The Influence Of Eye Yoga On The Level Of Computer Vision Syndrome In Health Students At Stikes Panti Kosala

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ABSTRAK

Penggunaan gadget meningkat seiring dengan penggunaan teknologi komputer dan angka CVS terbukti pada 67,9% mahasiswa kesehatan STIKES Panti Kosala. Penelitian ini mengetahui pengaruh eye yoga dan tingkat computer vision syndrome pada mahasiswa STIKES Panti Kosala. Penelitian ini menggunakan quasy eksperimental one group of pre-test and post-test design yang melibatkan 53 mahasiswa kesehatan STIKES Panti Kosala tahun ajaran 2023-2024. Dalam penelitian ini, sampelnya adalah orang-orang yang menderita CVS sedang atau berat. Peneliti melakukan penelitian pada tanggal 6 Mei sampai dengan 22 Juni 2024. Hasil penelitian menggunakan uji Wilcoxon dengan p-value < 0,05 (0,000) menunjukkan bahwa eye yoga berpengaruh signifikan terhadap tingkat computer vision syndrome pada mahasiswa STIKES Panti Kosala. Para peneliti mengharapkan perawat dan peneliti lain dapat menggunakan penelitian ini untuk menerapkan yoga mata sebagai terapi non-farmakologis bagi individu yang menderita gangguan kesehatan mata, khususnya sindrom penglihatan komputer.

Kata Kunci : Computer Vision Syndrome, Kesehatan Mata, Yoga Mata, Mahasiswa

ABSTRACT

The use of gadgets increases along with the use of computer technology and the CVS rate is proven with 67.9% of health students of STIKES Panti Kosala. This study determined the influence of eye yoga and the level of computer vision syndrome in STIKES Panti Kosala students. The research used quasy experimental one group of pre-test and post-test designs involving 53 STIKES Panti Kosala health students in the academic year 2023-2024. In this study, the samples were people suffering from moderate or severe CVS. The researcher conducted the study from May 6 to June 22, 2024. The results of a study using a Wilcoxon test with a p-value < 0.05 (0,000) showed that eye yoga had a significant effect on the level of computer vision syndrome in students of STIKES Panti Kosala. The researchers expect nurses and other researchers to use this research to apply eye yoga as a non-pharmacological therapy for individuals suffering from eye health disorders, particularly computer vision syndrome

Keywords *Computer Vision Syndrome, Eye Health, Eye Yoga, Student*

INTRODUCTION

Computer Vision Syndrome (CVS) is a physical problem that affects a person's sensory system, especially the sense of sight, namely the eyes. CVS can arise due to excessive use of gadgets/computers, causing a collection of symptoms that interfere with a person's vision.

The World Health Organization (WHO) indicates that at least 2.2 billion people have visual impairments, and nearly half of them experience preventable vision impairment (WHO, 2019). The largest number of people with visual impairment are found in 3 provinces on Java Island, namely East Java Province with 352,829 people, Central Java Province with 329,428 people, and West Java with 328,933 people (Ministry of Health, 2018).

The results of the preliminary study that was carried out showed that 30.2% of respondents did not experience CVS, 44.8% of respondents experienced mild CVS, 16% of respondents experienced moderate CVS, and 9% of respondents experienced severe CVS.

According to the American Optometric Association/AOA (American Optometric, 2020), Computer vision syndrome (CVS) is a complex problem that occurs in the eyes and vision related to the use of computers for a long duration. The most common symptoms associated with CVS are eyestrain, headache, blurred vision, dry eyes, and neck and shoulder pain. These symptoms can be caused by poor lighting, glare on the computer screen, improper viewing distance, poor sitting posture, uncorrected refractive errors in the eyes, and a combination of these factors (Aldy et al., 2021). In addition to eye disorders, excessive use of gadgets can cause physical and mental disorders, as well as the risk of exposure to radiation (Karo et al., 2022).

Non-pharmacological management that can be done for CVS sufferers can use acupressure techniques and eye exercises (Harahap et al., 2023). In addition to these two techniques, according to Sriadiatmaji et al. (2023), the 20-20-20 rule intervention can also affect the incidence of CVS in a person. Apart from eye exercises, previous research has been conducted on combination therapy between eye exercises and the administration of kencur, which has been shown to reduce eye pain more significantly. This result was compared to the intervention of giving eye exercises alone. Eye exercise movements can relax tense eye muscles and the hot effect of kencur can smoothen blood circulation, thereby increasing anaerobic metabolism and reducing the buildup of lactic acid in the eye muscles (Sucipto et al., 2020).

Non-pharmacological interventions other than those mentioned above, eye yoga can also be used as an effective alternative to overcome CVS complaints. Just like other types of exercise, yoga can provide extraordinary benefits for our health. Yoga, when done regularly, has been shown to help reduce stress. One type of yoga that can be used to overcome eye health problems is Eye Yoga. This eye yoga is an action performed on the eyes which has benefits including smoothing

blood circulation and oxygen around the eyes so that the eyes look fresher, making the eyes comfortable and eliminating tired eyes that have worked too much, helping the skin around the eyes to look firm and fresh, helping eliminate puffiness (swelling) in the eye bag area, facilitating the release of tears so that dirt that enters can be removed (Maryoto, 2019).

This eye yoga was once given to workers in the Padang Ekspres editorial division and in this study, it was found that there was an effect of eye yoga exercises on eye fatigue in computer users in the Padang Ekspres Editorial Division (Dewi & Novia, 2020). Ocular Yoga eye exercises are also effective in reducing eye fatigue by improving eye muscle performance in students in Bengaluru, India. The exercise reduced the incidence and prevalence of eye fatigue by reducing asthenopia symptoms. The results of this study confirm that eye yoga exercises can be considered as a form of non-drug and therapeutic intervention to reduce asthenopia symptoms, while reducing the severity of eye fatigue (Gupta & Aparna, 2019).

Considering the emergence of the phenomenon of high gadget/computer use, the researcher is interested in raising the title of the study The Effect of Giving Eye Yoga on the Level of Computer Vision Syndrome in Health Students of STIKES Panti Kosala in the 2023/2024 academic year.

METHODS

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RESULT AND DISCUSSION

Result

1. Respondent Characteristics

Tabel 1 Frequency Distribution of Respondent Characteristics based on age, gender, duration of daily gadget use, use of glasses, viewing distance of gadget use (n=53)

Respondent Characteristics	f	%
Age		
17 - 19 years	26	49.1
20 - 23 years	27	50.9
Total	53	100.0
Gender		
Male	9	17.0
Female	44	83.0
Total	53	100.0
Use of Glasses		
Yes	27	50.9
No	26	49.1
Total	53	100.0
Duration of Use		
< 4 hours	0	0
≥ 4 hours	53	100
Total	53	100.0
Viewing Distance		
< 30 cm	42	79.2
30 cm	10	18.9
> 30 cm	1	1.9
Total	53	100.0

Based on table 4.1, it can be seen that the frequency distribution of the percentage of respondents based on age shows that the majority of respondents are aged 20-23 years as many as 26 respondents (50.9%), the gender of the majority of respondents is female as many as 44 respondents (83.0%), respondents

who use glasses are more than respondents who do not use glasses, namely as many as 27 respondents (50.9). For the duration of gadget use, all respondents use gadgets > 4 hours a day, namely 53 respondents (100%), most respondents' viewing distance when using gadgets < 30 cm is 42 respondents (79.2%).

The results of this study indicate the characteristics of respondents based on age. Of the 53 respondents, most respondents were aged 20-23 years, as many as 26 respondents (50.9%), where at that age, gadget use activity is very high. Along with increasing age, the body also experiences a decline in organ function, as does what happens to the eye organs and eye muscles. In addition to this decline in function, the accommodative power of the eye muscles will also decrease.

This is also experienced by some respondents who complain that their eyesight feels blurry and also feels that their eyesight is getting worse. This is also proven in research by Sucipto et al. (2020), that accommodation disorders usually begin to occur with increasing age. The ability of the eye lens to perform accommodative power begins to decline.

In contrast to research conducted by Darmawan & Wahyuningsih (2021), which states that there is no relationship between age and subjective complaints of CVS in respondents. This shows that age has no effect on subjective complaints of CVS. The incidence of CVS is higher in respondents aged less than 40 years (56.9%), this is due to the number of employee users who are more than 40 years old and work in front of a computer that requires more accuracy, more burdened to employees who are young.

In this study, most respondents aged between 20-23 years experienced changes in eye accommodation, similar to research conducted by Sucipto et al. (2020) and Darmawan & Wahyuningsih (2021), where the older the age, the accommodative power decreases. This can also be proven from the existing respondent characteristics, where most respondents use glasses.

2. Level of Computer Vision Syndrome Before and After Giving Eye Yoga Intervention

Table 2 Frequency Distribution of Computer Vision Syndrome Levels Before and After Giving Eye Yoga Intervention (n=53)

Variable	Pre-Test		Post Test	
	f	%	f	%
No CVS	0	0%	12	22.6%
Mild CVS	0	0%	26	49.1%
Moderate CVS	35	66%	14	26.4%
Severe CVS	18	34%	1	1.9%
Total	53	100%	53	100%

Based on table 4.2, the results of the frequency distribution of the level of Computer Vision Syndrome before and after being given Eye Yoga intervention treatment. The level of CVS in respondents before doing eye yoga was found to be as many as 35 respondents (66%)

experiencing moderate CVS and 18 respondents (34%) experiencing severe CVS. However, after the intervention of eye yoga was given, the level of CVS in respondents decreased, namely 12 respondents (22.6%) did not experience CVS, 26 respondents (49.1%) experienced mild CVS, 14 respondents (26.4%) experienced moderate CVS, and 1 respondent (1.9%) experienced severe CVS.

3. The Effect of Eye Yoga on the Level of Computer Vision Syndrome in STIKES Panti Kosala Health Students

Table 3 The Effect of Eye Yoga on the Level of Computer Vision Syndrome in STIKES Panti Kosala Health Students (n=53)

Variable	*Negative Ranks*	*Positive Ranks*	*Ties*	*Z*	*P Value*
CVS Level	50	2	1	-6.212	.000

Based on table 4.4, it shows the results of the bivariate statistical test using Wilcoxon, the negative ranks value is 50, which means that 50 respondents experienced a decrease in the level of CVS, the positive ranks value is 2, which means 2 respondents experienced an increase in the level of CVS, the ties value is 1, which means there is 1 respondent who did not experience a change in the level of CVS, the Z value is -6.212, and the P-Value is 0.000 (<0.05) which means Ha is accepted and H0 is rejected.

The results of the research conducted regarding the effect of eye yoga on the level of Computer Vision Syndrome concluded that the results of filling out the questionnaire by respondents before being given eye yoga intervention showed that the level of CVS in respondents was found as many as 35 respondents (66%) experiencing moderate CVS and 18 respondents (34%) experiencing severe CVS. For this reason, it further strengthens researchers to provide eye yoga interventions to respondents.

Discussion

Based on research that has been conducted on 53 respondents, the results of the bivariate statistical test using the Wilcoxon test showed that 52 respondents experienced changes in the level of Computer Vision Syndrome after being given eye yoga intervention. The Wilcoxon results using a 95% sensitivity level show a negative ranks value of 50 which means that 50 respondents experienced a decrease in the level of Computer Vision Syndrome after being given eye yoga intervention, a positive ranks value of 2 which means that there were 2 respondents who experienced an increase in the level of Computer Vision Syndrome after being given eye yoga intervention, and a ties value of 1 which means 1 respondent who did not experience a change in the level of Computer Vision Syndrome even after being given eye yoga intervention. In addition, a p-value <0.05 (0.000) was obtained. Based on the resulting p-value, it can be concluded that Ho is rejected, and Ha is accepted, which means that in this study there is an effect between giving eye yoga on the level of Computer Vision Syndrome in STIKES Panti Kosala health students. Some respondents said that the complaints they experienced in their eyes, such as eye fatigue, gradually decreased after eye yoga was carried out. As in the research

conducted by Tarnoto, et al. (2023), that there is an effect of yogic eye exercise on reducing eye fatigue symptoms in nursing students at POLTEKKES Surakarta in participating in online learning during the Covid-19 pandemic.

This eye yoga that has been performed on respondents has many movements. The movements in this eye yoga exercise involve the movement of the eye muscles, stretching the neck muscles and deep breathing/breathing regulation which can increase the flexibility of the eye and neck muscles and can smoothen blood circulation to the eyes and neck. Increased blood circulation to the eyes can increase oxygen levels and the distribution of nutrients to the eye cells so that the eyes become more relaxed and can maintain visual acuity. This eye muscle exercise is done by moving the eyeballs to the right, left, top, bottom, top corner and bottom corner.

Saccadic movements are also performed in this eye yoga. This saccadic/rotational viewing movement is an eye movement that looks like it is rotating. The rotational viewing movement functions to restore balance to the performance of the extraocular muscles and increase the coordination of the work of both eyeballs (Tarnoto et al., 2023). The muscles in the eyes that are often trained to be moved after giving eye yoga intervention can reduce stiffness in the eye muscles (Sucipto et al., 2020).

In addition to eye muscle training, eye lens muscle training/processus ciliary is also carried out on respondents. This exercise is done by focusing the gaze on a distant object and moving it closer to the eyeball. This is done to train the accommodative power of the respondent's eyes, so that it can improve the quality of the respondent's vision.

Another movement that is carried out in eye yoga intervention is the blinking exercise. This movement is a blinking movement with a fast intensity. The more a person blinks, the more often the eyeball is swept by the eyelids, so that dirt that sticks to the cornea can be cleaned immediately. In addition, the more frequent blinking can stimulate the release of tear fluid. This blinking movement also functions to increase the blinking reflex in the eyes spontaneously, namely by increasing the motor function of the levator palpebrae superioris muscle and the orbicularis oculi muscle which are responsible for the blinking mechanism. The extraocular muscles, the levator palpebrae superioris muscle and the orbicularis oculi muscle are striated muscles that move in a blinking manner during eye yoga exercises which will stimulate the blinking mechanism so that it will increase the reflex of the eyes to blink spontaneously by regulating the motor of the levator muscle through the innervation of the extraocular muscles (oculomotor nerve). In addition, the blinking movement can increase relaxation in the extraocular muscles that are tense.

Neck muscle stretching exercises are also carried out in this eye yoga intervention. Exercises by rotating the head with the chin attached to the chest can relax the back neck muscles. In addition, the movement of positioning the head with maximum extension under sunlight can also relax the neck muscles and rest the eyes.

This eye yoga exercise also includes closing the eyes using the palms of the hands that are warmed or what is called palming. This

movement provides a relaxing effect on the eyelids, by providing relaxation obtained from closing/resting the eyelids and eyeballs. The palms that are warmed beforehand also provide warmth to the eyelids. When it feels warm, the blood vessels in the eyelids and eyeballs will vasodilate, so that circulation in the eyes will be smoother. This smooth circulation can cause the flow of oxygen and nutrients to the eyes to also be smooth. So that eye health will be improved.

After the eye yoga intervention was completed on the respondents, the respondents were again asked to fill out the eye yoga questionnaire. The results show that there is an effect after being given eye yoga intervention. Respondents who did not experience CVS 12 respondents (22.6%) did not experience CVS, 26 respondents (49.1%) experienced mild CVS, 14 respondents (26.4%) experienced moderate CVS, and 1 respondent (1.9%) experienced severe CVS.

CONCLUSION

This study obtained statistical test results that have been carried out using the Wilcoxon test showing a p-value <0.05 (0.000), which means Ha is accepted and Ho is rejected. This shows that there is a significant effect on the level of Computer Vision Syndrome after being given eye yoga intervention to health students at STIKES Panti Kosala in the 2023/2024 academic year.

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