International Journal of Nursing and Medical Science 2025:14(4), 20-24

IJNMS ISSN: 2454-6674

INTERNATIONAL JOURNAL OF NURSING AND MEDICAL SCIENCE

Nursing Education Health Science Research

PANACEA INTERNATIONAL JOURNAL

PRL PUBLISHER

Review Article Volume 14 Issue 4 July – August 2025

AWARENESS AND PROTECTIVE MEASURES FOR DIGITAL EYE STRAIN AMONG NURSING SCIENCE STUDENTS IN DISTANCE LEARNING AT AHMADU BELLO UNIVERSITY, ZARIA

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Abstract

Background:

Digital Eye Strain (DES) is an emerging ocular health issue linked to prolonged use of digital devices. In open and distance learning environments, students may be particularly vulnerable due to high screen exposure.

Objectives:

This study assessed the level of awareness and protective measures adopted against DES among Bachelor of Nursing Science (B.N.Sc) students of Ahmadu Bello University Distance Learning Centre (ABU DLC), Zaria.

Methods:

A descriptive cross-sectional survey was conducted among 267 randomly selected B.N.Sc students across four academic levels (200L–500L). Data were collected using a pre-tested structured questionnaire adapted from the Digital Eye Strain Questionnaire (DES-Q). Descriptive statistics including frequencies, percentages, means, and standard deviations were used for analysis.

Results:

Findings revealed that 64% of respondents had heard of DES, yet only 16% were aware of the 20-20-20 rule. While most students acknowledged that training on ergonomics could reduce DES risk (90.5%), adoption of specific protective measures varied. Measures such as brightness adjustment, periodic breaks, and use of blue light filter eyeglasses were more commonly practiced (mean scores above 3.2), whereas cleaning screens, voluntary blinking, and ergonomic seating were less practiced (mean scores below 3.2).

Conclusion:

Although general awareness of DES exists, specific knowledge and consistent application of protective measures remain limited. Strengthening health education interventions focusing on DES prevention among distance learning students is recommended.

Keywords:

Digital Eye Strain, awareness, protective measures, nursing students, distance learning

Introduction

The use of digital devices has become indispensable in modern education, particularly within distance learning systems. Digital Eye Strain (DES) — characterized by symptoms such as dryness, itching, blurred vision, and headaches — affects a significant proportion of digital device users globally. Estimates suggest that nearly 70% of computer users experience DES [1].

At Ahmadu Bello University Distance Learning Centre (ABU DLC), nursing students extensively utilize digital platforms for lectures and assessments. However, prolonged exposure to digital screens increases the risk of DES, potentially impairing learning efficiency and quality of life [2,3]. This study aimed to explore the level of awareness and protective strategies against DES among B.N.Sc students at ABU DLC, Zaria.

Methods

Study design and participants

A descriptive cross-sectional survey was conducted among B.N.Sc students enrolled at ABU DLC, Zaria, Kaduna State, Nigeria. The population was stratified into four academic levels: 200L, 300L, 400L, and 500L.

Sampling technique

Multistage cluster and proportionate random sampling methods were used to select a sample of 267 students, representing approximately 12.7% of the total student population (N=2100).

Data collection

A validated and pre-tested questionnaire adapted from the Digital Eye Strain Questionnaire (DES-Q) was used to gather data on socio-demographic characteristics, awareness of DES, and adoption of protective measures.

Data analysis

Data were analyzed using Microsoft Excel 2016, applying descriptive statistics: frequencies, percentages, means, and standard deviations.

Ethical considerations

Ethical approval was obtained from Ahmadu Bello University Committee on Use of Human Subjects for Research (Approval No: ABUCUHSR/2023/037). Participation was voluntary and anonymous.

Results

Awareness of DES

Out of 242 respondents, 64% (n=155) reported being aware of DES, whereas 36% had never heard of it. A large majority (95%) agreed that lack of knowledge could increase DES prevalence. Only 16% were aware of the preventive 20-20-20 rule, and 90.5% believed ergonomics training could mitigate DES risk.

Adoption of protective measures

Protective practices varied:

- Brightness adjustment (mean=3.5)
- Periodic breaks during device use (mean=3.4)
- Wearing blue light filter eyeglasses (mean=3.3)

These were perceived as less threatening to DES development. However, practices like cleaning screens (mean=2.7), frequent voluntary blinking (mean=3.0), and using ergonomically comfortable chairs (mean=3.1) were less consistently adopted.

Discussion

This study highlighted moderate general awareness of DES among nursing students, aligning partly with previous research indicating low to moderate awareness levels [4,5]. Awareness of specific preventive measures such as the 20-20-20 rule was particularly limited, contrasting studies reporting higher knowledge in other regions [6,7].

Adoption of protective strategies was selective. While some students practiced screen brightness adjustment and breaks, less attention was given to ergonomics and eye hygiene. This selective application may reflect gaps in targeted health education.

Conclusion and Recommendations

Although many students at ABU DLC are aware of DES, their knowledge of practical protective strategies is limited. It is recommended that:

- The university should incorporate targeted DES education into student orientation and health programs.
- Policy makers should develop ergonomic guidelines suitable for digital learning contexts.
- Periodic workshops and awareness campaigns should emphasize practical measures like the 20-20-20 rule and ergonomic practices.

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