iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VII **Month of publication:** July 2021

DOI: https://doi.org/10.22214/ijraset.2021.36848

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VII July 2021- Available at www.ijraset.com

Influence of Mobile Phones on Visual Performance of Students

Priti Yadav
Faculty Department of Optometry, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, India

Abstract- 1.1- Purpose- To analyze and describe the quantitative data of a especially designed well structured questionnaire to survey the influence of mobile phones on students eyes among the students of a senior secondary school.
1.2-Design-A prospective descriptive non comparative cross-section study.
1.3-Method-100 students are included in this study [50 boys and 50 girls]. After explanation of nature of the impact on eye sight to the students .they fulfilled a specially design form for survey which included 21 questions of high validity and reliability.
1.3-Results-the most remarkable result in this study was recording that 88% of the students sample was used to spend 5 hours or more on a daily basis. Thus, were complaining of one or more of manifestation. Dry eye, headache, blurred vision, eye strain, neck and shoulder pain, fatigue and eye redness were recorded in 30%,24%,33%,20%,23%,14% and 29% respectively.
1.4-Conclusion -This study proved that there are a number of factor that determine the amount of strain on your body feels as work on you work on a mobile phone or other digital devices, including lightening in the room, distance from the screen ,posture, and angle of your head -not to mention and existing vision problems you may have. This study recorded that dry eye, blurred vision, eye strain headache, were the most common symptoms while using smart phones.

I. INTRODUCTION

The whole world is accepting and adopting the ways towards the advancement of technology. The youth is playing a vital role in this rapid pace. The mobile phones had been in existence for about a decade before young people even prefer their mobiles phones to television or the internet.

The mobiles phone is a status symbol for young people. The features of the phones, the appearance and personalized accessories all attest to the phones status. It is seen as a fashion accessory that satisfies the need for individualization by having choices in mobile wallpapers, ring tones, phone covers, carry bags and other accessories.

In modern life today, millions of people including children's and students are unfortunately accustomed to use the mobile screens and computers for very long hours.

What make things worse are the new bad habits of the school students study their subjects using their mobiles phones or computers instead of the classic book studies. In addition they are playing games and watching movies or mobile screen. Digital Eye strain [DES] is usually related to watch the mobile screen or other digital screen that makes the near work of the more difficult. The high visual requirements and visual attention makes any mobile phone user susceptible developing DES.

The main symptoms that students suffer are eye strain, headache, dry eye sensation, blurred vision, tearing, burning of eyes, watering of eyes, photophobia, red eyes, burning, itching, neck and shoulder pain and contact lens troubles.

The possible path physiological mechanism, accommodative mechanism and ocular surface mechanism.

One or more factor could be responsible for these symptoms. These factors are infrequent blinking, uncomfortable sitting position, improper lighting condition ametropia, glare and incorrect distance between the eye and mobile phone.

Actually the several studies reported mobiles phones as a serious problem associated with long term ocular and musculoskeletal complaint that affect the health of the eye and the body. Furthermore overuse of mobiles phone has a negative impact on the lifestyle, work and family relationship. Many authors suggested several measures to treat or at least alleviate the severity of mobile phone manifestations.

These measures included treatment of any refractive error with glasses, treatment of dry eye diseases with tear substitutes and lubricants, use of especially designed glasses for the digital screens and use of screen filters. In addition, it was also recommended that the use of mobile screens should be in an interrupted short several screen time periods distributed along the day not exceeding 1 hour in each period. Another recommended was to have at least 15 - 20 min break away every two hours of continuous mobile screen usage. The proper lighting, people education, periodic ocular examination and adequate adjustment of the distance between the eye and mobile screens were another measures to guard against mobile demerits.

II. METHODS

The aim of this study was to perform a survey to detect the prevalence and severity of mobile vision syndrome among a sample of 100 students in a senior secondary school. The design of this study was a prospective descriptive non-comparative cross-sectional study. The survey was performed among school students after full explanation of the questionnaire form to be fulfilled according to the personal habits of every student shared in this survey.

III. SURVEY QUESTIONNAIRE FORM

- The author in this article created a new survey questionnaire which was an own-made one designed especially for this study for the first time ever introduced in a study concerning the survey. The questionnaire form included 21 questions designed by the author and related to the personal data and habit of the students. To facilitate the recording and interpretation of the result, the author used the term screen hours to describe the number of hours the students spend every day on his/her smart phone screens. These 21 questions included age, gender , the frequent Smartphone screen use , the hours the students spend every day on screen in dark room, whether the students screen hours continuously or interrupted, the illumination level of the screen in room light, the screen hours the student spends more during the day or at night, the presence of any symptoms of complaints related to mobile phones, whether the students using eye drops or not, the presence or absence of the refractive errors , whether the students is using glasses or contact lenses , whether the students is seeing the details of objects clear or hazy after prolonged screen hours, any complain in fingers, wrists or shoulders of the students using smart phones, the number of screen years the students spent on screen ,whether the student is using touch screen , touch pad , not pen or the mouse and keyboard, whether the students believes that mobile phone affects the students is willing in the future to decrease his screen -hours.

IV. RESULT

This study included 100 students (50 boys and 50 girls). Age ranged between 14-18 years, and 21 questions included. The structure of many questions of this questionnaire allowed the students to choose one or more answer for the same questions which explains the presence of different percentages for the same questions. The First question was about the age of students and the result were 18 years (17%) ,17 years(30%), 16 years (28%)15 years (18%) and 14years (7%). The second questions was about the gender and results were 50 students were boys (50%) and 50 were the girls (50%). The third question was about the frequent mobile digital screen used by the students were using smart phones while 20% using laptops along with their smart phones. The fourth question was about how many hours the students usually was spending on their digital screen. The result were 5%of the students used to spend less than 1 hours , 9% of the students used to spend 2-3 hours , 24% of the students used to spend 3-4 hours , 27% of the students used to spend 4-6 hours while 14% of the students used to spend more than 6 hours on their mobile screens.

The fifth question was about how many hours the students used to spend watching their digital screen in their dark rooms. The result were 16%of the students used to spend less than 1 hours, 23% of the students used to spend 1-2 hours , 19% of the student used to spend 2-3 hours , 17% of the students used to spend 4-6 hours,18% of the students used to spend 4-6 hours while 7%of the students used to spend more than 6 hours on their digital screen in the dark room. The sixth question was about whether the hour of students used to spend on their mobile screen continuous or interrupted. The results were 34% of the students were spending interrupted hour on their mobile screens.

The seven questions were about the level of the illumination of mobile screens that the students used to in the room light. The results were 21% students were using low brightness, 28% were using medium brightness and 51% were using high level of brightness.

The eighth question was about the most preferred time for the students to use their screen during the day all at night .The result were 13% of students were spending most of their screen our during the day while 87% of the students were spending these hours during the night .

The Ninth question was about the symptoms related to mobile phones that the students complained of . The result were 26% of students complained of headache ,21% of the students complained or fatigue ,28% complained of dry eye ,31% complained of blurred vision ,16% complained of eye strain ,1% complained of double vision,24% of the students complained of neck /shoulder/back pain ,15% complained of eye redness and irritation while 8% complained of difficulty in refocusing the eye.

The tenth question was about using any topical eye drops as a treatment for any ocular problem. The result of this questionnaire was 13% of the students were using topical eye drops to their dry eye diseases while 87% of the students did not use any eye medication.

The eleventh questions were about the presence of any refractive error. The result of this questions were 75% of the students had refractive errors, 16% of the students had no refractive error while 9% of the students did not know their refractive status.

The twelfth question was about which refractive error they having .the results of this questions were 62% of the students had myopia ,34% had Hypermetropia and 4% of students had astigmatism .

The thirteenth questions was about wearing glasses or contact lenses .the result were 72% of the students were wearing glasses or contact lenses while 28% of the students were not wearing any glasses or contact lenses.

The fourteenth questions were about the descriptions of the details of the objects after prolonged hours of using the mobile screens. the result were 67% of the students were seeing clear details of the objects after prolonged hours on their digital screens while 33% of the students were seeing blurred details of the objects after prolonged hours on their mobile screens .

The fifteenth questions about the complain of itching after using smart phones for prolonged hours. The results were 53% of the students complained of itching and 47% students did not make any complaint.

The sixteenth questions was about eye protection feature in smart phones .83% of the students had the features of eye protection in their cell phones and 175 of the students had not this features in their phones .

Seventeenth questions were about any kind of pain or problems in hands after holding the phone for long time. the result were 39% of the students complained of joint pain ,50% complained of difficulty in writing and rest 46% of the students had not any complaint .

Eighteenth question was about the eye pain .the results were 77% of the students complained of eye pain after prolonged use of their cell phones and 23% of the students had not eye pain.

Nineteenth question was about tearing during mobile use .The results were 15% of them had a little amount of tearing while 85% of the students had not this problem.

The twentieth question was about the year each student spent this way and these hours on the mobile screens .The results of this questions were 5% of the students spent nearly one year, 20% of the students spent nearly two years, 41% of the students spent nearly 3 years and 34% of the students spent nearly more than 3 years.

The last twenty first questions was about the feelings whether the mobile screens affected the life style and the eye health of the students or not .the results of this questions were 91% of the students felt that the mobile screens affected their life style as well as the eye health while 9% of the students confirmed that mobile screens had no effect on their life style or eye health.

V. DISCUSSION

Nowadays, modern life style obliged the whole world to shift the modern technology were the mobile screens are the masterpiece of this process. The emergence of portable and handheld digital screen have multiplied the no. of devices made by human kind hundreds of times . In fact , smart phones have becomes so popular that almost all teens and adults have one or more of these smart phones . In the last decade ,the emergences of social medias and its applications such as Facebook, twitter ,whatsapp, you tube and other social medias and applications have made a revolutions in the life style of all mankind who shifted his interest towards entertainment ,communications and watching audio - video medias that unfortunately have been consuming most of his spare time on smart phones and digital screens on the expense of his /her life style and relationships with his /her family ,friends ,colleagues and others.

By far the most important land mark in defining visual problems due to mobiles phones is the definition released officially from the American optometric associations which defined the digital eye strain [DES] as a collection of ocular and extra ocular manifestations resulting from using the mobile screens for prolonged hours . Most people complain of eye strain, headache, dry eye, pain in neck /shoulders /back, eye redness or irritating fatigue and ocular discomfort .the severity of manifestations depends on how much time people spent on the mobile screens. In general people who are accustomed to spend 3 hours almost regularly on a daily basis are mostly complaining. Surprisingly enough, 86% of the students sample was accustomed to using their mobile phones 3 hours or more daily which made them liable to suffer from one or more of manifestations. What's a more amazing is that 345 of the students were spending these prolonged hours continuously on their mobile screens. For example 28% of the students were actually using topical eye drops to treat their dry eyes, 33% of the students were complaining of blurred vision 24% of the students were complaining of neck/shoulders/back pain while 16% of the students were complaining of eye strain. Headache and fatigue were recorded in 26% and 21% respectively.

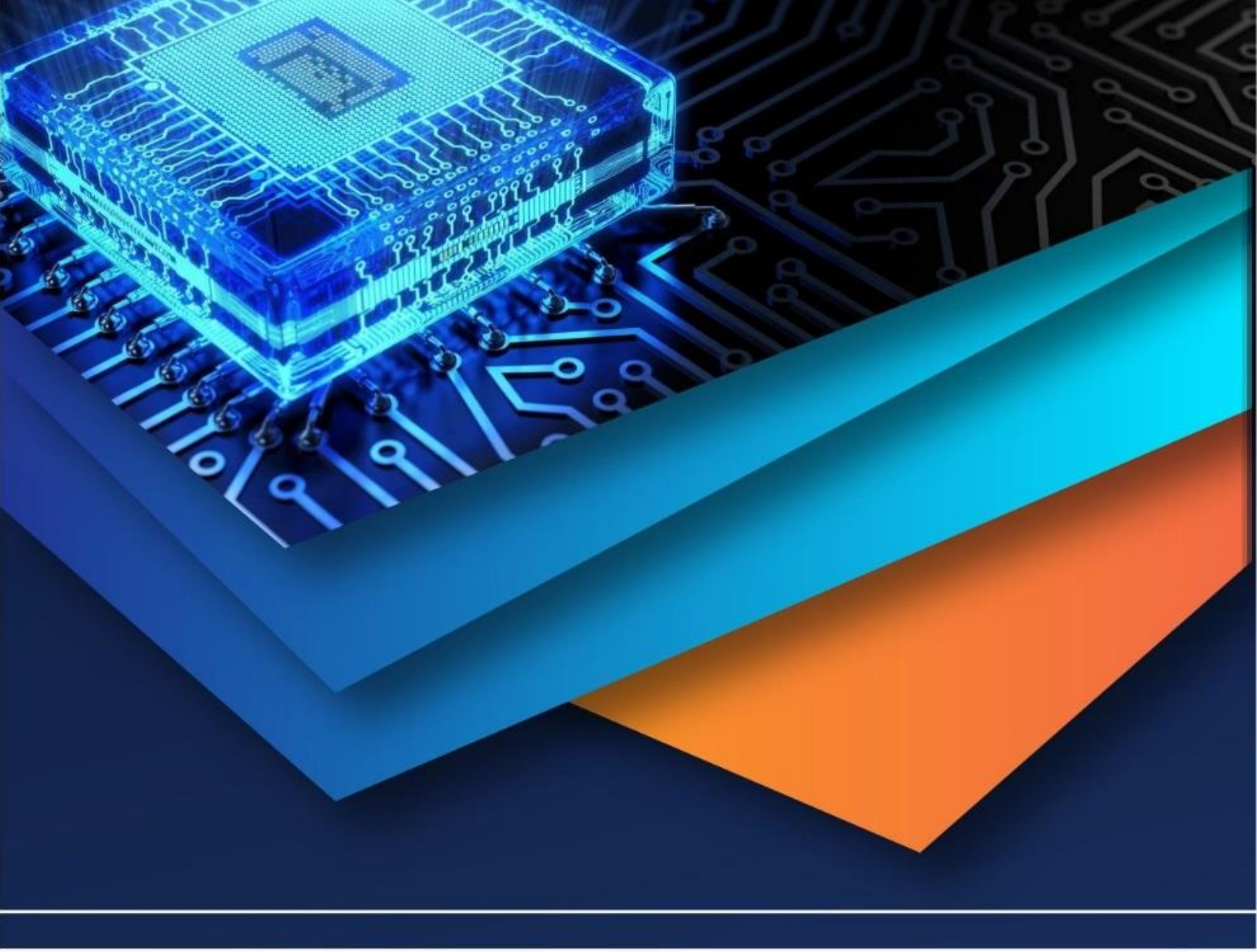
This study recorded a clear fact that smart phones were mostly the main cause CVS in these students because this study recorded that 80% of the students were using smart phones, furthermore , 20% were using laptops along with smart phones.

VI. CONCLUSION

This study proved that smart phones have a very large influence on the visual performance of the students as most of the students using smart phones for long durations. Based on the survey performed in this study, 86% of the students were complaining of one or more of the mobile vision syndrome manifestation. This study recorded that dry eye, blurring of vision, eye strain and headache were the most common symptoms. This study recommended that the future studies should include both objective and subjective examinations tools.

REFERENCE

[1] Cohen S. Perceived stress in a probability sample of United States. United states: Sage Publications, 1988.
[2] Singh B. Cell Phone Dependence -A New Diagnostic Entity .Delhi: Delhi Psychiatry journal, 2008.
[3] Akibinu T R ,Mashalla YJ. Knowledge of computer vision syndrome among computer user in the work place of Abuja, Nigeria; 2013.
[4] Grauman K, betke M,Gipsi J and Bradski G. communication via eye Blinks- Detection and duration Analysis in real time. Pp1-1010.
[5] Freund of Schapire . A Decision - Theoretic Generalization of Online Learning and an application to boosting Pp23-27. London: Proceedings of second European conference on computational learning theory ;1995 .
[6] Loh K, Reddy S. Understanding and preventing computer vision syndrome. Malaysian family Physician .2008;3(3): 128-30 .
[7] Sen A Richardson S.A study of computer - related upper limb discomfort and computer vision syndrome.J.Human Ergol.2007; 36:45-50.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY