross-sectional study designed from 2024 to 2025. A purposive sample was 1700 university students from universities in Mosul City. Data collection was executed using a questionnaire that sought data regarding demographics, Smartphone addiction, fatigue and vision syndrome. Analysis of data by using descriptive and inferential statistics. **Results**: The results of the study showed that 48.4% had moderate addiction to smartphones, while 37.8% had severe addiction. Moderate fatigue considered as 38.1%, while 40.4% had moderate vision syndrome. Smartphone addiction was recorded as a significant association with vision syndrome and fatigue among university students. The correlation coefficients between Smartphone addiction and fatigue ($p \leq 0.01$) and with vision syndrome ($p \leq 0.01$) showed significant associations. **Conclusion**: Excessive use of smartphones has led to increased fatigue and vision syndrome among students. Focusing on these results is justified. Therefore, awareness campaigns and intervention programs should be initiated immediately to protect Mosul University students from the negative effects.

Key Words Smartphone Addiction, Fatigue, Vision Syndrome, University Students

INTRODUCTION

The terms smartphone, smartphone and cell phone were used twenty years ago interchangeably but had significant implicit differences in function [1] are a lot as all of the benefits are in there [2], also has paralleled with an increase in apprehension about the harms of smartphone use [3]. Smartphone addiction (MPC) is a trending topic in contemporary society, with a rising literature body suggesting multiple health and wellness consequences [4] such as physical and mental health problems such as hand diseases, eyesight problems, headaches, fatigue and cognitive impairment [5]. In light of the potential influence of MPA and its consequences, a systematic investigation is required to inform the development of interventions that promote usage [6]. Different researchers have approached health-related issues from different perspectives. For instance, some have focused solely on health disorders such as eye illnesses [7], while others have studied the impacts on health more generally, including mental health and physical health [8]. Problems with smartphone addiction (MPA) have also been associated with hand-related issues like wrist and finger pain [9]. In addition to eye problems such as tired eyes and vision that is hazy [10]. Furthermore, more smartphone use has been associated with an increase in tiredness and a decrease in mental performance, which requires more investigation [11]. Although the phone devices have aided communication in various ways, the excessive and irresponsible use of these devices is predicted to induce fatigue, as well as various other issues in the academic, physical and social aspect [12,13]. For students, smartphones and the internet constitute important technological developments that make accessing information easier across a wide range of activities [14]. This may lead to an increase in usage that can become excessive and may be associated with disruptions in sleep patterns, fatigue, headaches and eyestrain [15] Given the large number of students or young people, the vastly increased internet and smartphone use in recent years suggests that more study on their potentially ill effects is needed [16]. Excessive internet use had a profound correlation with problems like difficulties waking up from sleep and dozing off during lectures, adversely affecting academic and health

outcomes [17]. Another study mentioned students of universities in Mosul have complaints of persistent fatigue (21.3%), which is often related to academic stress, poor lifestyle choices and suboptimal sleep [18].

METHODS

Study Design

A cross-sectional approach was used in this study to assess smartphone addiction affected Mosul university students' vision syndrome and fatigue. A study period from 2024 to 2025.

Sample and Data Collection

A purposive sampling technique was used to select participants. A sample consists of 1700 students from universities in Mosul. Specifically, samples were collected from eight colleges at the University of Mosul, including Dentistry, Nursing, Agriculture, Engineering, Administration, Economics, Education and Law. The data for the current study were collected in November 2024 and continued until January 2025. This sample was selected according to some criteria, which were divided into two criteria, the inclusion criteria: the study focused solely on students in the third and fourth stages of public universities. While, exclusion criteria exclude private institutions to ensure consistency in sample characteristics and the first and second stages from public universities.

Tool of the Study

Data were collected using a structured questionnaire that taken from different literature and tested for validity and reliability, The Content validation of the questionnaires was done by eleven experts working on different sites (community health nursing, psychological and mental health nursing, adult health nursing, applied English, statistics) and followed up with evaluation by expert reviewers or committees to facilitate the validation of the content. Cronbach's alpha, a measure of the survey's internal consistency, was used to assess reliability. The dependability was found to be acceptable with an alpha of 0.85. They agreed to use them after amending, while reliability was tested through pilot study take an about 50 sample from 15th to 30th October 2024. The questionnaire included sections divided on:

- **Demographics**: age, sex, field of study, how many hours used phone for study
- **Smartphone addiction**: Assessed using the smartphone addiction Scale Short version (SAS - SV) consist from 33 question [19]
- **Fatigue**: Assessed with the Fatigue Severity Scale (FSS) [20]
- **Vision Syndrome**: Evaluated based on symptoms such as eye strain, dryness and headaches [21]

Data Collection and Analysis

Data collection was entered into Microsoft Excel and coded. The first: included a measure of smartphone addiction, represented by thirty-three questions and the second was a measure of seeing tired, which was divided into two parts (Fatigue Rating Scale & Reactions to smartphone-induced vision syndrome) and included nineteen questions, according to five- point (Likert scale) scale used to code the answers: the coding was (1) for very simple, (2) for simple, (3) for normal, (4) for severe and then (5) for very intense. Export these data into SPSS (Statistical Package for the Social Sciences) version 29 in 2022 (frequency, percentage, ANOVA, regression and diagram explain the effect of smartphone addiction on fatigue and vision syndrome).

RESULTS

Table 1 illustrates the current demographic profile of 1,700 students. The age category of 21-23 years has the highest 54.9%, with males at 53.5% more than females and the live urban. Most students (54.5%) in the fourth year. Estimating Study Hours on Phone was (83.4%) spend 1-5 hours daily.

Table 2 represents the levels of smartphone addiction among university students in Mosul. The level ranged from moderate 48.4% to severe 37.8%.

Figure 1 depicts probability level = 0.000, Chi-Square = 19.734 e1, e2, e3 = Unobserved, exogenous variables, A1 = Fatigue, B = Smartphone Addiction, A2 = vision syndrome, C = Seeing tired (fatigue + vision syndrome).

Table 3 and Figure 2 display a highly significant relationship of smartphone with fatigue and vision syndrome.

DISCUSSION

These results indicated that Smartphone addiction, vision disorder and fatigue, are crucially interdependent among the university students in Mosul. The responses of male students

Table 1: Distribution of the demographic information for students (n=1700)

Demographic Information	Items	Frequency	Percent
Age Class	≤ 20 Years	244	14.4
	21 - 23 Years	934	54.9
	24 - 26 Years	421	24.8
	≥ 27 Years	101	5.9
Sex	Male	910	53.5
	Female	790	46.5
Residence	Inside the City	1273	74.9
	Outside the City	427	25.1
University Name	Mosul University	796	46.8
	Nineveh University	185	10.9
	North Technical University	88	5.2
	Tal Afar University	333	19.6
	Al-Hamdaniya University	298	17.5
College Name	Nursing College	282	16.6
	Dental College	138	8.1
	Pharmacy College	184	10.8
	Engineering Techniques	227	13.4
	Management and Economics	255	15.0
	Law College	184	10.8
	College of Education	358	21.1
	Agriculture College	72	4.2
Academic Stage	3rd Class	773	45.5
	4th Class	927	54.5
The Number of Hours Using the Mobile for the Study	No Use Mobile	65	3.8
	< 1 Hour	2	0.1
	1 - 5 Hours	1417	83.4
	6 - 10 Hours	154	9.1
	≥ 11 Hours	62	3.6

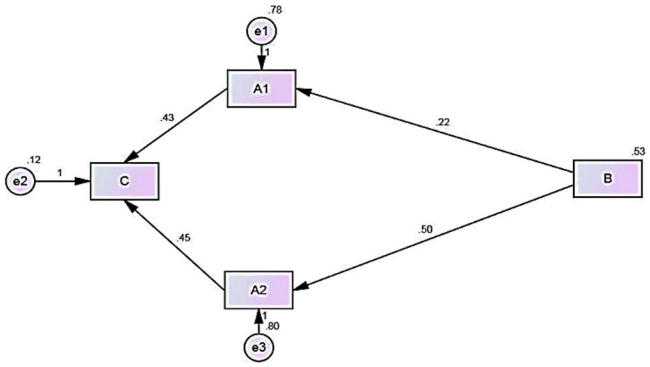

Figure 1: Show the effect of smartphone with fatigue and vision syndrome

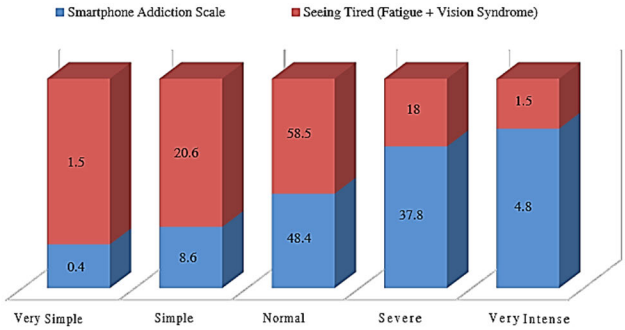

Figure 2: Percentage of smartphone addiction related to vision syndrome and fatigue

Table 2: Represented the smartphone addiction, vision syndrome and fatigue among students (n= 1700)

	Smartphone Addiction		Vision Syndrome Level		Fatigue Level	
Parameters	n	%	n	%	n	%
Very Simple	6	0.4	77	4.5	32	1.8
Simple	147	8.6	357	21.0	618	36.5
Moderate	823	48.4	686	40.4	647	38
Severe	643	37.8	461	27.1	321	18.9
Very Intense	81	4.8	119	7.0	82	4.8

Table 3: The effect of smartphone addiction on fatigue and vision syndrome in direct and indirect among students in Mosul government universities

Pearson Correlations		Fatigue level	Vision Syndrome
Smartphone Addiction	Correlation	0.198*	0.423*
	Sig. (2-tailed)	0.000	0.000
Fatigue level	Correlation	1	0.140*
	Sig. (2-tailed)	-	0.000

*Correlation is significant at the 0.01 level (2-tailed)

revealed a stupendous addiction to the smartphone, where 40.4% had moderate problems with their vision syndrome. Such correlation coefficient gaps display a strong relationship between Smartphone addiction to fatigue ($p \leq 0.01$) and vision syndrome ($p \leq 0.01$). These findings are consistent with other research that indicates excessive use of smartphones results in digital eye strain, musculoskeletal pain and psychological fatigue [5,10]. This study's findings alongside global studies show that students from Mosul universities are affected by Smartphone addiction comparably as other students from different parts of the world [8] conducted a study in Saudi Arabia that demonstrated the connection between Smartphone addiction and declines in academic performance, mental health problems and physical exhaustion. Moreover, [11] claimed that students' over-reliance on digital devices adversely affects their cognitive abilities which corroborates our finding of increased fatigue and low attention levels among individuals addicted to smartphones. The alarming tendency we found was having over 83.4 % of students utilizing their smartphones for 1 to 5 hours every single day. This sharp increase in usage is strikingly similar to the [12] study which suggested the possibility of Smartphone addiction among university students suffering from oxidative stress and neurodegeneration. Our finding on vision syndrome and cell phone addiction strongly correlates to what [7] reported: prolonged periods of eye contact with screens lead to a variety of complications including blurred vision and general eye discomfort. This study uniquely interjects a regional angle to previously conducted studies with Mosul students, who are often subjected to specific demographic and academic stressors. Smartphone addiction in the western world usually gets blamed on social media or video games - whereas, the students from our region use smartphones extensively for academic purposes, which also has negative health consequences. Mukhlif and Younis (2022) investigated the problem of internet addiction and fatigue among university students in Mosul. Their investigation revealed that 68.2% of students reported experiencing moderate fatigue and 12.2% reported severe fatigue, all predominantly attributed to overuse of the internet, thus illustrating the reality of fatigue [22].

CONCLUSIONS

The study highlights the great importance of Smartphone addiction regarding fatigue and vision syndrome in Mosul, university students in particular. The results substantiate that the problematic use of smartphones is associated with both physical and cognitive health problems, which strengthens the global concern of health risks of digital dependency.

Recommendation

The problem requires immediate interventions in the form of awareness campaigns to promote healthier smartphone behaviours among students through the universities organizing workshops or seminars aimed at reducing smartphone usage and digital eye strain and fatigue among students and other learners. Students should be encouraged to observe the 20-20-20 rule to reduce vision problems look away from the computer every 20 minutes for 20 seconds at a distance of 20 feet. More longitudinal studies need to be done on the impact of smartphone addiction and long-term health and academic performance impacts across various cultures and societal settings. Also, vision screening and fatigue measures are set for students who report health problems.

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Ethical Statement

In accordance with Administrative Order No. (54) dated October 28, 2024, the Scientific and Ethical Committee for Postgraduate Studies at the College of Nursing/University of Mosul obtained initial approval. The College Committee for Medical Research Ethics then provided approval letters and the five public Mosul universities also provided their approval.

REFERENCES

[1] Faith, B. and K. Hernandez. "Smartphone-and tablet-reliant internet users: affordances and digital exclusion." *Media and Communication*, vol. 12, 2024. https://doi.org/10.17645/mac.8173.

[2] Alhanatleh, H. *et al.* "Enhancing the public value of mobile fintech services through cybersecurity awareness antecedents: a novel framework in Jordan." *Investment Management & Financial Innovations*, vol. 21, no. 1, 2024, p. 417. https://doi.org/10.21511/imfi.21(1).2024.32.

[3] Gravenhorst, F. *et al.* "Smartphones as medical devices in mental disorder treatment: an overview." *Personal and Ubiquitous Computing*, vol. 19, 2015, pp. 335-353. https://doi.org/10.1007/s00779-014-0829-5.

[4] Chen, W. "Exploring digital natives' mobile addiction syndrome in Taiwan: psychological issues and beyond." *Information Technology & People*, vol. 36, no. 3, 2023, pp. 1326-1355. https://doi.org/10.1108/ITP-08-2021-0633.

[5] Özalp, M. "Effect of smartphone addiction on hand disorder, eye health, fatigue and cognitive failures." 2024. https://doi.org/10.21203/rs.3.rs-4952539/v1.

[6] Van Velthoven, M.H. *et al.* "Problematic smartphone use: digital approaches to an emerging public health problem." *Digital Health*, vol. 4, 2018, p. 2055207618759167. https://doi.org/10.1177/2055207618759167.

[7] Mohammadpour, M. *et al.* "Smartphones, tele-ophthalmology and VISION 2020." *International Journal of Ophthalmology*, vol. 10, no. 12, December 2017, pp. 1909-1918. https://doi.org/10.18240/ijo.2017.12.19.

[8] Alotaibi, M.S. *et al.* "Smartphone addiction prevalence and its association with academic performance, physical health and mental well-being among university students in Umm Al-Qura University, Saudi Arabia." *International Journal of Environmental Research and Public Health*, vol. 19, no. 6, 2022, p. 3710. https://doi.org/10.3390/ijerph19063710.

[9] Xiong, J. and S. Muraki. "Effects of age, thumb length and screen size on thumb movement coverage on smartphone touchscreens." *International Journal of Industrial Ergonomics*, vol. 53, 2016, pp. 140-148. https://doi.org/10.1016/j.ergon.2015.11.004.

[10] Nayak, R. *et al.* "Smartphone-induced eye strain in young and healthy individuals." *Journal of Kathmandu Medical College*, vol. 9, no. 4, 2020, pp. 201-206. https://doi.org/10.3126/jkmc.v9i4.38092.

[11] Clemente-Suárez, V.J. *et al.* "Digital device usage and childhood cognitive development: exploring effects on cognitive abilities." *Children*, vol. 11, no. 11, 2024, p. 1299. https://doi.org/10.3390/children11111299.

[12] Akhtar, F. *et al.* "Smartphone addiction among students and its harmful effects on mental health, oxidative stress and neurodegeneration towards future modulation of anti-addiction therapies." *CNS & Neurological Disorders - Drug Targets*, vol. 22, no. 7, 2023, pp. 1070-1089. https://doi.org/10.2174/1871527321666220614121439.

[13] Kunasegaran, K. *et al.* "Understanding mental fatigue and its detection: a comparative analysis of assessments and tools." *PeerJ*, vol. 11, 2023, e15744. https://doi.org/10.7717/peerj.15744.

[14] Minaz, A. and Ö. Çetinkaya Bozkurt. "Investigation of university students smartphone addiction levels and usage purposes in terms of different variables." *Mehmet Akif Ersoy University Journal of Social Sciences Institute*, vol. 9, no. 21, 2017, pp. 268-286. https://doi.org/10.20875/makusobed.306903.

[15] Bener, A. *et al.* "Internet addiction, fatigue and sleep problems among adolescent students: a large-scale study." *International Journal of Mental Health and Addiction*, vol. 17, 2019, pp. 959-969. https://doi.org/10.1007/s11469-018-9937-1.

[16] Sert, H. *et al.* "Effect of technology addiction on academic success and fatigue among Turkish university students." *Fatigue: Biomedicine, Health & Behavior*, vol. 7, no. 1, 2019, pp. 41-51. https://doi.org/10.1080/21641846.2019.1585598.

[17] Ahmed, M.M. *et al.* "Association between internet addiction and sleep disturbance among nursing students." *International Journal of Psychosocial Rehabilitation*, vol. 24, no. 9, 2020. https://doi.org/10.52845/CMRO/2024/7-8-13.

[18] Hussein, A.A. and M.M. Ahmed. "Health risky behavior among university students in Mosul City." *Middle East International Conference on Contemporary Scientific Studies-V*, 2021.

[19] Chaudhury, P. and H.K. Tripathy. "A study on impact of smartphone addiction on academic performance." *International Journal of Engineering and Technology (UAE)*, vol. 7, no. 2, 2018. https://doi.org/10.14419/ijet.v7i2.6.10066.

[20] Michielsen, H.J. *et al.* "Checklist individual strength." *Journal of Psychosomatic Research*, 2003. https://doi.org/10.1016/S0022-3999(02)00392-6.

[21] Hundekari, J. *et al.* "Smartphone vision syndrome associated with prolonged use of digital screens for attending online classes during the COVID-19 pandemic among medical students." *Journal of Clinical and Diagnostic Research*, vol. 15, no. 1, 2021, pp. NC01-NC05. https://doi.org/10.7860/JCDR/2021/46651/14399.

[22] Mukhlif, H.H. and N.M. Younis. "Evaluation of the association between internet addiction and fatigue among undergraduate students at universities in Mosul City, Iraq." *Rawal Medical Journal*, vol. 47, no. 4, 2022, p. 829. https://doi.org/10.5455/rmj.2009.