



PalStudent Journal
A Palestinian Scientific Journal for the Youth



ABSTRACTS: VOLUME 7, SPECIAL ISSUE {7th Undergraduate Conference}

ABSTRACT

Digital Eye Strain Among Medical Students in Gaza Universities During the War in Gaza: A Cross-Section Study

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Background: Digital Eye Strain (DES), also called Computer Vision Syndrome (CVS), refers to a group of ocular and extra ocular symptoms resulting from prolonged use of digital devices. Medical students have become increasingly dependent on screens, heightening their risk of DES. In conflict-affected regions such as the Gaza Strip, this reliance is not a matter of choice but a necessity. Medical students in Gaza are forced to engage in uninterrupted and prolonged screen use under suboptimal conditions marked by poor lighting, unstable power supply, and inadequate ergonomic setups. These compounded stressors significantly increase the risk and severity of DES symptoms. Study Objectives: This study aimed to determine the prevalence of Digital Eye Strain (DES) and identify associated risk factors among undergraduate medical students during the war in Gaza.

Methods: We conducted a cross-sectional study between November and December 2024 in two educational medical centers, Al-Azhar University and the Islamic University of Gaza. The study included 544 undergraduate medical students from Participants were recruited through convenience sampling. Additional variables included demographics, screen time, sheltering circumstances, academic levels, and smoking. SPSS v25.0 was used for statistical analysis, and associations were evaluated using Pearson's Chi-square test ($p < 0.05$). Data was collected using the validated 28-item CVS-F3 questionnaire to evaluate extra ocular and ocular symptoms.

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Results: Ocular symptoms were reported by 33.04% of students, with eye strain and fatigue being the most common, followed by dry eyes (14.92%) and blurred vision (14.05%). Students living in tents or shelters reported significantly higher rates of eye strain and dry eye compared to those living at home ($p < 0.005$). Increased symptom burden was associated with Refractive errors, contact lens use, and prior ocular disease. Smokers reported higher rates of eye strain and near-vision discomfort ($p < 0.05$). Bright screen settings were also associated with higher symptom reporting ($p = 0.002$).

Conclusions: This study showed that Digital Eye Strain is highly prevalent among medical students in Gaza, with symptoms linked to prolonged screen time, poor lighting, and unstable living conditions during the war. Practical, low-cost interventions may help reduce symptom severity. Future research is needed to explore the long-term impact of DES on academic performance and mental well-being in conflict-affected settings.

Research Keywords: Digital Eye Strain, Computer Vision Syndrome, Medical Students, Screen Time, Gaza Strip, War, Ergonomics.