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A web-based cross-sectional survey on computer-related visual and ocular symptoms and perceived stress, amid the COVID-19 transitional online learning among students in the Faculty of Medical Sciences: A Caribbean perspective

FMS Stress and
Eye Strain
Investigators



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Introduction

The current COVID-19 pandemic has impacted various sectors of human life, in unprecedented ways. Inevitably, many educational institutions transitioned to online learning due to worldwide 'lockdowns'. Digital technology is significant. However, studies have been reported that it has short- and long-term negative effects on people's biopsychosocial well-being; particularly, mental and visual issues. The current study focused on the effects of the transitional online learning mode on the ocular and mental health of students.

Objectives

1. To obtain the socio-demographic variables among the sample.
2. To determine the level of eye strain among the sample.
3. To determine the level of perceived stress among the sample.
4. To correlate the level of eye strain with level of perceived stress among the sample.
5. To associate the level of eye strain and perceived stress with the selected sociodemographic variables among the sample.

Methodology

Research approach and design:

- ✓ Quantitative approach
- ✓ Web-based, cross-sectional survey design

Method of data analyses:

Inferential and non-inferential statistics to assess categorical and discrete data. Used:

- ✓ Independent or T test
- ✓ Pearson's correlation test (r)
- ✓ F-ratio
- ✓ B.F test

Ethical considerations:

- ✓ Obtained UWI ethical committee's permission
- ✓ Obtained informed and signed consent from the participants

Data collection method and duration:

- ✓ Online, self-administered
- ✓ From March 31st - May 30th 2021

Sampling:

- ✓ FMS undergraduate students
- ✓ Purposive sampling
- ✓ Calculated sample, N= 331
- ✓ Responded only, N= 180

Tools used:

- ✓ Socio-Demographic Data Sheet (SDDS)
- ✓ Computer-Vision Syndrome Scale (CVSS-17)
- ✓ Perceived Stress Scale (PSS-10)

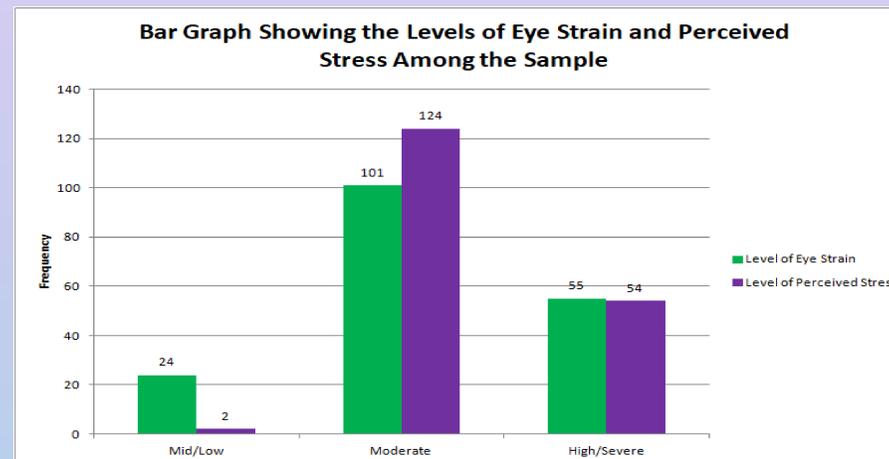
Results

Socio-demographic Data.

- Females comprised of majority of the sample when compared to males
- Before and after COVID-19, the significant independent variable 'the hours spent on devices for online learning' revealed that the majority (61.7%) spent 2-4 hours and > 7 hours (61.7%) on devices respectively.

Eye Strain and Perceived Stress Levels.

- Majority of the sample reported both moderate levels of eye strain (56.1%) and perceived stress (68.9%)
- Females were found to have higher levels of eye strain ($t = -3.286$, at $P = 0.001$) and perceived stress ($t = -3.02$ at $P = 0.003$) compared to males.
- The 24-29 year old group had a higher mean score on eye strain than the 18-23 year old group ($t = -4.213$ at $P = 0.00$).



Correlation of the two dependent variables.

- A weak positive correlation between levels of perceived stress and eye strain was found with a 'r' value of 0.204 ($P=0.006$).

Association between the SDVs and study variables

A statistically significant association was found between;

- 'Electronic devices used' and mean values of eye strain ($F = 3,176$, $P < 0.04$).
- 'Program of study' with mean values of eye strain and perceived stress levels ($F = 5,174$ $p = 0.02$).
- 'Subjects ethnicity' has impacted statistically on eye strain levels (Brown Forsythe test = 11.16 at $P = 0.00$).

Discussion

The bulk of this study's conclusions complemented those found in the literatures reviewed. In this study, for example, screen time was shown to be higher during the COVID-19 pandemic than it had been earlier. This was assumed to be due to both online learning and social media engagement. One of the reviews [1] supported this finding. Furthermore, women comprise the majority of the participants in this study. It could have been influenced by the presence of participants from a nursing school, which is a traditionally female-dominated field. Females had significantly more eye strain and perceived stress than males. Several peer-reviewed studies supported this finding, which could be due to genetic differences between men and women [2]. The degrees of ocular strain among people of East Indian and African heritage were significantly different on average. This was attributed to genetic and nutritional differences, and findings from a peer-reviewed study [3] corroborated this theory.

However, the most commonly used device for online learning contrasted from previously reviewed studies, in which the most common device was a mobile phone, but most participants in this study reported they used a laptop [4].

Conclusion

As a result of COVID-19's transitional online learning environment, the samples reported moderate to severe eye strain and perceived stress. The current online learning platform and isolated learning conditions may cause irreversible damage among students and instructors. With this evidence, the study may recommend the development of policy and legislation by the MOH and MOE to implement strategies at various levels to combat the rising levels of eye strain and perceived stress.

References

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