



The Condition of Decreased Eye Vision (Myopia) in Production Operators in The Workplace Impact on The Quality of Production Results

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ABSTRACT

Myopia or nearsightedness is a vision condition that cannot see distant objects clearly. This condition is increasingly common around the world, including in Indonesia. In the workplace, myopia can be a problem for production operators who need sharp vision to perform their tasks well. The purpose of this study was to determine the condition of decreased eye vision (myopia) in production operators in the workplace and its impact on the quality of production results. This research uses qualitative research methods. The data collection technique in this research is by literature study. The data that has been collected is then processed through three stages, namely data reduction, data presentation and conclusion drawing. The results showed that operators suffering from myopia can experience a decrease in production output for three main reasons, including myopia sufferers tend to have difficulty seeing details that can affect the accuracy and quality of work, myopia conditions can cause eye fatigue which can reduce the efficiency and productivity of operators in carrying out production tasks and myopia can cause discomfort in physical members, such as the neck, shoulders and back, due to improper posture during work. In addition, myopia can also increase the risk of work accidents due to impaired vision.

Keywords: Eye Visus Decrease, Myopia, Production Operators, Workplace, Production Quality

INTRODUCTION

Myopia or nearsightedness is an eye condition where the sufferer has difficulty seeing objects far away, while objects close can be seen clearly. This condition is also known as myopia. The severity of myopia varies from mild to severe, and this varies from person to person. Mild myopia generally does not require special treatment, but severe myopia can significantly affect the sufferer's ability to see clearly, so it requires careful treatment (Wea, 2018).

The prevalence of myopia varies depending on the country and ethnic group, even reaching levels of 70-90% in some Asian countries. In Indonesia, refractive errors are the most common eye disease, affecting around 25% of the population or around 55 million people. The prevalence of myopia in Indonesia in the young adult population aged over 21 years with a degree of less than -0.5 D reaches 48.1%. Generally, treatment for myopia is carried out using minus glasses or contact lenses. However, neither solves the problem permanently because they only help clarify vision by changing the direction of light so that it falls directly on the retina without repairing damage to the eye itself (Wulandari & Mahadini, 2018).

In the workplace, myopia can be a problem for production operators who need sharp vision to perform tasks well. Production operators run machines, equipment, or production processes in a company or factory. The main task of a production operator is to ensure that production runs smoothly and efficiently according to established standards. Production operators are responsible for operating processing machines, assembling products, monitoring production flow, performing preventive maintenance on equipment, and ensuring the final product meets established quality standards.

Myopia can be a significant problem for production operators who rely heavily on sharp vision to complete their tasks well. This condition causes difficulty seeing distant objects and can affect their ability to pay attention to important details in the production process. For example, production operators may need to read technical instructions, check the quality of products being processed, or operate machinery with high precision. The inability to see clearly can compromise the accuracy and quality of work, potentially causing errors or failures in production.

Previous research (Sappa & Sihotang, 2021) examined the relationship between the habit of using electric welding and decreased visual acuity among welding workshop workers in North Toraja in 2021. The results showed that based on the results of the SPSS statistical test, the result was $p = 0.859$ ($p > 0.05$). This means there is no relationship between the habit of using electric welding and decreased visual acuity in welding workshop workers in North Toraja Regency in 2021, or H_a is rejected, and H_0 is accepted. This research concludes that there is no relationship between the habit of using electric welding and decreased visual acuity in North Toraja Regency in 2021.

Another study by (Widiati et al., 2022) examined the relationship between the intensity of playing video games and the incidence of myopia in undergraduate medical students at Batam University. The results showed a significant relationship between the intensity of playing video games and the incidence of myopia in undergraduate medical students at Batam University—class of 2018. From the Chi-Square results, the p -value is 0.000, so H_0 is rejected, and H_a is accepted. Based on the results of this study, there is a significant relationship between the intensity of playing video games and the incidence of myopia.

The novelty of this research lies in the object of research, namely the condition of decreased eye vision (myopia) in production operators at work, which impacts the quality of production results that have never been studied before. This research can provide a better understanding of the impact of eye health on production operators. This can encourage companies to take proactive steps to improve employee welfare and health, such as providing appropriate eye protection equipment, rest schedules, and regular eye health checks. This research aims to determine the condition of decreased eye vision (myopia) in production operators at work and its impact on the quality of production results.

RESEARCH METHODS

This study used qualitative research methods. Qualitative research is a research method that focuses on understanding meaning and human experience in a particular context. This research uses non-numerical data, such as text, images, and audio, to produce more in-depth and holistic findings (Abdussamad & SIK, 2021). The data collection technique in this research is a literature study. Literature study is a data collection technique that involves reviewing literature in libraries and collecting books, written materials, and references relevant to the research. The type of data used in this research is secondary data (Darmalaksana, 2020). The data source in this research comes from Google Scholar. The data that has been collected is then processed through three stages, namely data reduction, data presentation, and concluding.

RESULTS AND DISCUSSION

Production is the process by which companies use resources to create goods and services. Process technology converts every company input or resource into a product (Julyanthry et al., 2020). The quality of production results is key to ensuring that goods or services meet predetermined standards and can be used safely. Good quality has a positive impact on reputation in the eyes of consumers, as research (Pancawati, 2022) emphasizes the importance of the quality of production results as the main parameter in measuring a company's sales success. High sales provide large profit values, supporting business growth and development. However, on the other hand, if the production is of low quality, it can result in financial losses and even lead the company to bankruptcy if it is addressed after some time.

Product quality includes the extent to which the product can meet or exceed customer expectations and needs. Aspects involved in product quality include features, performance, design, durability, reliability, safety, and comfort of use (Sariatin & Ekawati, 2023). Given the importance of the quality of production output in improving business performance, companies must pay attention to developing and maintaining high-quality standards in every phase of production, including the role played by operators. Pardede (2007) notes that workers, especially operators who carry out the production process, play a key role in determining the

quality of production results. Good operator skills are crucial for producing high-quality products (Sentosa & Trianti, 2019). A healthy operator's body condition is required to achieve this capability because the factor determining labor productivity is the individual's health condition (Mahawati et al., 2021).

One of the five senses that is very important for an operator is the eyes. The eyes are a part of the worker's body whose safety and health must be protected. With the eyes, every worker can see objects around them and carry out various tasks. So almost every job utilizes these five senses (Sunyanti, 2019). The eyes are used to see objects and details clearly, allowing operators to do their jobs well. The working mechanism of the eye is similar to the function of a camera, where light from an object falls directly on the focal point of the retina. The pupil acts as a "window" that regulates the amount of light entering the eye, which is then focused by the crystalline lens and transmitted to the central vision in the retina.

Light rays that do not fall directly on the retina can cause the image of an object to become blurry, known as a refractive error. One of the common refractive errors is nearsightedness or myopia (titi Lestari et al., 2020). Myopia has two main factors that can trigger it; the first factor is heredity, where children who have parents who suffer from nearsightedness have a higher risk of experiencing the same condition. The second factor is environmental influences, such as reading excessively, watching television, and using computers continuously (Ruwiyatun et al., 2021).

Myopia causes decreased eye vision, where the eye has difficulty seeing objects far away. Vision or visual acuity is the eye's ability to distinguish very specific parts of either an object or a surface (Sumakul et al., 2020). This condition of decreased vision can interfere with operators' work, especially when they have to see small objects and details. As stated, eye disorders can affect vision less clearly and interfere with the operator's work, resulting in decreased productivity.

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The next point, myopia can affect production productivity because people living with myopia can experience physical discomfort. Physical discomfort is often experienced by those who suffer from myopia or nearsightedness without using appropriate glasses or contact lenses. This is caused by the excessive effort made by the eyes and surrounding muscles to try to see clearly. Incorrect body position is often experienced by people living with myopia, who may lean forward or tilt their heads to try to see more clearly, especially over long periods. This practice can cause muscle tension and pain in the neck, shoulders, and back. The physical discomfort caused by myopia can lead to decreased productivity as operators experience fatigue and pain, which in turn can affect their performance in carrying out production tasks. In addition, operators who have myopia can also increase the risk of work accidents.

Myopia can increase the risk of work accidents through several mechanisms. First, blurred vision can cause difficulty in clearly seeing potential hazards in the work environment, such as

slippery stairs, exposed wires, or moving objects. Second, difficulty in estimating distances can also increase the risk of accidents, such as tripping, falling, or being hit, because people living with myopia have difficulty judging the distance of objects. Furthermore, difficulty seeing details such as safety signs or warning signs can add additional risk. Double vision, which people with myopia may experience without appropriate glasses or contact lenses, can create difficulties in hand-eye coordination. Lastly, delayed reaction to danger, where people living with myopia may take longer to respond to dangerous situations due to the inability to see clearly, an additional risk factor. All of these factors contribute to the potential for increased risk of accidents in the work environment due to operators who have myopia.

Operators who have myopia may experience reduced production output for three main reasons. First, people with myopia tend to have difficulty seeing details, which can affect the accuracy and quality of work. Second, myopia can cause eye fatigue, which in turn can reduce operator efficiency and productivity in carrying out production tasks. Third, myopia can cause discomfort in physical members, such as the neck, shoulders and back, due to incorrect body posture during work. Apart from that, myopia can also increase the risk of work accidents due to impaired vision. Therefore, efforts to prevent myopia in the workplace are needed. Some steps that can be taken to prevent myopia in the work environment include:

Regular eye examinations. Encourage all employees to undergo regular eye examinations at least once a year by collaborating with an eye doctor to provide eye examinations at work. Apart from that, provide education to employees about the importance of maintaining eye health and the risk of myopia.

Proper lighting. Lighting that does not meet standards can be a risk for workers to experience myopia. For this reason, ensure that the lighting in the workplace meets standards and avoid dazzling or flashing lighting. Then, use lights with a color temperature that is suitable for work activities.

Ergonomic settings Ergonomics is a work rule that aims to. Increasing comfort in the work environment by considering human physical and mental limitations. In an effort to do this, for example, companies can position computer screens or work chairs ergonomically. Then, use computer glasses or anti-glare lenses to reduce eye fatigue, and stretch your eyes and neck regularly.

Get enough eye rest. Apply the 20-20-20 rule: Every 20 minutes, look away from the screen for 20 seconds and focus on an object 20 feet (6 meters) away. Provide enough rest time for employees to rest their eyes.

Rest arrangements and working positions Determine adequate rest periods to avoid eye fatigue and encourage employees to change sitting positions periodically to avoid muscle tension. Then, provide an ergonomic workspace with adequate lighting.

Procurement of Assistive Equipment. Consider providing assistive devices such as computer glasses, anti-glare lenses, or high-resolution displays to help employees with myopia.

Additionally, work with optometry or ophthalmology professionals to assess workers' specific needs and tailor the most effective assistive devices to their eye conditions.

Evaluation and Monitoring. Carry out regular evaluations and monitoring to assess the effectiveness of myopia prevention programs in the workplace. Then, adjust the program based on the results of evaluation and monitoring.

Implementing myopia prevention measures in the work environment is not only a guarantee for employee eye health and work safety. However, it can also directly improve the quality of production, which is the company's main need. Therefore, through myopia prevention initiatives in operators, the company is making long-term investments to ensure company sustainability.

CONCLUSION

Operators who have myopia can experience reduced production output for several key reasons. First, people with myopia tend to have difficulty seeing details, which can significantly affect the accuracy and quality of the work they do. These conditions can hinder their ability to complete tasks with the precision required in a production environment. Second, myopia can also cause eye fatigue which can lead to reduced operator efficiency and productivity in carrying out production tasks. The inability to focus properly can result in suboptimal performance and increase the time required to complete a task. Third, myopia can cause discomfort in physical members, such as the neck, shoulders and back, due to incorrect body posture during work. This condition can be an additional distraction and disrupt the operator's concentration in carrying out their duties. In addition, myopia also increases the risk of work accidents because impaired vision can hinder the operator's ability to respond quickly to situations that may arise in the work environment.

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