

Excessive Electronic Screen Exposure and Headache in Teenagers

MOHSANA TARIQ¹, KHIZRA ASIF², HAFIZA AZKA KHURSHEED³, ZAINAB KHALID⁴, MUQADDAS ASHFAQ⁵, AFIFA MARYAM⁶, SEERAT FATIMA⁷, NIMRA ASLAM⁸, HIRA MASOOD⁹, MAHNOOR MAZHAR ALVI¹⁰

¹Lecturer, Department of Allied Health Sciences, University of Sargodha

^{2,3,4,5,6,7,8,9,10}Department of Allied Health Sciences, University of Sargodha*

Corresponding author: Khizra Asif, Email: khizraasif9@gmail.com

ABSTRACT

Background: Headache represents the most common neurologic disorder in the general population including children and is increasingly being recognized as a major source of morbidity in youth related to missed school days and activities. Electronic screens are becoming increasingly important in the lives of preteens and teens.

Objective: Study was conducted to find the relationship between electronic screen exposure and headaches in teenagers.

Methods: This was a cross-sectional study. Data was collected 300 teenagers from district Mandi-bahu-Din. Convenient sampling was applied. Teenager aged between 12-19 years, physically and mentally healthy and both genders were selected to include in study. Person with history of head injury, hypertension and systemic disease-causing headache were excluded from study. data was collected through using 2 reliable questionnaires; Headache impact test-6 and Screen time survey questionnaire. Data was analyzed using statistical package for social sciences (SPSS) V 23. Descriptive statistics in form of frequency and percentages was presented. Bar and pie charts were plotted. To find association between screen time and headache Pearson correlation was applied.

Results: There was significant ($P=0.021$) correlation between screen time and headache with coefficient of correlation $r=0.414$. Excessive electronic screen exposure is negatively impacting the life of 46% ($n=139$) teenagers. Mean age of participants was 14.95 ± 1.88 . Mean and SD of screen time is 5.15 ± 1.73 . Mean and SD for headache is 54.9 ± 4.93 . There were 45% males and 55% female participants.

Practical implication: Different types of electronic screen media have repeatedly been linked to impaired health; yet, how different uses of electronic media are linked to headache has received much less attention. Currently, the role of chronotype in these associations is understudied. To address these gaps, this study examined how different uses of screen media are linked to headache, and whether these associations were accounted for or differed across chronotype.

Conclusion: It was concluded that screen time and headache have significant correlation with each other.

Keywords: Headache, Screen Time, Electronic Screen Exposure.

INTRODUCTION

Headache is a common complaint in all age groups and is a frequent cause of medical consultations and hospitalization. Spending too much time on electronic devices is associated with multiple dimensions of impaired health.⁽¹⁾

Headache can be thought of as pain referred to the forehead, orbits, temples or scalp, and does not usually cover pain isolated to the face or neck.⁽²⁾ The International Association for the Study of Pain defined it as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage".⁽³⁾ Primary headache disorders are defined as headaches that are unrelated to an underlying medical condition and are categorized into 4 groups: migraine, tension-type headache, trigeminal autonomic cephalalgias, and other primary headache disorders.^(4,5)

Signs and symptoms of headache include: Dull, aching head pain. Sensation of tightness or pressure across the forehead or on the sides and back of the head. Tenderness in the scalp, neck and shoulder muscles.⁽⁶⁾ Change in personality, behavior, worsening school work or lethargy. First severe headache. Unclassified headache. Accelerated course. Change in headache. Mainly when lying down or asleep or bending down, straining or coughing.⁽⁷⁾

Headache may result in significant disability, including missed school days, and extra-curricular activities, suboptimal participation in regular activities, and loss of productivity.⁽⁸⁾ The Global Burden of Disease (GBD) study establishes headache as the second-highest cause of disability worldwide. Headache is contributing data from children (7–11 years) and adolescents (12–17 years). While headache overall was more prevalent among females (76.2%) than males. Headache overall was more prevalent among adolescents (77.6%) than children.⁽⁹⁾

Primary headache disorder and a common, recurrent, disabling condition that affects an estimated 18% of women and 6% of men.⁽¹⁰⁾ Studies evaluating prevalence in more than 100 000 people reported that tension-type headache affected 38% of the population, while migraine affected 12% and was the most disabling.⁽¹¹⁾ Among young adults (under 50 years of age), it was the most disabling. The prevalence of headache ranges from 37 to

51% in seven-year-old children, gradually increasing to 57–82% by age 15. Before puberty, boys are affected more frequently than girls, but after puberty, headaches occur more frequently in girls. Recently, an increased prevalence of headache in children and adolescents has been reported.⁽¹¹⁾ The estimated 1-year prevalence of headache was 19.4% overall.^(12, 13) Screen time refers to time spent with any screen, including smart phones, tablets, television, video games, computers, or wearable technology. More hours of screen time are associated with lower well-being in ages 2 to 17.⁽¹⁴⁾

According to a national survey French people between the ages of 18 and 24 years are high consumers of the Internet, spending on average 27 hours per week online. As for mobile devices, around 16% of French young adults use a tablet every day and 79% also own a smartphone.⁽¹⁵⁾ Prolonged screen exposure is often cited as a trigger for headache.⁽¹⁶⁾ According to the recommendation of WHO, excessive screen media use by teenagers aged 12-17 exposed to screen media use more than 1 h/day.⁽¹⁷⁾

Different types of electronic screen media have repeatedly been linked to impaired health; yet, how different uses of electronic media are linked to headache has received much less attention. Currently, the role of chronotype in these associations is understudied. To address these gaps, this study examined how different uses of screen media are linked to headache, and whether these associations were accounted for or differed across chronotype. Moreover, population studies in current study was not assessed before.

METHODS

The study design was observational study. Data was collected from different cities of district Mandi Bahaud Din, Pakistan. This study was completed within 6 months after approval of synopsis. Convenient sampling was done. Participants aged 12-19 years, both males and females, all physically and mentally healthy individuals and Having history of headache in last 6 months were included in study. participants with Head injury, Hypertension and any disease-causing headache were excluded from study. A

sample of 278 subjects was calculated. A sample of 300 subject were enrolled in this study. The sample size for unlimited population was calculated using Cochran following formula: $n_0 = \frac{Z^2 \times p(1-p)}{d^2}$

Sample size for limited population $n = \frac{n_0}{1 + (n_0 - 1) / N} = 278$

approximately

Data was analyzed using statistical package for social sciences (SPSS) V 23. Descriptive statistics in form of frequency and percentages was presented. Bar charts were plotted. To find association between screen time and headache Pearson correlation was applied. The information was obtained from all respondents through informed consent and data was collected through using Headache impact test-6 and Screen time survey questionnaire.

RESULTS

Mean age of participants was 14.95±1.88. overall screen time survey score. Mean and SD for headache is 54.9±4.93. Minimum sore for headache recorded was 44 while maximum time recorded was 73. Mean and SD for headache is 54.9±4.93. There were 45% males and 55% female participants. 13.7% have no impact of screen time on headache, mostly 36%(n=108) have some impact. Screen time not badly impact their life among only 18%, screen time negatively impacting the life of mostly 46%(n=139). Above table showed significant (p<0.05, r=0.414) between screen time and headache.

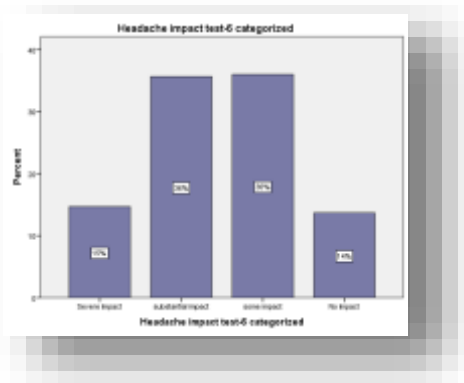


Figure 1: Screen Time survey:

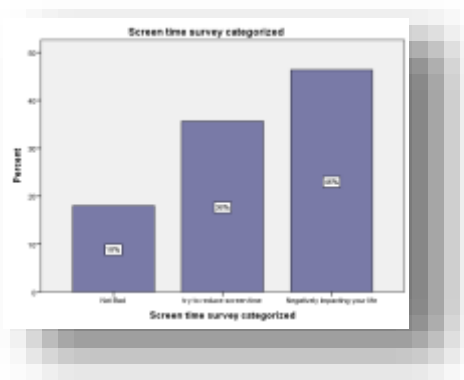


Figure 2: Screen time not badly impact their life among only 18%, screen time negatively impacting the life of mostly 46%, 36% should try to reduce screen time.(fig. 2)

Headache impact test-6: 14% have no impact of screen time on headache, 15% have severe impact, while 36% have substantial impact and some impact.(fig.1)

Table 1: Correlation of Screen time and Headache

		Overall Screen Time Survey Score	Overall Headache Impact Test score
Overall Screen Time Survey Score	Pearson Correlation	1	.414*
	Sig. (2-tailed)		.021
	N	300	300
Overall Headache Impact Test score	Pearson Correlation	.414*	1
	Sig. (2-tailed)	.021	
	N	300	300

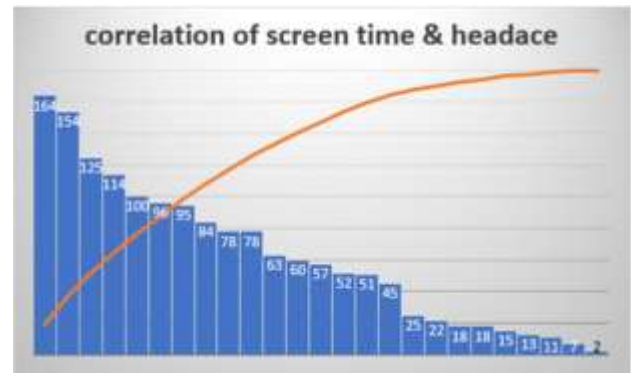


Figure 2: Above table showed significant (r=0.414, P<0.05) between screen time and headache. A linear correlation is seen between headache and screen time among teenagers.

DISCUSSION

Headache is a common complaint in all age groups and is a frequent cause of medical consultations and hospitalization. Spending too much time on electronic devices is associated with multiple dimensions of impaired health, especially if this time on devices is used for social media or surfing the internet. Use of electronic screen is highly prevalent among teenagers. In Pakistan limited data was found about association of screen time and headache so this cross-sectional study was conducted among 300 teenagers from district Mandi-bahu-Din. Convenient sampling was applied. Teenager aged between 12-19 years, physically and mentally healthy and both genders were selected to include in study. Person with history of head injury, hypertension and systemic disease-causing headache were excluded from study. Data was collected through using 2 reliable questionnaires; Headache impact test-6 and Screen time survey questionnaire. It was concluded that screen time and headache have significant (p<0.05, r=0.414) positive correlation.

A cross sectional study was performed to investigate whether excessive screen time exposure is associated with non-migraine headache and migraine in young adults. This association was somewhat stronger for migraine without aura. Increasing levels of screen time exposure are associated with increased reporting of migraine among post-secondary students. This association was driven mainly by migraine without aura.⁽¹⁵⁾ Current study also indicated positive correlation of screening time with headache among teenagers. Another study conducted by Hüseyin Çaksen to evaluate the Electronic Screen Exposure and Headache in Children. Using digital and social media can bring some benefits and risks for mental and physical health. It concluded that limiting the time spent on the screen is important for the reduction of headache symptoms of children and adolescents.⁽¹⁸⁾ Current study also stated positive relationship with excessive usage of electronic screening with headache and migraine among teenagers/ students.

Screen viewing time is the total time spent by a child on any digital/electronic device. Another research performed to determine the incidence and predictors of excessive screen viewing time in children in Ujjain, India. Presence of eye pain was a protective factor for excessive screen viewing time. The study identified multiple modifiable risk factors for excessive screen viewing time.⁽¹⁹⁾ A Cross Sectional Study was done to assess the prevalence, frequency and quality of headaches in the Lebanese adolescent population under the COVID-19 confinement and study its triggers and relationship to screen time, self-reported anxiety, and sleep. The data proves a clear relationship exists between the frequency and quality of headaches and screen time, self-reported anxiety and sleep disturbances among adolescents. The current degree of stress due to COVID-19 confinement, the political and economic pressures and online schooling added up to result in an unprecedented prevalence of headaches and stress among adolescents.⁽²⁰⁾

Another study stated that Modern society has imposed digital media in day-to-day life.⁽²¹⁾ Present study shows a statistically significant correlation between excessive screening time among teenagers with headache. Major limitation of study was clinical test for assessing headache was not applied. Time for the study was short. Results cannot be generalized. Further research can with control groups can be conducted. More researches can be conducted with large data size and different population. Specific testing for headache can be done in further studies

CONCLUSION

This study concluded that due to electronic screen exposure there was significant ($P < 0.05$) correlation between screen time and headache among teenagers.

Disclaimer: Approval to conduct research was acquired from allied health department, university of Sargodha, Pakistan. Study is part of Post professional doctor of physical therapy degree thesis at allied health department, university of Sargodha, Pakistan.

Conflict of interest: None

Source of funding: None to Declare.

REFERENCES

- Hisler G, Twenge JM, Krizan Z. Associations between screen time and short sleep duration among adolescents varies by media type: evidence from a cohort study. *Sleep Medicine*. 2020;66:92-102.
- Whitehouse WP, Agrawal S. Management of children and young people with headache. *Archives of Disease in Childhood-Education and Practice*. 2017;102(2):58-65.
- Wachholtz A, Harris A, Frers A. Headaches. *The Wiley Encyclopedia of Health Psychology*. 2020:131-41.
- Robbins MS. Diagnosis and management of headache: a review. *Jama*. 2021;325(18):1874-85.
- Do TP, Remmers A, Schytz HW, Schankin C, Nelson SE, Obermann M, et al. Red and orange flags for secondary headaches in clinical practice: SNN00P10 list. *Neurology*. 2019;92(3):134-44.
- Gofshiteyn JS, Stephenson DJ. Diagnosis and management of childhood headache. *Current Problems in Pediatric and Adolescent Health Care*. 2016;46(2):36-51.
- Leonardi M, Grazi L, D'Amico D, Martelletti P, Guastafierro E, Toppo C, et al. Global burden of headache disorders in children and adolescents 2007–2017. *International journal of environmental research and public health*. 2021;18(1):250.
- Dao JM, Qubty W. Headache diagnosis in children and adolescents. *Current pain and headache reports*. 2018;22(3):1-6.
- Zewde YZ, Zebenig M, Demissie H, Tekle-Haimanot R, Uluduz D, Şaşmaz T, et al. The prevalence of headache disorders in children and adolescents in Ethiopia: a schools-based study. *The journal of headache and pain*. 2020;21(1):1-9.
- Mayans L. Headache: Migraine. *FP essentials*. 2018;473:11-6.
- Jeong YJ, Lee YT, Lee IG, Han JY. Primary headaches in children and adolescents—experiences at a single headache center in Korea. *BMC neurology*. 2018;18(1):1-6.
- Al-Hashel JY, Ahmed SF, Alroughani R. Prevalence and burden of primary headache disorders in Kuwaiti children and adolescents: a community based study. *Frontiers in neurology*. 2019;10:793.
- Çaksen H. Electronic screen exposure and headache in children. *Annals of Indian Academy of Neurology*. 2021;24(1):8.
- Twenge JM, Campbell WK. Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive Medicine Reports*. 2018;12:271-83.
- Montagni I, Guichard E, Carpenet C, Tzourio C, Kurth T. Screen time exposure and reporting of headaches in young adults: A cross-sectional study. *Cephalalgia*. 2016;36(11):1020-7.
- Canadian Paediatric Society DHTF, Ottawa, Ontario. Digital media: Promoting healthy screen use in school-aged children and adolescents. *Paediatrics & Child Health*. 2019;24(6):402-8.
- Li C, Cheng G, Sha T, Cheng W, Yan Y. The relationships between screen use and health indicators among infants, toddlers, and preschoolers: A meta-analysis and systematic review. *International journal of environmental research and public health*. 2020;17(19):7324.
- Çaksen H. Electronic Screen Exposure and Headache in Children. *Annals of Indian Academy of Neurology*. 2021;24(1):8-10.
- Jain S, Shrivastava S, Mathur A, Pathak D, Pathak A. Prevalence and Determinants of Excessive Screen Viewing Time in Children and its Effects on Physical Activity, Sleep, Eye Symptoms and Headache. 2022.
- Wehbe AT, Costa TE, Abbas SA, Costa JE, Costa GE, Wehbe TW. The Effects of the COVID-19 Confinement on Screen Time, Headaches, Stress and Sleep Disorders among Adolescents: A Cross Sectional Study. *Chronic Stress*. 2022;6:24705470221099836.
- Alyoubi RA, Kobeisy SA, Souror HN, Alkhalidi FA, Aldajam MA, Allebdi KS, et al. Active Screen Time Habits and Headache Features among Adolescents and Young Adults in Saudi Arabia. *Arabia*. 2020;10:11.