Group B4a

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Computer Vision Syndrome Survey Among The Medical Students In Medical Colleges In Sana'a city, Yemen.

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<u>Dedication</u>

Hearts filled with the light of love and loyalty and covered with the scent of

musk, crowned with roses and narcissus, and the contentment of this

humble look, to those who planted in our hearts the love of knowledge

<u>"Our fathers may God protect them".</u>

To whom to carry us here on weakness

<u>"Our dear mothers"</u>

To whom we stress our roses and our hearts rejoice in them

<u>"Our brothers"</u>

To those who helped us acquire knowledge

<u>"Our teachers"</u>

And to students of knowledge

We dedicate this research

Acknowledgement

It's our pleasure in this respect, after this effort and this hard

work, for which we continued night and day, for the sake of which we

thank Allah Almighty for its completion and generosity on us until we

completed this work.

In recognition of the grace to home it belongs of his family and

following his saying, may Allah bless him and grant him peace (who

does not thank people will not thank Allah

So, many thanks and appreciation to the distinguished

Prof.Dr/ Ali Hassan Alashwal

Prof.Dr/ Basheer Abdulgalil Hamid Al-nabehi

And all the staff working in the university

And to everyone who contributed or helped in the completion of this

Research

The Researchers

Abstract

Background: Computer Vision Syndrome (CVS) is a common occupational health problem, but its clinical definition, prevalence and risk factors are not well defined. It was defined by the American Optometric Association (AOA) as a group of eye and vision problems which are caused via prolonged using of electronic devices. With the increased use of electronic devices and computer, a very large population is experiencing ocular symptoms such as dry eyes, eye strain, irritation, watering eye and redness of the eyes. This study aims to determine the prevalence of CVS among the students on medical colleges in Sana'a Universities, Yemen.

Methods: This is a descriptive, cross-sectional, community-based study conducted among medical students in medical colleges in Sana'a, using a questionnaire from August to November 2022. A 210 medical students were randomly chosen for collecting demographic and clinical data. The data were then statistically analyzed on SPSS version 22, and the descriptive data were expressed as percentages, mode, and median using graphs where needed.

Results: A total of 210 medical students with 136 (64.8%) of them were males and 74 (35.2%) were females, and the age ranged from 18 to 29 years. This study showed that CVS was a common syndrome that was simply misdiagnosed. Based on the survey, 79% of the medical students were complaining of one or more of the CVS manifestations such as dry eye, blurring of vision, eyestrain. The most experienced extra ocular symptoms reported were headache, neck/shoulder and back pain.

Conclusions: Continuous use of computers for long hours is found to have severe problems of vision especially in those who are using computers and similar devices for a long duration.

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Abbreviation

- **AOA**   **American Optometric Association**

- **DES**   **Digital Eye Strain**

- **OOS**   **Occupational Overuse Syndrome**

- **OR**   **OD Ratio**

- **SD**   **Standard Division**

- **SPSS**   **Astatically Program**

- **VDT**   **Video Display Terminal**

الخلاصه

الخلفية: متلازمة رؤية الكمبيوتر (CVS) هي مشكلة صحية مهنية شائعة ، ولكن تعريفها السريري وانتشارها وعوامل الخطر ليست محددة بشكل جيد. تم تعريفها من قبل جمعية البصريات الأمريكية (AOA) على أنها مجموعة من مشاكل العين والرؤية التي تنتج عن الاستخدام المطول للأجهزة الالكترونيه. مع زيادة استخدام الأجهزة الإلكترونية والكمبيوتر ، يعاني عدد كبير جدًا من السكان من أعراض بصرية مثل جفاف وإجهاد وتهيج وتدمع واحمرار العينين. تهدف هذه الدراسة إلى تحديد مدى انتشار (CVS) بين طلاب كليات الطب في جامعات صنعاء ، اليمن.

طرق الدراسه: هذه دراسة وصفية ، مقطعية ، مجتمعية أجريت بين طلاب الطب في كليات الطب في صنعاء ، باستخدام استبيان استمرت من أغسطس إلى نوفمبر ٢٠٢٢. تم اختيار ٢١٠ من طلاب الطب بشكل عشوائي لجمع البيانات الديموغرافية والسريرية. ثم تم تحليل البيانات إحصائيًا على الإصدار ٢٥ من برنامج (SPSS) ، وتم التعبير عن البيانات الوصفية كنسب مئوية ، ومتوسط باستخدام الرسوم البيانية عند الحاجة.

النتائج: بلغ إجمالي عدد الطلاب ٢١٠ طالب طب منهم ١٣٦ (٦٤,٨٪) ذكور و ٧٤ (٣٥,٢٪) إناث ، وتراوحت أعمارهم من ١٨ إلى ٢٩ سنة. أظهرت هذه الدراسة أن (CVS) كانت متلازمة شائعة تم تشخيصها بشكل خاطئ. بناءً على الاستطلاع ، كان ٧٩ ٪ من طلاب الطب يشكون من واحد أو أكثر من مظاهر CVS مثل جفاف العين وتشوش الرؤية وإجهاد العين. أكثر الأعراض التي تم الإبلاغ عنها خارج العين كانت الصداع وآلام الرقبة / الكتف والظهر.

الاستنتاجات: تبين أن الاستخدام المستمر لأجهزة الكمبيوتر لساعات طويلة يؤدي إلى مشاكل حادة في الرؤية خاصة عند أولئك الذين يستخدمون أجهزة الكمبيوتر والأجهزة المماثلة لفترة طويلة.

Chapter 1

1. Introduction:

1.1 Background.

Computer vision syndrome (CVS) is a Digital Eye Strain (DES) was defined by the American Optometric Association (AOA) as a group of eye and vision-related problems that result from prolonged computer, tablet, e-reader, and cell phone use. In the last years, computers and digital screen usage have substantially increased in almost every aspect of our life such as (Bluhm. et al.; 2005]. The discovery of the computer has a greater extent revolutionized most professions and their work performance such as Accountants, Architects, Bankers, Engineers, Flight Controllers, Graphic Artists, Journalists, Academicians, Secretaries, and Students that cannot work without the help of computer. Recent studies have shown that technology is associated with several health-related challenges (Bali J. etal;2007). The health-related complaints range from visual, musculoskeletal and neural ailments which health-care providers of today have to deal with. Therefore, the need for research into computer-related health problems (vision) cannot be over emphasized, moreover when one considers the upsurge in information technology and the daily number of computer users (Shrivastava. SR.et al; 2012). The daily usage of personal computers and digital screens for 3 hours or more makes the person at high risk of developing CVS, Occupational Overuse Syndrome (OOS), headache, and psychosocial stress (Rady. SC. et al ; 2013).

Computer Vision Syndrome (CVS) is the number one occupational hazard of the 21st century. CVS symptoms may affect as many as 70 percent of all computer users. Visual effort is greater when looking at the computer screen as compared to that when looking at a paper. This can be attributed to the fact that blinking of eyes is 22 times per minute when looking at a paper which reduces to 7 blinks per minute while looking at a computer screen (Anshul. J.etal; 2005). That leads to dry-eyed.as a sample when using a computer, the eyes strain.

As the eyes attempt to maintain focus, or may be incapable of obtaining focus at all. CVS is marked by many affects like, eyestrain, tired and burning eyes, headache, blurred vision, neck and back pain and muscle spasms. Computer work has not yet proven to cause permanent damage to eyes, but temporary discomfort may occur and can reduce productivity. Furthermore, it can cause losing work, time and reduce job satisfaction. The performance on a specific task can be significantly decreased due to CVS, as much as 40 percent. This includes a reduction in work accuracy and decreasing in task volume (Sen. A. et al; 2007).

Computer use has become a part and part of habitual life. The illness Complaints which are being grouped

Together as computer vision syndrome (CVS). 'Computer Vision Syndrome' is defined by the American Optometric Association as a complex of eye and vision problems which are related to the activities stress the near vision and experience during the use of computers (Rosenfield. M.etal; 2013).

Bluhm et al have divided the symptoms of CVS broadly into four categories:

- asthenopic eye strain, tired eyes and sore eyes
- ocular surface related- watering, irritation and dry eye (Burning and red eyes)
- visual- blurred vision, slowness of focus change, double vision and changes in color perception
- Extra ocular neck pain, backache and shoulder pain. Long time working on computers may leads to diminish power of accommodation, removal of near point of convergence and deviation of phoria for near (Bluhm. C .et al ; 2005) . (Munshi. S et al ; 2017).

 Non-ocular symptoms can occur due to improper working conditions and poor work habits. Vision-related problems are the most frequently reported health-related problems, occurring over 70% of computer workers. For its estimated that nearly 60 million people suffer from CVS globally, and that a million new cases occur each year (Worsted.M etal; 2010). Since personal computers are one of the commonest office tools that used extensively. CVS will continue to cause significant and growing contribution to diminish productivity at work while also reducing the quality of life of computer workers.

Globally, personal computers were one of the commonest office tools. Almost all institutions, colleges, universities and homes today are using computer regularly. Using computers had become a necessity 21st century (Shah. PB. et al; 1999). However, their usage is 3 hour per day led to a health risk of developing computer vision syndrome (CVS), low back pain, tension headaches and psychosocial stress (Munshi.S. et al ; 2017). CVS was defined as the combination of eye and vision problems associated with the use of computers, Common symptoms of CVS include eye strain, headache, blurred vision and neck or shoulder pain that generally increase in severity with the amount of video display terminal (VDT) use [9] Prevalence of CVS ranges from 64% to 90% among computer users. (Crossre.f. et al ; 2010).

1.2 Epidemiology

Nearly 60 million people suffer from CVS globally: A million new cases of CVS occur each year (Shah, PB. et al ,1999) . (American. OA . ;2019). In the present era, use of computer has increased many folds, and its use has been associated with increase of health risks, especially the eyes. Computer Vision Syndrome is a relatively new entity described as a symptomatic complex of various eye and vision-related problems which are result from prolonged computer use, it is caused by multiple factors which include response and time ergonomic factors, individual response and time spent by individual on computer (American. OA ; 2019). People who spend more than two hours on a computer every single day or more than 15 hours per week will experience visual symptoms including eye strain, tired eyes, irritation, burning, redness, blurred vision and double vision.

These symptoms have been together to form a syndrome known as the Computer Vision Syndrome (CVS) (Logaraj. M. et al ; 2014).

The major contributors to the CVS is thought to be the dry-eyed, the visual effects of video display terminals such as lighting, glare, display quality ,and refresh rates, radiation and positioning of computer monitors. Dry-eyed may be a primary cause of CVS since both significantly reduced blink rate and increase corneal exposure has been observed during computer operation (ZANUDDIN. H. et al ; 2014).

Epidemiology of CVS in Africa According to research done in Abuja, Nigeria, 40% of computer users working as security and exchange commissioners have experienced at least one CVS symptom (AGARWAL. S. et al; 2013).

According to nationwide in Sri Lanka, more than two-thirds of computer office staff members have CVS (AGARWAL. S. et al; 2013). also ,prevalence of computer vision syndrome in European in which the main age of the participants was 24.74 years (20-60 years) among whom females (57%) were more than males (43%). The prevalence of computer vision syndrome was found to be 69%. About 30 (30%) individuals used computer around 4 - 6 hours per day. The most disturbing symptom was eyestrain and fatigue in 59 (59%), headache 57 (57%), pain in neck, shoulder, wrist or back in 51(51%), dryness of eyes in 37 (37%) & blurred vision in 35 (35%) individuals. 11 participants (11%) were aware of CVS. 79 participants (79%) took preventing measures and the most common preventive measure was taking breaks while working. In the present study 46(46%) participants took breaks as preventive measure after 1 hr. and 25 (25%) after 20 minutes (RANASINGHE N. et al ; 2016). as well, prevalence of computer vision syndrome did in Malaysia universities among 795 students,

aged between 18 and 25 years, from five universities in Malaysia were surveyed. The prevalence of symptoms of CVS (one or more) was found to be 89.9%; the most disturbing symptom was headache (19.7%) followed by eye strain (16.4%). Students who used computer for more than 2 hours per day experienced significantly more symptoms of CVS (p=0.0001). Looking at far objects in-between the work was significantly (p=0.0008) associated with less frequency of CVS symptoms. The use of radiation filter on the screen (p=0.6777) did not help in reducing the CVS symptoms (RANASINGHE N et al.;2016).

In study done by Fentahun Adane1* , Yoseph Merkeb Alamneh1 and Melaku Desta2 et al, In the title of Computer vision syndrome and predictors among computer users in Ethiopia: a systematic review and meta-analysis Published in the journal of Adane et al. Tropical Medicine and Health Which found Eight eligible studies were included. The pooled prevalence of CVS among computer users in Ethiopia was 73.21% (95% CI 70.32-76.11). Sub-group analysis by profession has shown that the highest prevalence of CVS was observed in bank employees [73.76% (95% CI 70.40-77.13)]. The most common reported symptoms of CVS were blurred vision (34.26%; 95% CI 22.08, 46.43). The previous history of eye disease (95% CI 2.30, 5.47), inappropriate sitting position (95% CI 1.76, 3.22), the frequent use of a computer (95% CI 2.04, 3.60), and using eyeglass/spectacles (95% CI 1.10, 3.91) were significantly associated with CVS among computer users in Ethiopia (Adane,F. et al ;2022).

Also, prevalence of computer vision syndrome in European in which the main age of the participants was 24.74 years (20-60 years) among whom females (57%) were more than males (43%). The prevalence of computer vision syndrome was found to be 69%. About 30 (30%) individuals used computer around 4 - 6 hours per day. The most disturbing symptom was eyestrain and fatigue in 59 (59%), headache 57 (57%), pain in neck, shoulder, wrist or back in 51(51%), dryness of eyes in 37 (37%) & blurred vision in 35 (35%) individuals. 11 participants (11%) were aware of CVS. 79 participants (79%) took preventing measures, and the most common preventive measure was taking breaks in between work. In the present study 46(46%) participants took breaks as preventive measure after 1 hr. and 25 (25%) after 20 minutes (Gammoh.Y. ;2021). as well, prevalence of computer vision syndrome did in Malaysia universities among 795 students, aged between 18 and 25 years, from five universities in Malaysia were surveyed. The prevalence of symptoms of CVS (one or more) was found to be 89.9%; the most disturbing symptom was headache (19.7%) followed by eye strain (16.4%). Students who used computer for more than 2 hours per day experienced significantly more symptoms of CVS (p=0.0001). Looking at far objects in-between the work was significantly (p=0.0008) associated with less frequency of CVS symptoms. The use of radiation filter on the screen (p=0.6777) did not help in reducing the CVS symptoms (Younis. A. et al ; 2022).

In the title of the prevalence and associated factors of self-reported symptoms of computer vision syndrome among high school teachers in Riyadh: A cross-sectional study Published in 10.4103/jnsm.jnsm_99_21et al. The prevalence of experiencing one or more symptoms of CVS among high school teachers was 94.6%. The most common symptom was neck and shoulder pain, reported by 84.9% of high school teachers. Male teachers were 80% less likely to have CVS (odds ratio [OR] = 0.213, 95% confidence interval [CI] [0.079-0.578]). The risk of CVS was higher in those who use electronic devices for more than 5 h (OR = 3.4, 95% CI [1.015-11.4]). Male teachers experienced less headache (OR = 0.504, 95% CI [0.344-0.75]), less neck and shoulder pain (OR = 0.326, 95% CI [0.186-0.57]), and less eyestrain (OR = 0.495, 95% CI [0.308-0.796]) in comparison to female teachers.(Altalhi. A. et al ; 2020).

1.3 Regional:

In study done by Fentahun Adane1* , Yoseph Merkeb Alamneh1 and Melaku Desta2 et al, In the title of Computer vision syndrome and predictors among computer users in Ethiopia: a systematic review and meta-analysis Published in the journal of Adane et al. Tropical Medicine and Health Which found Eight eligible studies were included. The pooled prevalence of CVS among computer users in Ethiopia was 73.21% (95% CI 70.32-76.11). Sub-group analysis by profession has shown that the highest prevalence of CVS was observed in bank employees [73.76% (95% CI 70.40-77.13)]. The most common reported symptoms of CVS were blurred vision (34.26%; 95% CI 22.08, 46.43). The previous history of eye disease (95% CI 2.30, 5.47), inappropriate sitting position (95% CI 1.76, 3.22), the frequent use of a computer (95% CI 2.04, 3.60), and using eyeglass/spectacles (95% CI 1.10, 3.91) were significantly associated with CVS among computer users in Ethiopia (Adane. F. et al ;2022).

In study done by Marwa M. Zalat, Soliman M. Amer, Ghada A. Wassif, Shereen A. El Tarhouny & Tayseer M. Mansour in the title of Computer Vision Syndrome, Visual Ergonomics and Amelioration among Staff Members in a Saudi publish Medical College in the journal International Journal of Occupational Safety and Ergonomics Which found , relatively equal gender presentation of the study participants; (53.8 %) were male and (46.2%) were female. The majority were married (92.5%), non-Saudi (86.2 %), and nearly half of them were from clinical sciences departments (51.2%).The mean work duration was 21.08 years with a standard deviation (7.57). The main work hours per day was 8.02 with a standard deviation of (3.34). The majority of participants (82.5%) were using correction eyeglasses compared to 10% using contact lenses. The highest frequency for wearing eyeglasses and contact lenses was for females (86.5%, 18.9%, respectively) as shown in . Concerning the pattern of computer digital screen usage, that all of the study participants were using laptops and most of them (91.2%) were using smartphones. About two thirds were using desktops (63.8%) and about one third (32.5%) were using

tablets or iPad. Most of the study participants (90%) using computers for more than 10 years, (68.8%) for 3-6 hours per day and the majority were using the computers in an interrupted manner (83.8%). About (32.5%) showed frequent use of more than one device, however nearly half of them (52.5%) sometimes do it. About (58.8%) of the participants were wearing eye glasses while working at the computer and most of them (77.5%) were using computers both day and night. Eighty-one percent of the study participants suffered from CVS as shown in . As regarding the frequency of visual complaints among participants ,that a vast majority of visual complaints were among those with positive computer vision syndrome compared to those with negative computer vision syndrome. The most experienced symptoms by the study participants were dryness, headache, feeling that sight is worsening, and difficulty focusing on near vision there was a statistically significant difference (p< 0.05) between both groups for all visual complaints except the complaint about occasional colored halos around objects which were non-significant. that there was significantly higher prevalence of CVS among females (52.3%) compared to male participants (p=0.02), and main work duration was significantly higher in staff members with CVS (21.65 ± 7.55 years) than those without CVS (17.67 ± 6.90 years) (p < 0.05). In contrast to this, the other variables (marital status, nationality, academic degree, department, and working hours per day) showed no significant differences between positive and negative computer vision syndrome. described the relationship between the pattern of computer digital screen usage and CVS. There was a significantly higher prevalence of CVS among those who frequently use the smartphone of the computer digital screen (84.9%) and those who spend most of the screen time during day and night (87.1%) (p= 0.02, 0.01, respectively).Despite, other patterns of using computer digital screens were of Higher frequency among positive than negative computer vision syndrome but without significant difference. Regarding the relationship between CVS and visual ergonomics, that the participants who use the computer with a correct screen level (93.3%), clean the screen regularly (40.0%), and use appropriate illumination (46.7%) were significantly associated with negative computer vision syndrome compared to those with positive syndrome (p < 0.05). Regarding the application of the preventive measures among participants, the use of eye drops was significantly associated with less frequency of CVS symptoms. Other measures such as taking breaks, looking at far objects in between use, massage of eyes, and use of radiation filter on the screen were not significantly associated with less prevalence of CVS. (Marwa. M. et al ; 2022).

In study done by Yazan Gammoh, In the title of Digital Eye Strain and Its Risk Factors Among a University Student Population in Jordan: A Cross-Sectional Study , published in the : February 26, 2021et al .Data from 382 students were analyzed. Prevalence of CVS was 94.5%, with tearing being the most prevalent symptom (59%), while double vision was least reported by students (18.3%). DD use for more than six hours per day was reported by

55.5% of the sample size, and 30.7% of the students reported pain in joints of fingers and wrists after using a mobile phone. (Gammoh. Y. et al ;2021).

In study done by Afnan Younis1, Laila Alsabbagh, Dimah Alaraifi, Ghaida Alsanad, Ahad Algrain, Rema AlDihan, Fatimah Albassam, in the title of the prevalence and associated factors of self-reported symptoms of computer vision syndrome among high school teachers in Riyadh: A cross-sectional study Published in 10.4103/jnsm.jnsm_99_21et al. The prevalence of experiencing one or more symptoms of CVS among high school teachers was 94.6%. The most common symptom was neck and shoulder pain, reported by 84.9% of high school teachers. Male teachers were 80% less likely to have CVS (odds ratio [OR] = 0.213, 95% confidence interval [CI] [0.079-0.578]). The risk of CVS was higher in those who use electronic devices for more than 5 h (OR = 3.4, 95% CI [1.015-11.4]). Male teachers experienced less headache (OR = 0.504, 95% CI [0.344-0.75]), less neck, shoulder pain (OR = 0.326, 95% CI [0.186-0.57]), and less eyestrain (OR = 0.495, 95% CI [0.308-0.796]) in comparison to female teachers. (Younis. A. et al; 2022).

In study done by Mohammed Iqbal1*, Ahmed El-Massry2, Mohammed Elagouz1 and Hosam Elzembely In the title of Computer Vision Syndrome Survey among the Medical Students in Sohag University Hospital, Egypt Published in the journal of An International Journal Which found: The most remarkable result in this study was recording that 86% of the medical students sample was used to spend 3 hours or more on a daily basis which were complaining of one or more of CVS manifestations. Dry eye, headache, blurred vision, eye strain, neck and shoulder pain fatigue and eye redness were recorded in 28%, 26%, 31%, 16%, 24%, 21% and 15% respectively (IQBAl. M. et al ;2018).

1.4 Local:

In Yemen, there's no published study about the prevalence or risk factors for CVS.

1.2. 0 Literature review:

Computers and associated devices are essential in many aspects of modern academic, professional, and social life. Access to computers is increasing rapidly. In 1997, only 18% of U.S. households had computers; in 2009, computers were in 68.7% of U.S. households (U.S. Census Bureau.), compared to 83.8% in 2013 (RAHMAN. ZA. et al ; 2011). Not only do people frequently use personal computers and the Internet, but the market includes e-readers such as Kindle® and Nook®. I

 (AL RASHIDI. S. etal; 2011) .more than half the households in Pennsylvania had hand-held devices; this finding was consistent with national data (Pennsylvania State Data Center; 2014) . Visual display terminals (VDTs) is a broad term used to describe computers, cell phones, tablets, and e-readers. Their frequent use may be causing a significant increase in vision problems for individuals. Dry eyes, blurred vision, and headaches are common symptoms reported by a student who entered medical school in August 2011: "I'm pretty sure I'm going to need glasses soon because my eyes can't keep up with the demands" (C. Tippy, personal communication, September 1, 2012) . These symptoms also are experienced by most persons who use computers frequently at work. A nurse admitted, "My eyes are exhausted at the end of the day. If I have a long document to read, I often print it out just to get a break from the computer" (K. Ortiz, personal communication, September 1, 2012)]. An undergraduate nursing program implemented us of e-books and discovered similar concerns from students (Guevel, Tarnow, & Kumm, n.d). Published reports of health issues related to computers are not new (Grant, 1987), but the increasing number of Computers and associated devices are essential in many aspects of modern academic, professional, and social life. Access to computers is increasing rapidly in 1997, only 18% of U.S. households had computers; in 2009, computers were in 68.7% of U.S. households (U.S. Census Bureau, n.d.), compared to 83.8% in 2013 (File & Ryan; 2014). Not only do people frequently use personal computers and the Internet, but the market includes e-readers such as Kindle® and Nook®. In 2013, more than half the households in Pennsylvania had hand-held devices; this finding was consistent with national data (Pennsylvania State Data Center; 2014). Visual display terminals (VDTs) is a broad term used to describe computers, cell phones, tablets, and e-readers. Their frequent use may be causing a significant increase in vision problems for individuals. Dry eyes, blurred vision, and headaches are common symptoms reported by a student who entered medical school in August 2011: "I'm pretty sure I'm going to need glasses soon because my eyes can't keep up with the demands" (C. Tippy, personal communication, September 1, 2012). These symptoms also are experienced by most persons who use computers frequently at work. A nurse admitted, "My eyes are exhausted at the end of the day. If I have a long document to read, I often print it out just to get a break from the computer" (K. Ortiz, personal communication, September 1, 2012) .

An undergraduate nursing program implemented use of e-books and discovered similar concerns from students (Guevel, Tarnow, & Kumm, n.d). Published reports of health issues related to computers are not new (Grant; 1987), but the increasing number of people struggling with related symptoms prompted the American Optometric Association (AOA, 2014) to diagnose these symptoms as computer vision syndrome (CVS). The symptoms are sometimes labeled asthenopia. Computer vision syndrome is a group of eye and vision problems caused by prolonged computer use (AOA, 2014). The AOA identifies the following symptoms associated with CVS: eye strain, headache, blurred vision, dry eyes, and neck and shoulder pain. Other common complaints include eye irritation, redness, or burning. Shantakumari, Eldeeb, Sreedharan, and Gopal (2014) found females had a 78% greater risk of developing headaches related to CVS than males. In addition, being female, and having perceived stress and distress, social support problems, or computer difficulties were associated with combined symptoms of eye strain and neck or shoulder discomfort (Wiholm, Richter, Mathiassen, & Toomingas; 2007). Portello, Rosenfied, Babababekova, Estrada, and Leon (2012) likewise found a significantly higher incidence in women and Hispanics. Tired eyes was the most common issue reported by approximately 40% of subjects as occurring at least half the time . A third reported symptom was dry eye and/or eye discomfort. Although the world's advanced technology is causing new syndromes and diseases (Madhan; 2009), CVS has been affecting individuals for quite some time. The most recent available data indicate some 90% of the 70 million U.S. workers using computers for more than 3 hours a day may experience CVS (Blehm, Vishnu, Khattak, Mitra, & Yee, 2005. Prior to computers taking over the workplace, jobs used to include writing, reading, and getting out of a chair for filing. These actions provided a natural break in the day for the eyes and the body. Computer vision syndrome is not only an area of concern in the United States, but also a prevalent issue throughout the world (Kirk & people struggling with related symptoms prompted the American Optometric Association (AOA; 2014) to diagnose these symptoms as computer vision syndrome (CVS). The symptoms are sometimes labeled asthenopia. Computer vision syndrome is a group of eye and vision problems caused by prolonged computer use (AOA; 2014) . The AOA identifies the following symptoms associated with CVS: eye strain, headache, blurred vision, dry eyes, and neck and shoulder pain. Other common complaints include eye irritation, redness, or burning. Shantakumari, Eldeeb, Sreedharan, and Gopal (2014) found females had a 78% greater risk of developing headaches related to CVS than males. In addition, being female, and having perceived stress and distress, social support problems, or computer difficulties were associated with combined symptoms of eye strain and neck or shoulder discomfort (Wiholm, Richter, Mathiassen, & Toomingas, 2007). Portello, Rosenfied, Babababekova, Estrada, and Leon (2012) likewise found a significantly higher incidence in women and Hispanics.Tired eyes was the most common issue reported by approximately 40% of subjects as occurring at least half the time (Zairina A et al.;2011).

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1.3.0 Justification:

In Yemen, there is no publish studies about the prevalence of CVS, as an addition the very fact is that the studies are still limited in Arab countries as well. Moreover, the use of preventive measures of CVS is still handicapped the augmenting in manifestations of CVS experienced by the computer users.

1.4.0 Objectives:

1.4.1 General objectives.

To detect the prevalence CVS among students on medical colleges in Sana'a Universities, Yemen.

1.4.2 Specific objectives:

To determine the factors associated with CVS among medical students and to compare between the symptoms of CVS in different colleges.

To determine the effect of using electronic devices on the eye.

To describe the effect of taking a break in working times using devices in reducing symptoms

Chapter two

2.0 Methodology:

2.1 The study design:

A descriptive cross-sectional study was taken place from August to November 2022.

2.2 The study location:

This study was taken place in three location, medical college in 21st September University, faculty of medicine Sana'a University, and medical college in Emirates University.

2.3 Sample size:

Selected by Epi-info according to the number of students in each college with total of questioner was 210 students interview.

2.4 Date collection:

Data was collected by pretest structure questionnaire from all the students by direct interview after getting informed which is written from them.

2.5 Data analysis:

Collected data were analyzed manually and by using the computer. Collected data was arranged in systemic manner, presented in various table and statically analysis was made to evaluate the objective of this study with the help of Statically Package for Social Science (SPSS).

2.6 Ethical consideration:

The study was conducted after getting the approval litters from the Universities.

2- Variable definition:

- Gender (Male - Female).

- Age as groups.

- Marital state (single - marriage).

- Name of university.

- The frequent devices use: (computer digital screen - laptop - iPhone)

- Many Hours Spend Digital Screen: (2h – 3h – 4h - >6h)

- Hours Spend on Digital Screen Are (Continuous- Interrupted).

- How many years spend use electronic devices (2y – 3y – 4y - >6y).

- Symptoms (headache – fatigue - dry eyes - blurred visions - double vision - redness eye - irritation - Neck - shoulder - back pain).

- Increased sensitivity to light: (never – usually – always).

- Difficulty focusing on near vision: (never – usually – always).

- Do you have any vision problem (yes - no).

- Using any drug for eyes (yes - no).

- Using lenses or glasses (yes - no).

- Refractive errors (yes – no – I don't know).

- What are using when studding (electronic device – book – both).

- Are electronic devices more suitable than the traditional ways? (Yes – no – I don't care).

- Are you ready to reduce the use of electronic devices to prevent CVS (yes - no).

Chapter Three

3.0 Result.

3.1. Demographic Data.

Total of 210 healthy apparently healthy volunteers of Medical students Sana'a Universities, ware data interview collected to determine the prevalence of CVS, with mean age ± SD was (22.4 ± 2.8) years, were males represent (136 (76.7 %); and females were represent 74 (35.2%); the male to female ratio of 2:1,. Age groups ranged from 20 to 28 years. In 21 September university (n=66/210); the mean age was 22.4 ± 2.8 and the male: female ratio was 1: 1 Age groups, while Sana'a university was (n=58/210); the mean age was 22.4 ± 2.8 and the male: female ratio was 2:1. On other hand Emirate university was (n=86/210); the mean age was 22.4 ± 2.8, and the male: female ratio of 3:1. It is noteworthy that 21 September volunteers' were similar in both Sana'a university volunteers and Emirate university volunteers where the mean age was (22.4 ± 2.8) p=0.00 respectively. Compared male: female ratio in three universities, we found that it different in both Sana' a and Emirate university, compared to 21September 1:1. (Table 1). The marital status of the medical students we found that it different in both universities where the Married rate was 17.4%. Table 1.

Table 1: Demographic data percent of CVS among male & female students and among students of different grades during the academic years. (2023).

Variable	21 September Univ.	%	Sana'a Univ.	%	emirate Univ.	%	Total
Age (Mean ± SD)	22.4 ± 2.8	100 %	22.4 ± 2.8	100 %	22.4 ± 2.8	100 %	
Gender							
Male	30	45.5 %	40	69 %	66	76.7 %	
Female	36	54.5 %	18	31 %	20	23.3 %	
Marital status							
Married	3	4.5 %	12	20.7 %	15	17.4 %	
Single	63	95.5 %	46	79.3 %	71	82.6 %	
Total	66	100 %	58	100 %	86	100 %	210

Univ.=University

3.2. The common risk factors related to computer vision syndrome (CVS) among universities the students used devices frequently are a smartphone and iPad where prevalence was not significantly different between the a smartphone and iPad were 79%, 3.3% p value=0.77, were using the Android, this is because most of the medical students were using more than one type of digital screens, the prevalence was not significantly about they wear glasses while using these devices were 8% (p value= 0.143), and there was Significantly higher

prevalence rates were seen between how many hours do you spend using this device on a daily basis, were the results 2.9% of the students used to spend 2 hour, 10.9% of the students used to spend 3hours, 27% of the students used to spend 3-4 hours, 27% of the students used to spend 4-6 hours, while 59% of the students used to spend > 6 hours on their digital screens respectively, (p value= 0.011). There was not significantly prevalence rates between that it hours spend on the device intermittent, were the results 31.5%, 30.9%, 37.6% respectively of the students in three universities, while that it hours spend continuous were the results 31.1%, 15.6%, 53.3% p=0.076, in both 21 September, Sana'a, Emirate respectively. There was higher significantly prevalence rates about how many years have continued this system in the using of electronic devices, were the result 6.6% of the students used to continued 2 years, 20.9% of the students used to continued 3years, 21.9% of the students used to continued > 4years, while 50% of the students used to continued >6 years p=0.00. There was significantly prevalence rate about stigmatism were the results 44.7% of the students (p value= 0.003), and there was significantly prevalence rate were they have problem with increased sensitivity to light were the result 75.2% of the medical students on their sense between difference groups p=0.000, where the result was 28.6% of medical students was not significance who using any topical eye drops, were the results 9% of the students suing topical eye drops to treat their dry eye disease, while 91% of the students did not use any eye medication p value= 0.903. There was significantly prevalence about the presence of any refractive errors were results of 13.8% of the students had refractive errors, 61.9% of the students had no refractive errors while 24.3% of the students did not know their refractive status p value=0.000. There was significantly prevalence difference about medical students suffering from CVS and those who are not suffering from CVS regarding wearing contact lens and wear glasses or contact lens were the results 17.1% p value=0.012. There was higher significantly prevalence regarding about using when they reading electronic devices or book or together, were the result 14.2% used electronic 14.8% used book, and 71% together respectively, p value=0.000. There was not significantly prevalence about more useful electronic devices than the traditional method between medical students groups (p=0.682), were the results 62% of the students I agree while 17% against, 20% I do not care. There was significantly prevalence between about ready to reduce the use of electronic devices to avoid computer vision syndrome were the result 51% of the students that Yes p value= 0.000. (Table 2).

students Table 2: The common risk factors related to computer vision syndrome among collage universities 2023.

Risk factors		The 21st of September	Sana'a university	Emirates university	total	P value
Devices repeatedly used?	Smart phone	56 (84.8%)	47 (81%)	63 (73.3%)	166 (79%)	0.77
	I Pad	4 (6.1%)	0 (0%)	3 (3.5%)	7 (3.3%)	
	All of above	6 (9.1%)	11 (19%)	20 (23.3%)	37 (17.6%)	
Do you wear glasses while	yes	9 (23.7%)	11 (28.9%)	18 (47.4%)	38 (18.1%)	0.143
using these devices?	No	51 (34.9%)	35 (24 %)	60 (41.1%)	146 (69.5%)	
	sometimes	6	12 (46.2%)	8 (30.8%)	26 (12.4%)	
How much hours you spend on using devices?	2 hours	3 (4.5 %)	3 (5.2 %)	0 (0 %)	6 (2.9%)	0.011
	3 hours	9 (13.6%)	8 (13.8%)	6 (7%)	23 (11%)	
	4 hours	25 (37.9%)	15 (25.9%)	17 (19.8%)	57 (27.1%)	
	More than 6 hours	29 (43.9%)	32 (55.2%)	63 (73.3%)	124 (59%)	
Hours you spend on devices?	remittent	52 (78.8%)	51 (87.9%)	62 (72.1%)	165 (78.6%)	0.076
	continuous	14 (21.2%)	7 (21.1%)	24 (27.9%)	45 (21.4%)	
How many years have you been using your current routine in using your devices?	2 years	5 (7.6%)	8 (13.8%)	1 (1.2%)	14 (6.7%)	0.000
	3 years	24 (36.4%)	10 (17.2%)	10 (11.6%)	44 (21%)	
	More than 4 years	18 (27.3%)	16 (27.6%)	12 (14%)	46 (21.9%)	

	More than 6 years	19 (28.8%)	24 (41.4%)	63 (73.3%)	106 (50.5%)	
Did the sensitivity to the light increase?	never	13 (19.7%)	10 (17.2%)	29 (33.7%)	52 (24.8%)	0.134
	sometimes	20 (30.3%)	15 (25.9%)	18 (20.9%)	53 (25.2%)	
	usually	33 (50%)	33 (56.9%)	39 (45.3%)	105 (50%)	
Is there any difficulty in watching near things?	never	30 (45.5%)	27 (46.6%)	59 (68.6%)	116 (55.2%)	0.003
	sometimes	18 (27.3%)	9 (15.5%)	16 (18.6%)	43 (20.5%)	
	usually	18 (27.3%)	22 (37.9%)	11 (12.8%)	51 (24.3%)	
Do you have any problems in your vision?	yes	25 (37.9%)	24 (41.4%)	11 (12.8%)	60 (28.6%)	0.000
	no	41 (62.1%)	34 (58.6%)	75 (87.2%)	150 (71.4%)	
Do you use any drugs for eyes?	yes	6 (9.1%)	6 (10 3%)	7 (8.1%)	19 (9%)	0.903
	no	60 (90.9%)	52 (89.7%)	79 (91.9%)	191 (91%)	
Do you have refractive errors in your eyes?	yes	13 (19.7%)	11 (19%)	5 (5.8%)	29 (13.8%)	0.000
	no	52 (78.8%)	38 (65.5%)	40 (46.5%)	130 (61.9%)	
	I don't know	1 (1.5%)	9 (15.5%)	41 (47.7%)	51 (24.4%)	
Do you wear glasses or lenses?	yes	14 (21.2%)	15 (25.9%)	7 (8.1%)	36 (17.1%)	0.012
	no	52 (78.8%)	43 (74.1%)	79 (91.9%)	174 (82.9 %)	
What do you usually use while studying?	Electronic device	2 (3%)	5 (8.6%)	22 (25.6%)	29 (13.8%)	0.000
	book	8 (21.1%)	14 (24. 1%)	9 (10.5%)	31 (14.8 %)	

	both	55 (83.3%)	39 (67.2%)	55 (64%)	149 (71 %)	
Are electronic devices more suitable than the traditional ways?	agreed	39 (59.1%)	34 (58.6%)	58 (67.4%)	131 (62.4%)	0.682
	Not agreed	14 (21.2%)	10 (17.2%)	12 (14%)	36 (17.1%)	
	Don't care	13 (19.7%)	14 (24.1%)	16 (18.6%)	43 (20.5%)	
Are you ready to reduce using of devices to prevent CVS?	yes	42 (64.6%)	39 (67.2%)	27 (31.4 %)	108 (51.7%)	0.000
	no	23 (35.4%)	19 (32.8%)	59 (68.6%)	101 (48.3%)	

6.2. Symptoms related to computer vision syndrome among universities.

There was not statistically significance between the symptoms related to CVS that the students groups complained of neck/shoulder/back pain were the results 52.4%, p value=0.212, and of the students complained of Blurred vision were the results 30.9% p value=0.137. There was not significantly between complained of headache and the students groups, were the results 43.3% p value= 0.59. There was not significantly that of the students groups complained of light in the eye, were the results 13.3%, p value=0.841, and there was significantly between the symptoms related to that students groups complained redness in the eye were the result 19% p value=0.03. And there was not significantly between the symptoms and that students groups complained dry eye, were the result 18.6% p value=0.34. There was not significantly between symptoms and that students groups complained of double vision and eye strain, were the result 5.2%, 12.4% p value=0.12, 0.7. (Table. 3.).

Table 3: symptoms related to computer vision syndrome (CVS), among universities 2023.

Symptoms		The 21st of September	Sana'a university	Emirates university	Total %	P value
Pain on shoulders or neck or knees	Yes	33 (50%)	36 (62.1%)	41(47.7%)	110 (52.4%)	0.212
	No	33 (50%)	22 (37.9%)	45 (52.3%)	100 (47.6)	
blurred-vision	Yes	26 (39.4%)	17 (29.8%)	21 (24.4%)	65 (30.9%)	0.137
	no	40 (60.6%)	40 (70.2%)	65 (75.6%)	145 (69.4%)	
headache	yes	27 (40.9%)	19 (32.8%)	45 (52.3%)	91 (43.3%)	0.59
	no	39 (59.1%)	39 (67.2%)	41 (47.7%)	119 (56.7%)	
Fatigue	yes	20 (30.3%)	16 (27.6%)	22 (25.6%)	58 (27.6%)	0.548
	no	46 (69.7%)	41 (70.7%)	64 (74.4%)	151 (71.9%)	
Light on eyes	yes	8 (12.1%)	9 (15.5%)	11 (12.8%)	28 (13.3%)	0.841
	no	58 (87.9%)	49 (84.5%)	75 (87.2%)	182 (86.7%)	
Redness in eyes	yes	8 (12.1%)	6 (10.3%)	26 (30.2%)	40 (19%)	0.03
	no	58 (87.9%)	52 (89.7%)	60 (69.8%)	170 (81%)	
Dryness in eyes	yes	16 (24.2%)	10 (17.2%)	13 (15.1%)	39 (18.6%)	0.34
	no	50 (75.8%)	48 (82.8%)	73 (84.9%)	171 (81.4%)	
double-vision	yes	2 (3%)	6 (10 3%)	3 (3.5%)	11 (5.2%)	0.121
	n	64 (97%)	52 (89.7%)	83 (96.5%)	199 (94.8%)	
Eye irritation	yes	11 (16.7%)	11 (19%)	4 (4.7%)	26 (12.4%)	0.17
	no	55 (83.3%)	47 (81%)	82 (95.3%)	184 (87.6%)	

Chapter Four

4.0 Discussion

The aim of this study was to determine the prevalence of CVS among students of medical colleges in Sana'a, Yemen and to detect the relation of various factors with occurrence of symptoms from the total of 210 study students participants, 79% of medical students suffered from CVS. This finding is consistent with the work of 78% Computer Vision Syndrome among Health Sciences Students in Saudi Arabia king Abdul-Aziz University was spread (Marwa. M et al.;2022). , similarly our study and Academic Staff in the University of Gondar, Northwest Ethiopia was 78.8% suffered from CVS (Adane F et al.;2022)., this finding different in our study and reveals that 75% of medical students in Faculty of Medicine suffered from CVS in Cairo University, also this noticeable decreasing is consistent with the work of 86% in Sohag University in Egypt suffered from one or more of symptoms of CVS when they use digital screens for 3 hours or more per day. Our study shown less prevalence of symptoms from that reveals for colleagues in 2013 (IQBAl. M et al.;2013) were reported that the prevalence of one or more symptoms of CVS among 795 Malaysian University students was 89.9% when the daily use of digital screens was 2 hours or more. In contrast, in 2016 . reported that 67.2% of undergraduate medical students experienced at least one symptom related to CVS, this difference in the prevalence of CVS reported eye symptoms was as following: headache (68%), feeling of an affected eyesight (short-or long-sightedness (65%)), eye itchiness (63%), burning sensation (62%), excessive tearing (58%), unclear vision (52%), (Altalhi A et al., in 2020), may be due to the difference in the method used to consider the subject as affected by CVS or not. The other studies considered experiencing one or more symptoms as being affected by CVS. While in the current study, being affected by CVS is based on the score of CVS.

In the development of CVS and the use of computer for long time. The most important landmark in defining CVS is the definition released officially from the American Optometric Association which defined the Computer Vision Syndrome (CVS) or in another expression the Digital Eye Strain (DES) as a collection of ocular and extra ocular manifestations resulting from using the digital screens for many hours . many other investigators reported the same results [12-14]. 21%- .59% in our study for longer duration, headache (43.3%), eye pain (27.6%) and dry eyed (18.6%) are the (0.34) most frequent CVS symptoms experienced by the redness eye 0.03 students. In another study reported in their study that more than 75% of the engineering students were affected with CVS. Their results were close to our results in this study on the medical students in 2014,) found that headache and dry eyed .067 were the most common symptoms experience by .285 medical students [6].

While Agarwal and his col- leagues in 2013 reported that the most frequent .096 ocular symptoms were eye strain (53.8%), itching (47.6%) and burning (66.7%). in 2016

In the current study, there was no significant relation between the age of the medical students and occurrence of symptoms of CVS. In addition, Zainuddin & Isa in 2014 found no significant association between age and CVS. This case was not the same as the study done by Ranasinghe and his colleagues in 2016 where the prevalence of CVS increased with the increasing age of the computer user, the difference between the studies may be due to the difference in the age of study participants as the age of the participants in the study of Ranasinghe et al.; 2016 ranged from 18 to 60 years, our study was ranged from 18 to 25 years of age.

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 life style and relationships with his family, friends, colleagues and other humans. Landmark in defining CVS is the definition released officially from the American Optometric Association which defined the Computer Vision Syndrome (CVS) or in another expression the Digital Eye Strain (DES) as a collection of ocular and extra ocular manifestations resulting from using the digital screens for many hours. Most people who have CVS usually complains of eye strain, headache, dry eyed, pain in the neck, shoulders and the back, eye redness and irritation. The severity of CVS manifestation depends on how much time people spend on the digital screens. In general, people who are accustomed to spend 3 hours or more regularly on a daily basis are mostly complaining of CVS. In this study, the authors were aiming hard to do a good survey on CVS among medical students in Sohag University, Egypt they were trying to reach a near close to the truth of the prevalence and severity of CVS manifestations from an actual direct survey among the medical students. This study was carried on a sample of the medical students as a survey to have a provisional idea about the percentage of the medical students that is complaining of CVS. The sample in this study included 100 medical students (50 males and 50 females). Age ranged from 18 to 24 years. Surprisingly enough, 86% of the medical students sample was accustomed to using their digital screens 3 hours or more daily which made them very liable to suffer from one or more of CVS manifestations. What's more amazing is that 34% of the medical students were spending these hours continuously on their digital screens. That's why this study recorded a relatively high percentage of medical students complaining of CVS manifestations. For example 28% of the medical students were complaining of dry eyed while 13% of the students were actually using topical eye drops to treat the dry eyed, 31% of the medical students were complaining of blurred vision, 24% of the medical students were complaining of neck, shoulder and or back pain while 16% of the medical students were complaining of eye strain. Headache and fatigue were recorded in 26% and 21% of the students respectively.

This study recorded a clear fact that smart phones were mostly the main cause of CVS in these students because this study recorded that 88% of the medical students sample were using smart phones, furthermore, 92% of the students were using the touch screens.

4.1 Limitations:

Inability to perform ophthalmic examination to the medical students regarding the presence of any refractive errors.

4.2 Conclusion:

This study proved that CVS was a common syndrome that was simply misdiagnosed. Based on the survey that was performed in this study, 79% of the medical students were complaining of one or more of the CVS manifestations. This study recorded that dry eyed, blurring of vision, eyestrain and the current study reveals that 79% of medical students in faculty of medicine suffered from CVS, with the most experienced symptoms of headache and blurred vision. Students complained of dry eyed, neck/shoulder/back pain, which means when continues used smart phone or computer along time the probability suffered from CVS increasing and more complication occur. Headache were the most common CVS symptoms.

4.3 Recommendation

This study recommended performing further studies including more sample size, and perform both objective and subjective examination tools

These recommendations can help you avoid CVS symptoms:

Take Regular Breaks. Step away from your digital device every two hours. Spend at least five or 10 minutes doing something, that does not involve digital screens during your break.

Follow the 20/20/20 Rule. Look at an object 20 feet away for 20 seconds after spending 20 minutes using a digital device. Following this rule may reduce tension in your eye muscles and decrease eyestrain.

Reduce Glare. Glare is a significant factor in eye strain. Reduce it by adding anti-glare filters to your screens. Consider wearing computer glasses when you use your devices. The glasses provide clear vision at the optimal viewing distance for your desktop or laptop and reduce glare.

Make Blinking a Priority. People tend to blink less when viewing digital screens. Blinking keeps your eyes moist and helps prevent dry eyed and eye strain. Fortunately, you can reduce dry eyed by taking a blink break every half an hour. During your break, look away from the screen and spend a few seconds blinking slowly. If your eyes are normally dry, use artificial tears throughout the day, use recommended viewing distances. The American Optometric Association recommends placing your screen four to five inches below eye level and 20 to 28 inches from the eye.

Improve Lighting Levels. The brighter the light you receive from the devises, the more likely you'll experience eye strain and other CVS symptoms. Close shades and draperies during the sunniest part of the day to reduce glare and eye strain. Do bright overhead lights bother your eyes Task lighting may offer a more comfortable solution. If you can, turn off fluorescent lights and rely on floor or desk lamps instead. Don't work in front of or behind a window or lights.
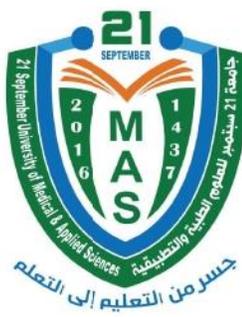
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Appendix

Ministry of Higher Education
and Scientific Research
21 SEPTEMBER UNIVERSITY
FOR MEDICAL S & APPLIED SCIENCES

وزارة التعليم العالي والبحث العلمي
جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية

Date :   /   /

WE ARE THE STUDENTS OF 21ST SEPTEMBER UNIVERSITY. EXACTLY THE HUMAN MEDICINE SECTION. WE MAKE THIS SURVEY VIA PERMIT FROM THE MANAGER OF THE 21ST SEPTEMBER UNIVERSITY. WE ARE CONCERNED TO MAKE A SURVEY ABOUT COMPUTER VISION SYNDROME (CVS).

ABOUT THE SURVEY:

OBVIOUSLY THESE DAYS THE ELECTRONIC DEVICES ARE WIDESPREAD IN OUR SOCIETY. THERE FOR, WE ARE TRYING TO MAKE A SURVEY ABOUT THE HARMFUL RAYS WHICH THE HUMAN RECEIVE FROM THESE DEVICES AND THE SYNDROMES WHICH ARE RESULTS FROM THOSE RAYS.

- WHAT WE ASK YOU TO DO IN THIS SURVEY IS ?

- ANSWER THE QUESTION WHITE YOUR OWN INFORMATION.

- PLEASE MARK YOUR ANSWER (✓).

- NOTICE:-

- YOUR DON'T HAVE TO ANSWER THE ENTIRE SURVEY.

(NOTE THAT YOU MAY CHOOSE 1OR MORE ANSWER FOR EACH QUESTION)

-CATEGORY:-

-AGE:-

-GENDER:

-THE NAME OF THE EDUCATED ORGANIZATION:-

-THE ELECTRONIC DEVICES YOU USE REPEATEDLY ?

-SMART PHONE ◯   •-TABLET ◯   •-LAPTOP . ◯   •-ALL ◯

-WEARING GLASSES WHILE USE AT THE ELECTRONIC DEVICE ?

-YES ◯   -NO ◯   - SOMETIME ◯

•- HOW MANY HOURS YOU SPEND ON IT EVERY SINGLE DAY ?

•1-2H ◯   •2-3H ◯   •3-4H ◯   > 6H ◯

•

•-THE HOURS YOU SPEND ON THIS DEVICE ARE ?

-CONTINUE ◯   -INTERRUPTED. ◯

•-HOW MANY YEARS HAVE YOU ADOPTED THIS STYLE OF USING THE ELECTRONIC ADVICE?

•- NEARLY 2 ◯   •- NEARLY 3 ◯   -• > 4 ◯   • > 6

-SYMPTOMS WHICH YOU FEEL AFTER USING THE ELECTRONIC ADVICE FOR LONG TIME?

•-HEADACHE ◯   •- BLURRED VISION ◯   •-NECK /SHOULDER /BACK ◯

•- FATIGUE ◯   •-EYES STRAIN ◯   •-EYE REDNESS AND ◯

•- DRY EYE ◯   •- DOUBLE VISION ◯   -IRRITATION ◯

-increased sensitivity for the light ?

-never ◯   -often ◯   - sometime ◯

-difficulty focusing for near vision?

-never ◯   -often ◯   - sometime ◯

- DO HAVE ANY ISSUE IN YOUR SIGHT ?

•- YES ◯   •- NO. ◯

•DO USE ANY TOPICAL EYE DROP FOR IT ?

-YES ◯   -NO ◯

-DO YOU HAVE ANY REFRACTIVE ERRORS ?

•- YES ◯   •- NO ◯   •- I DON'T KNOW. ◯

-DO YOU WEAR GLASS OR CONTACT LENSES :

•- YES ◯   •- NO ◯

-DO YOU USUALLY STUDY USING.:

•- ELECTRONIC DEVICES ◯   •- BOOKS ◯   •- BOTH ◯

. THE ELECTRONIC DEVICES ARE USEFUL FOR STUDY MORE THAN TRADITIONAL WAY (BOOK) :

•- AGREE ◯   •- INDIFFERENT ◯   •-AGAINST. ◯

-ARE YOU READY TO REDUCE USING THE ELECTRONIC DEVICES IN ORDER TO AVOID (CVS) :

•- YES ◯   •- NO ◯

Ministry of Higher Education
and Scientific Research
21 SEPTEMBER UNIVERSITY
FOR MEDICAL S & APPLIED SCIENCES

وزارة التعليم العالي والبحث العلمي

جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية

نحن طلاب جامعة ٢١ سبتمبر قسم الطب البشري.

نقوم بهذا البحث بتصريح من رئيس الجامعة

نحن مهتمين بعمل بحث عن متلازمة الرؤيا الحاسوبية.

البحث في اسطر:-

ملحوظاً في هذه الايام انتشار استعمال الأجهزة الالكترونية على نطاق واسع في مجتمعنا .لذلك نحاول عمل بحث يدرس الأشعة الضارة الصادرة من هذه الاجهزة.   والأعراض التي قد تنجم عنها.

-ما هو المطلوب منك في البحث؟

اجب مستعملا معلوماتك الشخصية ضع علامة على اجابتك .

ملاحظة-

لست ملزماً بحل جميع الأسئلة.

(قد يتوجب عليك اختيار اكثر من إجابة:

الفئة :-
العمر :-
الجنس :-
اسم الجامعة :-

-أجهزة تستعملها بشكل متكرر؟

○ -هاتف ذكي   ○ - أيباد.   ○ - كمبيوتر.   ○ - جميع ما سبق

-هل ترتدي النظارات بينما تستخدم هذه الاجهزة؟

○ -نعم   ○ -لا   ○ -احياناً

ـ كم من الساعات تقضيها في استعمال هذا الجهاز بشكل يومي؟

◯ ـساعتين.　　◯ ـ ثلاث ساعات.　　◯ ـ اربع ساعات.　　◯ ـاكثر من ست ساعات

ـ الساعات التي تقضيها على الجهاز هل هي؟

◯ ـ متقطعة.　　◯ ـ متواصلة

ـ كم من السنوات استمريت بهذا النظام في استخدام الأجهزة الالكترونية؟

◯ ـ سنتين.　　◯ ـ ثلاث سنوات .　　◯ ـ > اربع سنوات.　　◯ ـ > ست سنوات

ـ الاعراض التي تشعر بها بعد استعمال الأجهزة الالكترونية لفترة طويلة من الوقت؟

◯ ـ الم في (الرقبة/الكتف/الظهر)　　◯ ـغشاشه في الرؤية　　◯ ـصداع

◯ ـ احمرار في العين　　◯ ـ ضوء في العين.　　◯ ـ تعب.

◯ ـ تهيج للعين　　◯ ـ تعدد الرؤية.　　◯ ـ جفاف في العين.

ـهل زادت الحساسية للضوء؟

◯ ـاحياناً　　◯ ـعاده　　◯ ـابدأ

ـصعوبة في التركيز على الاشياء القريبة؟

◯ ـاحياناً　　◯ ـعاده　　◯ ـابدا

ـ هل لديك اي مشكلة في حاسة البصر؟

◯ ـ لا　　◯ ـ نعم.

ـهل تستخدم اي نوع من القطر لعلاجها؟

◯ ـ لا　　◯ ـ نعم.

ـ هل لديك انحراف في الرؤية؟

◯ ـ لا　　◯ ـ نعم.

ـهل ترتدي نظارة او عدسات لاصقة؟

◯ ـ لا　　◯ ـ نعم.

ـ كم من الساعات تقضيها في استعمال هذا الجهاز بشكل يومي؟

ـ اكثر من ست ساعات ○   ـ اربع ساعات. ○   ـ ثلاث ساعات. ○   ـ ساعتين. ○

ـ الساعات التي تقضيها على الجهاز هل هي؟

ـ متواصلة ○   ـ متقطعة. ○

ـ كم من السنوات استمريت بهذا النظام في استخدام الأجهزة الالكترونية؟

ـ > ست سنوات ○   ـ > اربع سنوات. ○   ـ ثلاث سنوات ○   ـ سنتين. ○

ـ الاعراض التي تشعر بها بعد استعمال الأجهزة الالكترونية لفترة طويلة من الوقت؟

ـ صداع ○   ـغشاشه في الرؤية ○   ـ الم في (الرقبة/الكتف/الظهر) ○

ـ احمرار في العين ○   ـ ضوء في العين. ○   ـ تعب. ○

ـ تهيج للعين ○   ـ تعدد الرؤية. ○   ـ جفاف في العين. ○

ـهل زادت الحساسية للضوء؟

ـاحياناً ○   ـعاده ○   ـابدأ ○

ـصعوبة في التركيز على الاشياء القريبة؟

ـاحياناً ○   ـعاده ○   ـابدا ○

ـ هل لديك اي مشكلة في حاسة البصر؟

ـ لا ○   ـ نعم. ○

ـهل تستخدم اي نوع من القطر لعلاجها؟

ـ لا ○   ـ نعم. ○

ـ هل لديك انحراف في الرؤية؟

ـ لا ○   ـ نعم. ○

ـهل ترتدي نظارة او عدسات لاصقة؟

ـ لا ○   ـ نعم. ○

35 ـ ما لذي تستخدمه عندما تذاكر عاده؟

كليهما ◯   ـكتاب ◯   -جهاز الكتروني

ـالأجهزة الالكترونية أكثر نفعاً من الطريقة التقليدية

ـ لا اهتم.   ـ ضد. ◯   ـاوافق. ◯

ـهل انت مستعد لتقليل استخدام الاجهزة الالكترونية لتجنب متلازمة الرؤية الحاسوبية؟

ـ لا ◯   ـ نعم. ◯

Republic of Yemen
Ministry of Higher Education
and Scientific Research
21SEPTEMBER UNIVERSITY
MEDICAL AND APPLIED SCIENCES
RECTORSHIP

بسم الله الرحمن الرحيم

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية
رئاسة الجامعة

معالي الاستاذ الدكتور/ القاسم عباس
رئيس جامعة صنعاء

المحترم

الموضوع: تسهيل مهمة بحث

تهديكم رئاسة جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية أطيب تحياتها وتقديرها وإشارة إلى الموضوع أعلاه تكرموا مشكورين بالتوجيه الى من يلزم بتسهيل مهمة بحث طلاب كلية الطب الدفعة الأولى مستوى خامس بقسم العيون مجموعة (B4a) لعدد (١٢) طالب بحسب عنوان البحث الموضح قرين اسمائهم تحت اشراف د/ غني الأشول، و د/ بشير النايبي:-

عنوان البحث	الاسم	م
	أحمد سيف أحمد الظفري	١
	أحمد عبده سعيد اللبن	٢
	المأمون علي عبده جبران	٣
	أنهار ناصر عبد الملك عاطف	٤
Computer vision syndrome survey among the medical students and workers in 21 September University Yemen	ذكرى نصر أحمد الحسني	٥
	فاطمة ناصر عبد الملك عاطف	٦
	حمير عبد القوي صالح الورد	٧
	عزام حيدر أحمد الحسني	٨
	عبد الكريم أحمد بدر	٩
	محمد عبد البديع علي صلاح	١٠
	محمد عبد الملك علي محمد	١١
	كليم ثابت السماوي	١٢

،، تفضلوا بقبول خالص تحياتي ومنق احترامي ،،

أستاذ. دكتور/
مجاهد علي معصار
رئيس الجامعة

Sana'a — Taiz street — Al-Sawad
Tel: (01/692100) Fax : (01/696585) B.O.P : (17021)
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صنعاء - شارع تعز - السواد
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Republic of Yemen
Ministry of Higher Education
and Scientific Research
21 SEPTEMBER UNIVERSITY FOR
MEDICAL AND APPLIED SCIENCES
RECTORSHIP

بسم الله الرحمن الرحيم

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة 21 سبتمبر للعلوم الطبية والتطبيقية
رئاسة الجامعة

معالي الاستاذ الدكتور/ نجيب الكميم
رئيس الجامعة الإماراتية
المحترم

الموضوع: تسهيل مهمة بحث

تهديكم رئاسة جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية أطيب تحياتها وتقديرها وإشارة إلى الموضوع أعلاه تكرموا مشكورين بالتوجيه السي من يلزم بتسهيل مهمة بحث طلاب كلية الطب الدفعة الأولى مستوى خامس بقسم العيون مجموعة (B4a) لعدد (١٢) طالب بحسب عنوان البحث الموضح قرين اسمائهم تحت اشراف د/ علي الأشول، و د / بشير التايهي:-

عنوان البحث	الاســـم	م
	أحمد سيف أحمد الظفري	١
	أحمد عبده سعيد اللبن	٢
	المأمون علي عبده جبران	٣
	أنهار ناصر عبد الملك عاطف	٤
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	عزام حيدر أحمد الحسني	٨
	عبد الكريم أحمد بدر	٩
	محمد عبد البديع علي صلاح	١٠
	محمد عبد الملك علي محمد	١١
	كليم ثابت السماوي	١٢

،، تفضلوا بقبول خالص تحياتي وعميق أحترامي ،،

استاذ. دكتور/
مجاهــد علـي معصـار
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تلفون: ٦٩٢١٠٠/٠١ فاكس: ٦٩٦٥٨٥/٠١ ص.ب:١٧٠٢١
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