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Need to Educate Student Nurses for Eye Care: A Descriptive Analysis of Student Nurses' eye health literacy

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ABSTRACT

Background: Eye health is really important for health care professionals. Nursing care needs a lot of seeing, from charts and digital data to patients& faces. Nurses need good vision to provide quality treatment. The nurses' job should be reviewed and documented appropriately, so eye health is vital. Nurses exposed to more online education during student time risk eye health and work errors.

Materials and Methods: This study was conducted with a detailed descriptive cross-sectional research design. A pre-validated self-structured questionnaire was used to collect data. Using descriptive statistics, student nurses' demographics, knowledge, and practice scores were described for care of eyes while attending Online classes. The association between demographic variables and student nurse knowledge and practice was studied using a chi-square test and correlation coefficient.

Results: The Mean knowledge score of student nurses regarding the prevention of eye problems during online learning was found to be 11.43, SD2.36 and the Mean practice score was 4.42and SD 1.53 a significant positive linear relationship between knowledge and practice relationship was found (r=0.47,p=0.004).

Conclusion: There is a gap between the knowledge and practice scores of student nurses for eye health while learning online. Eye health literacy as well as good eye health practices are highly needed among student nurses.

Key words: Knowledge, practice, Eye care, Student Nurses, Online learning.

INTRODUCTION

E-learning is found to be positively correlated with eye health problems, i.e., eye fatigue-asthenopia that manifests itself with complaints such as eye discomfort, tearing, dryness, blurred vision, inability to focus, foreign body sensation, digital eye strain, computer vision syndrome, dry eyes, headache, heavy eyelids[1][2][3][4] Also, uncorrected refractive errors, accommodative & ? anomalies, altered blinking pattern, excessive exposure to intense light, improper lightening & posture, closer working distance & smaller font size can cause such ocular symptoms [5]. These symptoms can be managed by adopting healthy lifestyle habits such as using the 20/20/20 rule [6], ensuring room is well lit, regular eye examinations, and maintaining a healthy dietary pattern [7]. Regular eye exercises, eye protection, good posture, frequent washing of the eyes, and remembering to blink while taking online

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classes [8-10] Review of Many studies have helped us in developing the desired structure of a tool for assessing the knowledge and practise of student nurses [11][12][13][14]A detailed descriptive study was conducted to assess the knowledge regarding eye health and practise for the prevention of eye problems due to prolonged hours of online classes among undergraduate nursing students in the year 2020. The aim of this study is to identify the knowledge and practise of undergraduate nursing students regarding the management of eye health because, in today's era, nurses should have healthy vision in order to ensure the quality of nursing care [15][16]Quality Nursing care includes all the procedures from admission till discharge, like performing assessments, making nursing diagnoses, developing intervention plans, implementing care (drug calculation, monitoring fluid intake and output, ambulation, maintaining hygiene, and providing education) and making evaluations to modify patient care [16] [17]All the care provided by the nurses should be properly documented, which is feasible by maintaining eye health[18]

MATERIALS AND METHODS

This study was conducted From November 2020-March2021 using quantitative approach a detailed descriptive design was adopted to analyse the knowledge and practise of student nurses regarding eye care while attending online classes with. Size of study sample calculated was 300 Which was calculated using formula $\mathbf{n = Z^2P(1-P)\ d^2}$. A total of 320 students were taken for the study by cluster sampling method. The study was conducted in different Nursing colleges of North India States, such as in U.P., Haryana, M.P., Rajasthan, and Odisha. In this study, a self-structured Pre validated questionnaire was developed. Tool consist of knowledge and practice questionnaire and data was collected for a period of one month from January 2021 to February 2021. Face Validity and content validity of tool is maintained by school of Nursing, XXX University. Tool was sent for validation among 4 specialists in nursing education and nursing research working in higher education sector in India. All the necessary recommendation given by expert were included in tool. Tool was shared as google form through e- mails. A Pilot study was carried among 50 student nurses to check the reliability of tool and it was found to be reliable by Cronbach's alpha method (0.87). The tool consists of three parts. **Part I:** Assessing socio-demographic data by closed-ended questions **Part II:** Assessing Knowledge Regarding Eye Health by closed-end questions scores of yes or no were recorded as 1 or 0, respectively. **Part III:** Assessing the practise of prevention of eye problems with the help of closed-ended questions related to interventions they perform to improve their eye health. The total score was converted into a percentage and was interpreted as follows: – >80%-Excellent Knowledge, >50–79% Average Knowledge, 50% Inadequate Knowledge. **Ethical consideration**: Written consent was taken from each participant in the research regarding their willingness to participate in this study. Permission was taken to conduct this study from institutional Review board. Objectives of the study are explained to participants in brief description about the study before data collection. Privacy of information while data collection was maintained by giving participant unique id no. and not sharing information at any place or with any person.

RESULT

Demographic assessment: A total number of 320 students responded to the questionnaire within the set time frame. Students were asked to fill in their socio demographic characteristics in Google form [Table 1].

The mean age of the students was 20 out of total 320 sample 114 (35.62%) were males and 206 (64%) were female. 14.06% were students in B.Sc. Nursing 1st year, 42.18% were in B.Sc. Nursing 2nd year, 20.93% were in BSc. Nursing 3rd year, and 22.5% were in B.Sc. Nursing 4th

Table 1: Frequency and percentage distribution of socio-demographic characteristics.

				N=320
Demographic Group	**Subgroup**	**Frequency**	**Percentage (%)**	**P = 0.05**
Age	16 – 18	19	5.93%	Not significant
	18 – 21	255	79.68%	
	22 – 25	41	12.81%	
Gender	Female	206	64.4%	Not significant
	Male	114	35.6%	
Class	B.Sc. Nursing 1st year B.Sc. Nursing 2nd year	73 67	22.81% 20.93%	Not significant
	B.Sc. Nursing 3rd year	135	42.18%	Not significant
	B.Sc. Nursing 4th year	45	14.06%	
For how long you are taking online classes?	Less than 6 months	97	30.3%	Significant
	More than 6 months	31	9.7%	
	1 year	85	26.6%	
	2 year	107	33.4%	
Do you wear eyeglasses before taking online classes?	Yes	141	44.1%	Not significant
	No	163	50.9%	
	Maybe	61	5%	
How much hours you spend every day in online classes?	0 hour	25	7.8%	Significant
	1 hour	16	5%	
	2 hours	24	7.5%	
	3 hours	39	12.1%	
	4 hours	66	20.6%	
	5 hours	43	13.4%	
	6 hours	48	15%	
	7 hours	22	6.8%	
	8 hours	23	7.18%	
	9 hours	7	2.1%	
	10 hours	6	1.8%	
Which gadget do you use for taking online classes?	Smart phone	265	82.8%	Significant
	Laptop	13	4.06%	
	Both smartphone & laptop	38	11.9%	
	Tablet	4	1.25%	
	TV Screen	0	0%	
	Personal Computer	0	0%	
Other than classes for how long you take online classes?	Less than 3 hours	193	60.31%	Not significant
	More than 3 hours	127	39.68%	

year. All were taking online classes for more than six months, with 9.37% taking for more than six months, 30.31% taking for more than six months, 33.43% taking for a year, and 26.56% taking for last two years.44% of all respondents were wearing glasses while taking online classes. The most common digital device used was the smartphone, n=265(82.81%) for online classes. Other than online classes, most students (n = 193, 60.31%) used electronic devices for less than 3 hours. The eye health of the students was significantly associated with their knowledge of type of gadget that should be used for good eye health. Practice of the students found to be significantly corelated with duration of hours spend every day in online classes. **Knowledge Assessment:** To assess the knowledge level among student nurses 10 questions were asked by pre-validated knowledge questionnaire. Mean and standard deviation of the knowledge score was 11.43± 2.36. Analysis of central tendency showed that median is 12 mode is 10 with a range of 5-*19. The* positive responses to the knowledge question had significant variations and varied from the lowest 11%, for the question "For how many times eye exercise should be performed?" to the highest 89.7%, i.e., "Do you know that online classes affect eye health?" Among all the respondents, 89.7% said that diet can improve eye health, 84.4% of students said that regular eye exercise can improve eye health, 74.1% knew about myopia, 71.3% knew about hyperopia, 89.4% knew that 6/6 is normal eye vision, and 60.93% knew that the ideal distance between the eye and electronic devices is 20–28 inches[Figure 1].

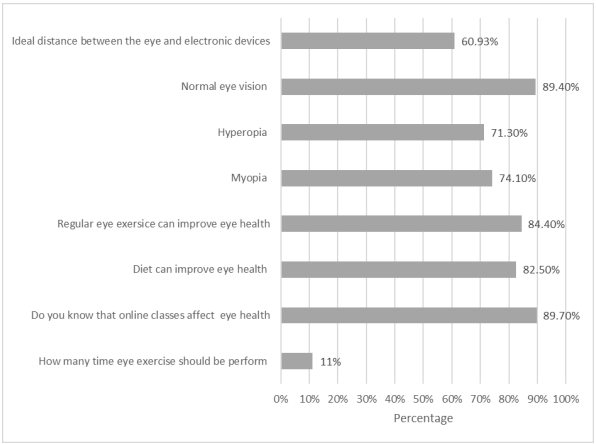

Fig. 1: Percentage of knowledge level regarding eye health among student nurses.

Knowledge about eye health during online classes were analysed in to good,fair and poor knowledge score category. 16. 25% of student nurses were categorized as having poor knowledge, 5.31 percent as having good knowledge, and 76.2% as having fair knowledge. There was *a significant* relationship in chi-square (21.97 $p<0.05$) analysis for Eye health knowledge and type of gadgets used by student Nurses. **Practice Assessment:** Practice assessment was done by questionnaire of 10 practice related questions through google form. Mean and standard deviation of the practise was 4.42 ± 1.53. Analysis of central tendency for practiced score showed that. Median value was 4 and mode was 9. Out of total 320 students,54.5% of students were maintaining the proper distance, i.e., 20–28 inches between their eyes and electronic devices (*Figure 2*). 36.7% of students were taking vitamin supplements to improve their eye health. 89% of students take small breaks between online classes. 31.7% were using blue light glasses and 31.1% were wearing antiglare glasses to prevent radiation emitted from electronic devices (Figure 3)

While taking online classes, 24.1% of students practised washing their eyes after every 1 or 2 classes (Figure 4).

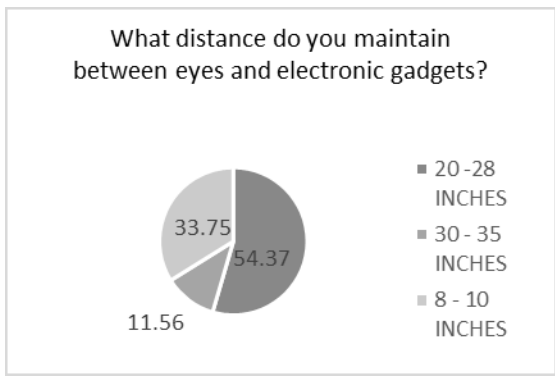

Fig. 2: Distance maintained by student nurses between eyes and electronic gadgets.

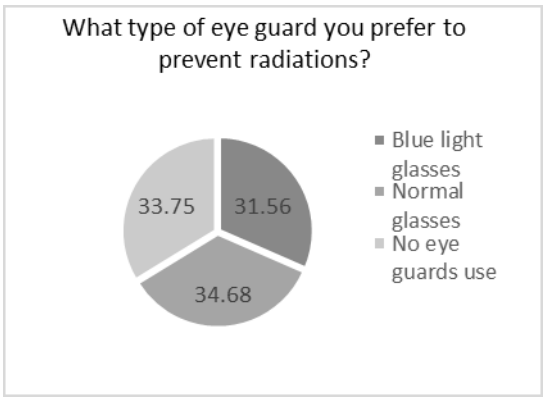

Fig. 3: Type of eye guard used by student nurses to protect their eyes from radiaticons

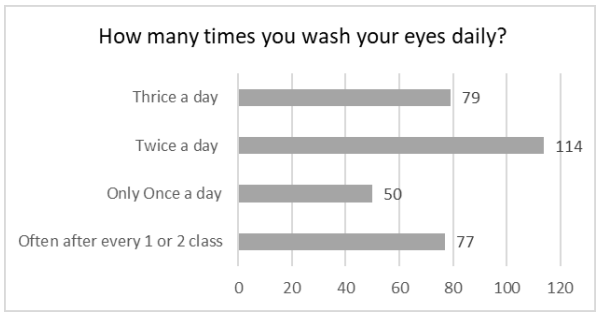

Fig. 4: How many times do student nurses wash their eyes daily.

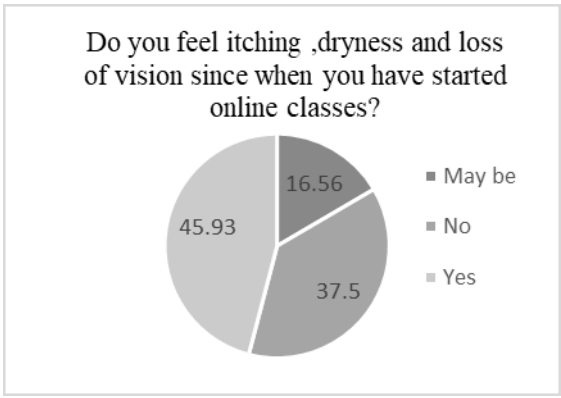

Fig. 5: Percentage of student nurses with symptoms of digital eye syndrome

While taking online classes, 46.5% of students feel itching, dryness, and loss of vision since starting online classes (Figure 5).

Taking online classes daily means student must get proper sleep, 71.8% of students were taking 6–8 hours of sleep, 15% were taking less than 6 hours, and 13.20% were taking more than 8 hours of sleep (Figure 6)

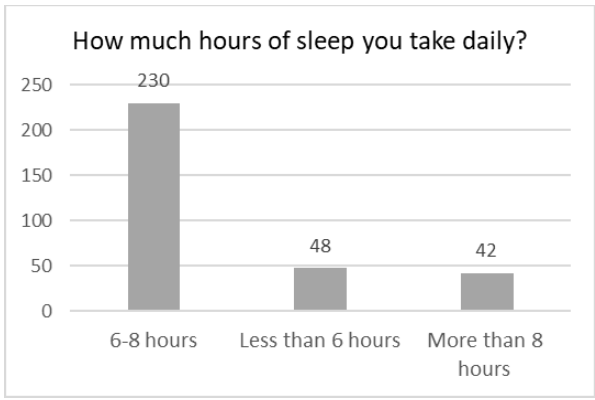

Fig. 6: Student nurses and their sleeping pattern during online learning.

Eye health practise is significantly associated with duration of online classes" ($p < 0.05$) As a result of this study's population characteristics, out of an estimated 320 student nurses, the majority (79.68 percent) were in the 18-21-year-old age range and were female students (64.4 percent) (42.18 percent). For the past two years, 33.4 percent of nurses have taken regular online classes, and many student nurses (20.6 percent) have spent close to 4 hours of online learning. Fifty-nine percent of these students do not wear eyeglasses while taking online classes, and 82.6 percent of them use their mobile phones for study purposes as well. Except for those taking online classes, 60.31 percent of student nurses said they spent more than three hours a day on their phones while studying for clinical rotation.

DISCUSSION:

The study aimed to find the level of knowledge and practices among Nursing students regarding eye care during online classes in the present study it was found that calculated mean difference between knowledge and practice is 7.03 which indicate a gap between student nurses 'knowledge and practice regarding eye care while attending online cases similar study was published in 2021 by Amit Mohan et al [22]. indicated that the prevalence of digital eye syndrome (DES) was greater among those youngsters who were learning online for more than five hours and the authors suggested that parent should take care of eye health by choosing appropriate

device, maintain appropriate distance and time while using digital devices, In the present study also a correlation was observed between an individual's online learning expertise and the equipment and gadgets they used, such as smart phones and laptops. 54.5% Students who took online classes were Practicing 20 to 28 inches away from their electronic devices, and 36.7 percent of them were taking vitamin supplements to improve their eye health. Only 24.1 per cent of students practised washing their eyes after every one or two classes, and many of the students took small breaks between online classes, 89 percent. Only 31.1 percent were using antiglare Glasses while attending online classes where as it is highly recommended by a study conducted by Smita Agarwal et al [23] that it is a potential risk factors for ocular problems.

LIMITATION

There are some limitations in the study. This study has explored only 320 student nurses which seems to be a small sample to generalise the result for prevention of eye problem during online learning in the whole population. Ophthalmic examination was not done to confirm effect of such practices.

CONCLUSION

There is gap between knowledge and practice of student nurses related to eye health literacy during online classes which need to be filled by education program and motivation classes.

Conflict of interest: nil

Source of funding: no funding is taken to conduct this study.

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