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FACTORS THAT ARE RELATED TO SUBJECTIVE COMPLAINTS OF EYE FATTY IN HEALTH CLAIM EMPLOYEES IN PT ASURANSI RELIANCE

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ABSTRACT

Eye fatigue arises as intensive stress on eye functions such as the muscles of the eye accommodation in jobs that need careful observation or on the retina as a result of inaccurate contrast. The purpose of this study is to analyze the factors associated with eye fatigue. This research is a quantitative study with a Cross Sectional study design conducted in December 2019 - January 2020. The population and sample in this study were all employees of the Health Claim division of PT Asuransi Reliance with a total of 70 people. Research data were collected using primary data from measurements of light intensity and visual acuity as well as interviews with questionnaires. The results showed that 60 employees (85.7%) of the Health Claim Division suffered eyestrain. The most complaints are sore eyes (28.5%). Based on statistical test results it is known that the variables associated with eye fatigue are the age variable (Pvalue = 0.014), the working period variable (Pvalue = 0.014), the visual acuity variable (Pvalue = 0.011), the lighting intensity variable (Pvalue = 0.008). While gender variables are not related to subjective subjective eye fatigue (Pvalue = 0.477). To reduce the risk of eye fatigue, it is recommended that companies provide funds for eye health checks on officers, make eye rest every 1 hour of work, carry out the transfer of labor according to physical capabilities and re-arrange work room lighting

Keywords: *Eye fatigue, Gender, Age, Work period, Vision Sharpness, Lighting Intensity*

PRELIMINARY

The use of computers throughout the world has increased from time to time. The use of computers today has penetrated all levels of society, both desktop and laptop computers. This is easy to understand because the presence of a computer is very helpful and facilitates various jobs (Mukti, 2012). This will have an impact on the health of individual users. Widely known, there are several health problems caused by computer use, including Repetitive Stress / Strain Injury (RSI), Computer Vision Syndrome (CVS), eye fatigue and Electromagnetic Fields (Suma'mur, 2009). Eye fatigue arises as intensive stress on eye functions such as the muscles of accommodation in jobs that need careful observation or to the retina due to inaccurate contrast (Suma'mur, 2009).). The impact of this condition is a decrease in accuracy so that when working causes errors, prolong work time, reduce production, besides that it can also reduce the awareness of work accidents or increase the number of accidents and affect work morale (Soeripto, 2008). In addition, according to Firdaus (2013), eye fatigue can reduce work productivity, because workers experience a variety of complaints that cause loss of concentration and reduce morale.

The results of Setiawan's study (2012) conducted on workers using computers at PT Surveyor Indonesia showed that 83.7% had complaints of eye fatigue In Hana's research (2008) it was found that 78% of workers who used computers at PT Bridgestone Tire Indonesia experienced complaints of fatigue eyes Research conducted by Nourmayanti (2010) on 51 computer user workplaces at the Corporate Customer Care Center (C4) of PT

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Telekomunikasi Indonesia, Tbk in 2009, that 46 of them had complaints of eye fatigue, while 5 of them did not experience complaints of eye fatigue. Which can be concluded that 90.2% of computer user workers experienced complaints of eye fatigue, while 9.8% of workers who did not experience these complaints.

Based on the results of the Medical Check Up taken from the company database of 50 employees of the claims division there were 34 people (68%) employees experienced a decrease in vision quality compared to the results of the MCU when they first started working with the details of 30 people experiencing an increase in refractive abnormalities and 4 previous people the vision result is normal to become abnormal. In addition, based on preliminary observations by distributing questionnaires, out of 30 people found 23 people (76.6%) experienced eye fatigue, 7 others 23.3% had not felt any complaints. The impact caused by eye fatigue is complaints of watery eyes, red eyes and difficulty focusing so that it can cause errors in inputting claims and increasing employee health claims. This can be seen from the recapitulation of PT Asuransi Reliance employees' health claims from 2016-2018, diseases related to eye health always rank first compared to other diseases.

Based on the background above, researchers are interested in conducting research on "researchers interested in conducting research on the factors associated with the incidence of eye fatigue at PT. Insurance Reliance in 2019. "

Factors Associated with Subjective Complaints of Eye Fatigue

1. Gender

Gender is a risk factor for eye fatigue, where eye fatigue is more at risk for women. This is with age, estrogen and antiandrogen hormones in women will increase. Both of these hormones will suppress the secretion from tears, so the layer of tears causes the eyes to tend to thin out compared to men. Thinning of this tear layer causes the eyes to tend to experience eye fatigue (Versura and Campos, 2005).

The results of research conducted by Kurmasela (2012), Zainuddin and Isa (2014) and Bhanderi, et al (2008) that even workers of male sex continue to experience complaints of eye fatigue that can be caused by factors such as the duration of computer use, length work etc. In addition, the workload that requires workers to continue staring at a computer screen for a long period of time affects the number of complaints of eye fatigue both for women and men workers.

2. Age

Ilyas (2010) explains that as people age, each lens will experience a deterioration in the ability to bulge or decrease the power for accommodation. People aged 30 years or more, at risk of experiencing complaints in the form of tired eyes, watery eyes, sore eyes, and difficulty focusing According to the NASD (National Aging Safety Database), the older age, experiencing a setback in the ability of the eye to detect the environment. This will increase the risk of accidents. With increasing age causes the lens of the eye to lose its elasticity, and it is somewhat difficult to see at close range. This will cause discomfort to vision when doing something at close range, as well as distant vision.

Research by Das et al. (2010), showed that workers who use computers or in front of Video Display Terminals who are more than 30 years old complain more about the discomfort of using health-related computers, with the highest level compared to other age groups.

3. Working Period

The working period is related to the process of acclimating the workforce to certain work climates so that they become accustomed to the work climate and physical, physiological and psychological conditions do not experience the adverse effects of the intended work climate. New workers who start working in a work environment with high heat pressure will undergo an acclimatization process the intensity of heat exposure that has never been experienced before. The acclimatization process usually takes 7-10 days (Santoso, 2004).

According to the International Labor Organization (1998) complaints of eye disorders on average after working for 3 to 4 years. Thus workers who work more than 3 years will have a faster risk of experiencing fatigue and compared with workers with long working hours of less than or equal to three years.

Research conducted by Marasabessy (2016) on Computer User Workers at Esa Unggul University, Jakarta, where the highest proportion was> 3 years of service, namely 23 respondents (63.9%). This is also in line with the results of Fadillah's (2016) research on Pulmonary Function Disorders in Jakarta-Tangerang Gate Toll Road Operational Officers where the highest proportion is <22 years of work, namely 29 people (52.7%).

4. Sharpness of Vision

Decreased visual acuity one of the causes due to abnormalities of refraction. This disorder causes refraction of light in the eye so that the light is not focused on the retina or yellow spots, but can be in front of or behind the yellow spots and may not be located at a focused point (Ilyas, 2004). Another factor that can improve symptoms is a decrease in

visual acuity caused by poor lighting (Rosenfield, 2011). According to Affandi's research, (2005) People who are over 40 years old and wear bifocal glasses or reading glasses often have problems because their glasses are too tuned to see books held 40 cm away, compared to monitor screens that are usually located 60 cm from the eyes computer user.

5. Lighting intensity

Another factor that can improve symptoms is a decrease in visual acuity caused by poor lighting (Rosenfield, 2011). The intensity of lighting is an important factor of the physical environment for work safety. To be able to see well and thoroughly requires sufficient light intensity. According to Suma'mur (2009), several kinds of effects can be caused by substandard lighting in the work environment such as fatigue and discomfort in the eyes, mental fatigue, complaints of aches in the eye area, damage to eyesight, increased work accidents and decreased work productivity.

Eye fatigue due to poor lighting will show symptoms of eye fatigue that often arises, among others: the eyelid feels heavy, feels pressure in the eye, the eye is difficult to leave open, feels good when the eyelid is pressed a little, the deepest part of the eye hurts, blinking, blurred vision, unfocused, glare, vision foggy even though the eyes are focussed, eyes runny, eyes and twitching, red eyes, if eyes are closed, flashes of light appear, eye discharge increases, unable to distinguish colors as usual , there are residual shadows in the eyes, double sight vision, eyes feel hot, eyes feel dry (Budiono, et al, 2016).

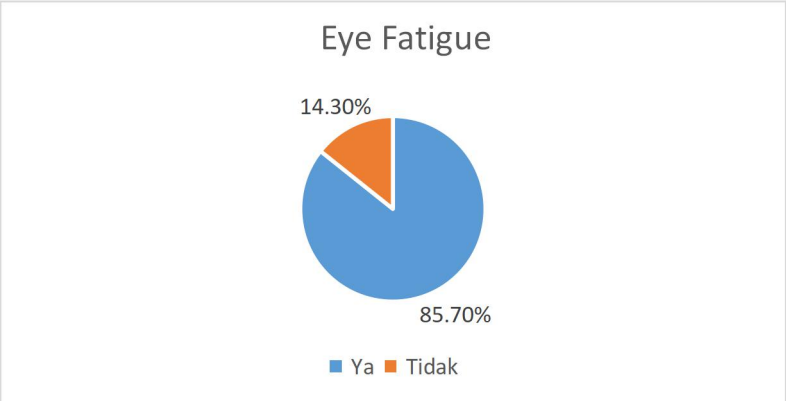
Research conducted by Palmry, et al (2017) through his journal entitled "The relationship between lighting intensity and age with eye fatigue in workers in the operational part of PT Angkasa Pura 1 (Persero) Manado City". The results showed that of the 67 lighting intensities that did not meet the standards, there were 3 people (15.85%) who suffered severe eye fatigue and 16 people (84.2%) experienced mild eye fatigue. Based on the Chi Square Test results obtained p value = 0,000 (P-Value <0.05). Based on these results it can be concluded that there is a relationship between light intensity and eye fatigue in the operational workers of PT Angkasa Pura 1 (Persero) Manado City. This is in line with the results of Fadhillah (2014) research on tailors at CV Wahyu Langgeng Jakarta in 2014 where the average lighting is below the standard of 132 lux

Research methods

This research uses cross sectional design. Data was collected using a questionnaire, lux meter and Snallen Chart and analyzed using the Fisher Exact test. The study was conducted in December 2019-January 2020. The population in this study were all employees of the Health Insurance division of PT Asuransi Reliance in 2019 totaling 70 people. The sampling technique used in this study is sampling saturation or total sampling where all populations are taken as research samples

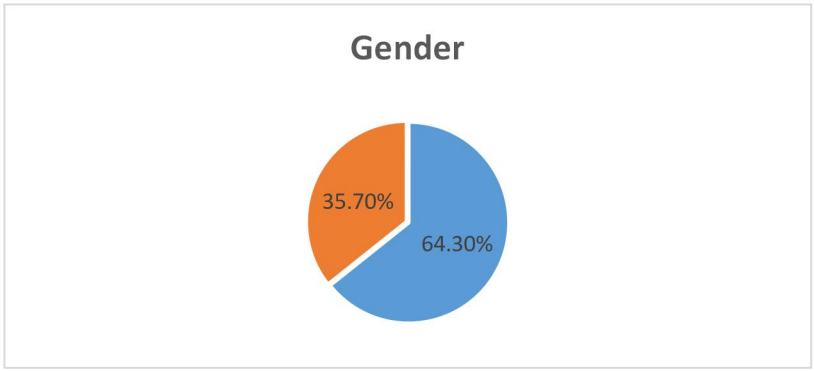
Results and Discussion

Based on the research, the following results were obtained; The highest proportion of respondents experiencing eye fatigue is 60 respondents (85.7%). While the lowest proportion were respondents who did not experience eyestrain, namely 10 respondents (14.3%).



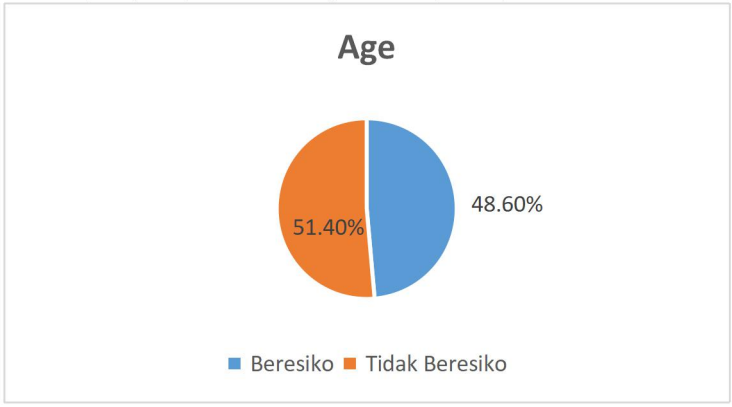
Graph 1. Distribution of Subjective Complaints of Respondents' Eye Fatigue

The highest proportion is female gender, 45 respondents (64.3%), while the lowest proportion is male gender, 25 respondents (35.7%).



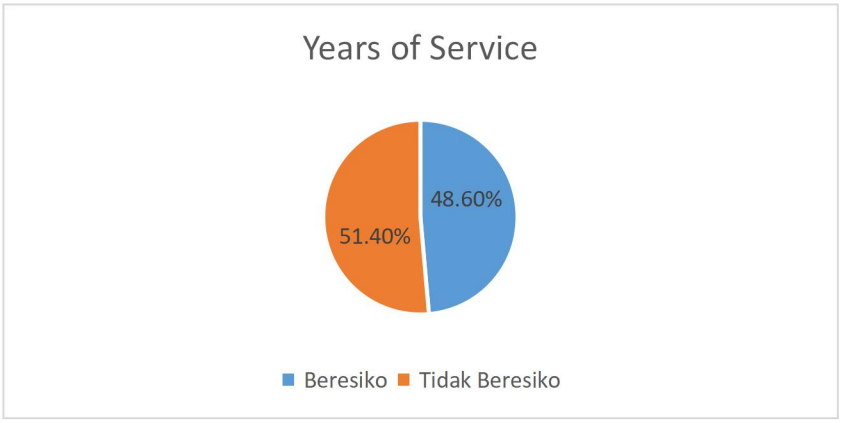
Graph 2. Gender of Respondents

The highest proportion is the age of not at risk (<40 years) that is 36 respondents (51.4%) while the lowest proportion is the age at risk (≥40 years) that is 34 respondents (48.6%).



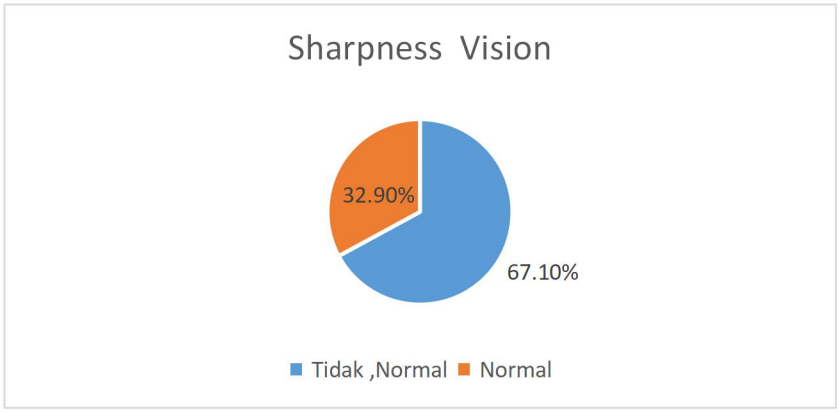
Graph 3. Age of Respondents

The highest proportion is the risky working period (≥4 years), namely 40 respondents (57.15%), while the tenure that is not at risk (<3 years) is 30 respondents (42.85%)



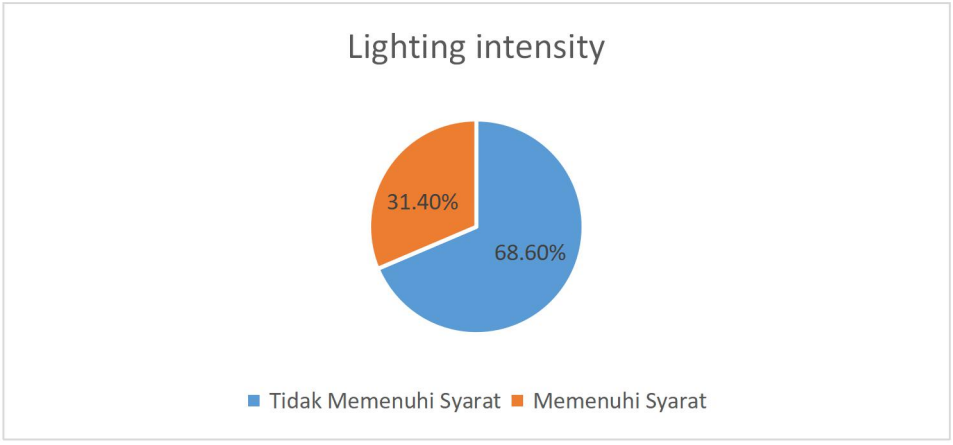
Graph 4. Respondents' Years of Service

The highest proportion was respondents with abnormal visual acuity, 47 respondents (67.1), while respondents with normal visual acuity were 23 respondents (32.9%).



Graph 5. Sharpness of Respondents' Vision

The highest proportion of lighting intensity was those that did not meet the requirements, namely at 48 respondents 'tables (68.6%), while the lowest proportion was the lighting levels that met the requirements, namely at 22 respondents' tables (31.4%).



Graph 6. Lighting intensity around the Respondents' Workbench

Relationship between Gender and Subjective Complaints of Eye Fatigue Employees in the Health Claim Division of PT Asuransi Reliance in 2019

Based on the results of bivariate analysis it is known that respondents with female sex numbered 40 respondents (88.9%) experiencing eye fatigue. Fisher exact test results with 5% significance obtained Pvalue = 0.477 so that P> 0.05. So that between the sexes with eye fatigue do not have a meaningful relationship. From the calculation of the risk estimate obtained PR = 1.294, meaning that female employees have a risk of 1.29 times experiencing eye fatigue compared to male employees.

The results of this study are in line with the results conducted by Kurmasela (2012), Zainuddin and Isa (2014) and Bhanderi, et al (2008) that workers with male sex mostly still experience complaints of eyestrain which can be caused by factors such as duration computer use, non-standard lighting levels, non-optimal eye rest and eye refraction abnormalities / impaired visual acuity. The results showed that male workers with nonstandard lighting levels that experienced eyestrain were 94.1%.

There is no significant relationship between gender and subjective complaints of eye fatigue because many male respondents in the health claim division also experience eye fatigue so that it can occur due to other factors such as work patterns, namely the duration of viewing objects in a long time, the intensity of lighting lack of or due to impaired visual acuity. In addition, workloads that require workers to continue staring at a computer screen for a long period of time affect the number of complaints of eye fatigue both in women and men workers.

The management should make efforts to reduce complaints of eye fatigue in both female and male employees by improving the lighting conditions in the room, especially the work desk, working for workers with refraction

abnormalities have been corrected perfectly, the use of eye protection. In addition employees can do eye rest at least 10 minutes every hour after being in front of the computer intensively (OSHA, 1997)

Relationship Between Age and Subjective Complaints of Eye Fatigue Employees in the Health Claim Division of PT Asuransi Reliance in 2019

Based on the results of bivariate analysis it is known that the highest proportion of respondents with age at risk and have complaints of eye fatigue totaling 33 people (97.1%), and respondents with age not at risk but have complaints amounted to 27 people (75.0%). The results of the statistical test exact fisher test is known that the significance level of 5% with the fisher exact test obtained Pvalue = 0.014 so that P <0.05. So between the sexes with eye fatigue have a meaningful relationship. From the calculation of the risk estimate (CI = 95%), PR = 1,294 (1,062-1,577) means that employees with age at risk (≥40 years) have 1.3 times the risk of experiencing eye fatigue compared to employees with no age at risk (<40 years)).

This is in line with research conducted by Nourmayanti (2010) on computer user workers at the Corporate Customer Care Center (C4) of PT Telekomunikasi Indonesia, Tbk in 2010 showing that there is a significant relationship between age and complaints of eye fatigue.

There is a significant relationship between age and eye fatigue in this study due to the fact that most of the employees included in the at-risk age category (≥40 years) experience eye fatigue compared to the at-risk age category (<40 years).

This is because in the Health Claim Division the type of work in the PT Asuransi Reliance health claims division requires high accuracy so that it increases the risk of eye fatigue. Therefore, the company management should make regulations regarding the maximum age limit of workers in the health claim section so that employee productivity is maintained or by doing work mutations in accordance with their physical abilities.

Relationship Between Work Period and Subjective Complaints of Eye Fatigue Employees in the Health Claim Division of PT Asuransi Reliance in 2019

Based on the results of bivariate analysis, it is known that respondents with tenure at risk and have complaints of eye fatigue totaling 33 people (97.1%), and respondents with tenure without risk but have complaints totaling 27 people (75.0%). The results of the statistical test Fisher Exact statistical test is known that at the 5% significance level with the fisher exact test obtained Pvalue = 0.014 so that P <0.05. So between work with eye fatigue have a meaningful relationship. From the calculation of the risk estimate (CI = 95%), it is obtained PR = 1,294 (1,062-1,577) meaning that employees with years of service at risk (> 4 years) have 11 times the risk of experiencing eye fatigue compared to employees with no-risk working periods (<4 years)).

This is in line with research conducted by Yundiarti (2011), which is a factor related to subjective complaints of eye fatigue in computer operators at PT Dok and Surabaya shipping. It shows that the length of service has a significant relationship with subjective complaints of eye fatigue.

This is also in accordance with the opinion of Budiono, et al (2016) the longer a person works, the more opportunities he will have to be exposed to hazards emanating from his work environment. Meanwhile, according to Suma'mur (2009) the negative impact of a person with a long work period in the form of a limit of endurance to the work process that results in fatigue. Work carried out continuously can affect the circulatory system, digestive system, muscles, nerves and respiratory system.

The tenure factor shows a significant relationship with complaints of eye fatigue because the proportion of respondents who have more than 4 years of service is greater than the proportion of respondents with tenure of less than 4 years. According to Budiono, et al (2016) the longer a person works, the more opportunities he will have to be exposed to hazards emanating from his work environment. Meanwhile, according to Suma'mur (2009) the negative impact of a person with a long work period in the form of a limit of endurance to the work process that results in fatigue. Work carried out continuously can affect the circulatory system, digestive system, muscles, nerves and respiratory system.

According to the management of the company, a long working period or work experience for employees is considered a plus because the longer the work period of employees the more experience so that they are accustomed to and there are no obstacles in carrying out computer operations. But in this case it is not supported by occupational health programs such as prevention of eye fatigue, regular MCU, so workers with risky working periods (> 4 years) can find out whether workers are exposed to occupational diseases or not. Health checks are only done when first entering work / Pre Recruitment So that the management does not know whether the officer is experiencing eye fatigue or not, other than that there are no regulations when working in front of the computer to take a break even though the work requires high eye concentration and accuracy.

Therefore it is necessary to appreciate workers with risky working years (≥4 years) by holding periodic medical examinations periodically for at least 1 year and periodically transferring / transferring workers.

Relationship Between Visual Acuity and Subjective Complaints of Eye Fatigue Employees in the Health Claim Division of PT Asuransi Reliance in 2019

Based on the results of bivariate analysis, it is known that respondents with abnormal vision are 44 people (93.6%), and those with normal vision are 16 people (69.6%). The statistical test results of the Exactisher statistical test are known that the significance level of 5% with the fisher exact test is obtained Pvalue = 0.011 so that P <0.05. So Between sharp eyesight and eye fatigue have a meaningful relationship. From the calculation of the risk estimate (CI = 95%), PR = 1,346 (1,017-1,781) means that employees with abnormal visual acuity have 1.3 times the risk of experiencing eye fatigue compared to employees with normal visual acuity.

This is in line with the theory which states that eye refraction abnormalities and visual acuity disorders such as myopia, hyperopia, astigmatism, and presbyopia can cause eye fatigue due to continuous accommodation to be able to see objects more clearly (Roestjawati, 2007). The study is also in line with previous studies conducted by Rahman and Sanip (2011) which showed a significant difference between complaints of eye fatigue in users and not users of glasses / contact lenses.

There is a significant relationship between visual acuity and subjective complaints of eye fatigue in this study because the proportion of employees who have abnormal vision results when measured using Snallen Chart is greater than the proportion of employees who have normal visual acuity.

In this case the company already has an MCU program in particular eye health to check all employee health including eye health only at the time of recruitment / Pre Recruitment. But there is no regular MCU and special programs to reduce or prevent visual acuity disorders and eye fatigue. The company only provides funds to buy glasses. We recommend that the company establish a special program to reduce or prevent visual acuity disorders such as eye resting programs, socialization about eye health and periodic MCU specifically for eye health

The Relationship Between Lighting Intensity and Subjective Complaints of Eye Fatigue Employees in the Health Claim Division of PT Asuransi Reliance in 2019

Based on the results of bivariate analysis, it can be seen that respondents with lighting intensity that does not meet the requirements around their desk and have eyestrain complaints totaling 45 people (93.8%), and respondents with lighting intensity that meet the requirements around their workbench but have complaints totaling 15 people (69.6%). Fisher exact statistical test results found that at 5% significance level with fisher exact test obtained Pvalue = 0.008 so that P <0.05. So between the intensity of lighting with eye fatigue has a meaningful relationship. From the calculation of the risk estimate (CI = 95%), PR = 1.375 (1.024-1.846) means that employees with lighting intensity that does not meet the requirements around the work table have a risk of 1.4 times to experience eye fatigue compared to employees with lighting intensity that meet the conditions around the table.

Research conducted by Palmri, et al (2017) through his journal entitled "The relationship between lighting intensity and age with eye fatigue in workers in the operational part of PT Angkasa Pura 1 (Persero) Manado City". The results showed that of the 67 lighting intensities that did not meet the standards, there were 3 people (15.85%) who suffered severe eye fatigue and 16 people (84.2%) experienced mild eye fatigue. This is in line with the results of Fadhillah's research (2014) for tailors at CV Wahyu Langgeng Jakarta in 2014 where the average lighting is below standard, which is 132 lux and research conducted by Fadihillah (2013) about factors related to complaints of eye fatigue in the Accounting Group PT Bank X Jakarta shows a meaningful relationship between lighting levels with complaints of eye fatigue.

According to Padmanaba (2006) on work that requires accuracy without adequate lighting, the impact will be felt in eye fatigue. This is also in accordance with the opinion of Budiono, et al (2016) eye fatigue resulting from poor lighting will indicate eye fatigue

This is because based on the results of measurements of light intensity around the employee's desk found the level of lighting does not meet the requirements of an average below 300 lux. This is caused by uneven lighting due to 1 unit of broken or unlit lights and 5 other lights that are starting to dim. In addition, the many piles of documents around the employee's desk and the placement of cabinets for storing documents make the lighting less bright. This can be a trigger for eye fatigue for employees.

Building maintenance installations should replace damaged lamps or lights that begin to dim and arrange the layout of cabinets and documents so that the distribution of lighting is evenly distributed.

Conclusion

1. The highest proportion of complaints of eye fatigue in employees of the Health Claim Division of PT Asuransi Reliance in 2019 was 60 respondents.
2. The highest proportion of sex employees in the Health Claim Division of PT Asuransi Reliance in 2019 were female respondents
3. The highest proportion of employees in the Health Insurance Division claim PT Asuransi Reliance in 2019 are respondents with no age at risk (<40 years)
4. The highest proportion of years of service employees in the Health Claim Division of PT Asuransi Reliance in 2019 were respondents with a risk-free tenure (<4 years)
5. The highest proportion of vision acuity employees in the Health Claim Division of PT Asuransi Reliance in 2019 were respondents with abnormal visual results
6. The highest proportion of light intensity around the employee's desk in the Health Claim Division of PT Asuransi Reliance in 2019 were respondents with lighting levels not eligible (<500 and> 700 lux)
7. There is no significant relationship between gender and subjective complaints of eye fatigue in the Health Division employees claim PT Asuransi Reliance in 2019
8. There is a significant relationship between age and subjective complaints of eye fatigue in employees of the Health Claim Division of PT Asuransi Reliance in 2019
9. There is a significant relationship between age and subjective complaints of eye fatigue in the Health Claim Division employees of PT Asuransi Reliance in 2019
10. There is a significant relationship between work tenure and subjective complaints of eye fatigue in the Health Insurance Division employees claim of PT Asuransi Reliance in 2019
11. There is a significant relationship between visual acuity and subjective complaints of eye fatigue in the Health Claim Division employees of PT Asuransi Reliance in 2019
12. There is a significant relationship between lighting intensity and subjective complaints of eye fatigue in the Health Insurance Division employees claim of PT Asuransi Reliance in 2019.

Suggestion

1. For Companies

a. Carrying out medical examinations, especially regular eye examinations of employees to determine eye function so that diseases caused by work, especially eye disorders can be prevented as early as possible
b. Make a rule to do eye rest for 10 minutes for 1 hour of work
c. Make rules about the maximum age limit of employees so that all employees are <40 years of age so that the activities or work carried out can be completed quickly and accurately
d. Transferring workers at risk age (≥40 years) to other divisions whose work is not directly exposed to the computer
e. Make regulations related to lighting intensity, especially in the workspace by following the standards set by the government where routine activities requiring accuracy such as assembling or reading and entering data> 500-700 lux so that complaints of eye fatigue can be minimized.

2. For Employees

Applying eye resting 10 minutes for 1 hour to work so that the eyes do not get tired because they are constantly focused on the object being worked on.

3. For other researchers

Perform objective eye measurements by using a measure of eye fatigue (Reaction timer) so as to obtain more accurate results

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