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Factors Affecting the Incidence of Disease Due to Employment Relationship at PT. Indrabakti Mustika North Konawe

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ABSTRACT

Introduction: The results of interviews with 10 workers illustrate that aspects of workers' health are disturbed, namely many workers who have suffered injuries, decreased attendance due to illness, exposure to mineral dust from the location or conditions of mining areas with dry and sandy soil structures that can cause silicosis or exposure to noise sourced from the operation of work tools. The purpose of the study is to determine the factors related to diseases due to labor relations in nickel mine workers at PT. Indrabakti Mustika Konawe North.

Method: This study uses a Cross sectional Study approach. The study has been carried out for 30 days. The population numbered 568 people. The Research Sample totaled 82 samples. The sample technique in this study is Simple Random Sampling. The data were processed using the Data Normality Test (Kolmogrov Smirnov Test) Chi Square Test.

Result: The results showed that there was a relationship between age X^2count = 14,024 > X^2 table = 3,841, length of work X^2count= 7,678 >X^2 table= 3,841 and air temperature X^2count= 15,752 >X^2 table= 3,841 to diseases due to labor relations in nickel mine workers at PT. Indrabakti Mustika North Konawe.

Conclusion: Research shows that there is a relationship between age, noise and PPE use to diseases due to labor relations in nickel mine workers in PT. Indrabakti Mustika North Konawe.

Introduction

Industrial activities that carry out nickel processing have an impact on their employees so that there will be diseases due to labor relations in employees and the discovery of many cases of diseases due to labor relations in the nickel processing industry in various countries that have had an impact on their employees. Based on data from the International Labour Organization (ILO), in 2018 the ILO recorded a mortality rate caused by occupational disease of 2.5 million cases every year. Meanwhile, data in 2019, it was stated that every 10 seconds there was 1 worker who died due to work accidents and 160 workers experienced work-related illness.[1]

A work environment full of dust can interfere with productivity and often cause respiratory problems and can cause pulmonary diseases. Dust, which is generally in the form of particles measuring 0.1 to 25 microns, has the potential to interfere with the health of employees. The dangers that can be caused are respiratory disorders, eye irritation that can interfere with vision, skin irritation to high levels, dust can also interfere with the digestive system. Decreased lung function has been reported to be prevalent in mining industry workers. Particles of lime dust are irritants and are not classified as carcinogens. The main effects of dust on labor in the form of pulmonary abnormalities, both acute and chronic, impaired physiological functions, eye irritation, sensory irritation, and hoarding of harmful materials for the body, and persistent forms of abnormalities are reduced lung elasticity characterized by a decrease in faal.[2]

Based on the theory, it is explained that there are many factors that influence the occurrence of diseases due to labor relations in nickel mines, including the age of workers. Some of the factors that influence the high incidence of disease due to labor relations in the young age group include lack of attention, lack of discipline, tend to obey the heart, carelessness and haste. In addition, the worker's working period ≤ 2 years is one of the factors that indicate that the worker does not have sufficient experience in doing his job. If these workers are still often found making mistakes in the procedure for using chemicals, then this has the potential to increase the incidence of skin health problems in workers with a long work ≤ 2 years.[3]

Selection of research sites at PT. Indrabakti Mustika is based on several considerations including the nickel mining location in this region is currently a strategic location and is the center of attention of job seekers. The location of North Konawe Regency is currently an area that is the center of mining development, especially Nickel, thus there needs to be a more in-depth study of the health of workers, especially from diseases caused by labor relations. In addition, at PT Indrabakti Mustika Konawe Utara, no research has been conducted on factors related to diseases caused by labor relations in nickel mine workers. Based on a preliminary survey that has been conducted on February 11-15, 2022, data on the number of employees or workers of PT. Indrabakti Mustika Konawe Utara numbered 568 people consisting of 475 men and 93 women. The number of hours worked each month is 279 hours with a total working of 1,267,776 hours. During 2021, clinical data obtained on the number of visits of sick workers was 1,546 cases with various complaints.[4]

The most common complaints are large due to exposure to dust so that many complaints appear such as cases of ARI (respiratory tract infections), cases of diarrhea, cases of muscle pain, cases of eye diseases, cases of headaches, cases of itchy skin, cases of dermatis, cases of allergies and several cases of other diseases. Therefore, the purpose of this study is to determine the factors that influence the incidence of disease due to work relationships in employees, especially due to dust exposure.[5]

Method

The type of research used in this study is quantitative with an observational method with a Cross sectional study design approach, namely to analyze factors related to diseases due to labor relations in nickel mine workers at PT. Indrabakti Mustika North Konawe. The study has been carried out for 30 days. The population numbered 568 people. The Research Sample totaled 82 samples. The sample technique in this study is Simple Random Sampling. The data were processed using the Data Normality Test (Kolmogrov Smirnov Test) Chi Square Test.

Result

Table 1 showed that respondents aged in the active worker category totaled 43 respondents consisting of 34 respondents (41.5%) undiagnosed with diseases due to labor relations and 9 people (11%) diagnosed with diseases due to labor relations, while respondents who were aged in the early worker category totaled 39 respondents consisting of 15 respondents (18.3%) uniagnized diseases due to labor relations and 24 people (29.3%) were diagnosed with diseases due to relationships work. Based on the results of

statistical tests with X^2count 14,024 >X^2table 3,481 and the value of φ = 0.414 which means Ho is rejected and Ha is accepted thus there is an influence of the age of workers with diseases due to labor relations in nickel mine workers in PT. Indrabakti Mustika Konawe North.

Table 2 showed that respondents who worked in the normal category were 52 respondents consisting of 37 respondents (45.1%) who were not diagnosed with diseases due to labor relations and 15 people (18.3%) were diagnosed with diseases due to labor relations, while respondents who worked in the abnormal category were 30 respondents consisting of 12 respondents (14.6%) undiagnosed diseases due to labor relations and 18 people (36.6%) were diagnosed with diseases due to relationships work. Based on the results of statistical tests with X^2count 7,678 >X^2table 3,481 and the value of φ = 0.544 which means Ho was rejected and Ha was accepted thus there is an influence of length of work with diseases due to labor relations on nickel mine workers in PT. Indrabakti Mustika Konawe North.

Table 3 showed that respondents with the use of good category PPE totaled 39 respondents consisting of 32 respondents (39.1%) undiagnosed diseases due to labor relations and 7 people (8.5%) diagnosed with diseases due to labor relations, while respondents with the use of PPE categories less amounted to 43 respondents consisting of 17 respondents (20.7%) undiagnosed diseases due to labor relations and 26 people (31.7%) diagnosed with diseases the aftermath of the employment relationship. Based on the results of statistical tests with X^2count 15,373 >X^2table 3,481 and the value of φ = 0.433 which means Ho is rejected and Ha is accepted thus there is an influence of the use of PPE with diseases due to labor relations in nickel mine workers in PT. Indrabakti Mustika Konawe North.

Table 1.
The Effect of the WorkersAgewith Diseases Due to Labor Relations on Nickel Mine Workers in PT. Indrabakti Mustika Konawe North

Age of Workers	PAHK				Total	%	Statistic Test
	Not		Diagnosis				
	n	%	n	%			
Early workers	34	41,5	9	11,0	43	52,4	X^2count = 14,024
Active workers	15	18,3	24	29,3	39	47,6	X^2table = 3,481
Total	49	59,8	33	40,2	82	100	φ = 0.414

Table 2.
The Effect of Long Work with Diseases Due to Labor Relations on Nickel Mine Workers at PT. Indrabakti Mustika Konawe North

Length of work	PAHK				Total	%	Statistic Test
	Not		Diagnosis				
	n	%	n	%			
Usual	37	45,1	15	18,3	52	63,4	X^2count = 7,678
Abnormal	12	14,6	18	36,6	30	36,6	X^2table = 3,481
Total	49	59,8	33	40,2	82	100	φ = 0.544

Table 3.
The Effect of Air Temperature with Diseases Due to Labor Relations on Nickel Mine Workers in PT. Indrabakti MustikaKonawe North

Air Temperature	PAHK				Total	%	Statistic Test
	Not		Diagnosis				
	n	%	n	%			
Usual	29	35,4	5	6,1	34	41,5	X^2count = 15,752
Abnormal	20	24,4	28	34,1	48	58,5	X^2table = 3,481
Total	49	59,8	33	40,2	82	100	φ = 0.438

Discussion

In some cases, older workers are less likely to develop diseases resulting from a decrease in physical quality. However, young people also often experience illnesses due to labor relations, this may be due to carelessness and hasty attitude. From the results of research in the United States, it was revealed that young workers experience more diseases due to labor relationships compared to older workers. Young workers are usually less experienced in their work. There are many reasons that the young workforce has a higher tendency to suffer from diseases due to labor relations than the older age group. Some of the factors that influence the high incidence of disease due to labor relations in the young age group include inattention, lack of discipline, tendency to obey the heart, carelessness and haste.[6]

Meaningful relationship between age and work fatigue which results in occupational diseases and also shows a moderate correlation coefficient with a positive relationship direction.[7]

According to the theory one can work well in a day for 7 hours or 40 hours in a week. The remaining time in one day (16 hours) is used for life in the family and community, rest and others-. Working hours can affect illnesses due to labor relationships, as long working hours can cause fatigue and increase the risk of illnesses due to labor relationships. However, in this study, the length of work was not related to diseases caused by labor relations because it was only one of the factors that might influence the occurrence of diseases due to labor relations.[8]

The results of this study are supported by research conducted by Widowati which explains the relationship between length of work and diseases due to labor relations in workers.[9]

Normal fresh air flowed on the mine vents from Nitrogen, Oxygen, Carbon dioxide, Argon and other gases. In addition, it is always considered that fresh air will always contain carbon dioxide (CO_2) of 0.03%. Similarly, keep in mind that the air in the mine vents always contains moisture and there is never any completely dry air. Therefore, there is the term air humidity. In hard-working humans, this respiratory quotient number is equal to one, which means that the amount of CO_2 exhaled is equal to the amount of O_2 inhaled at its exhalation.

Previous research by Saftarina explained that there is a relationship between air temperature and diseases due to work relationships, when the air temperature is very hot the body becomes tired quickly because inside it naturally produces heat, if the heat of the environment continues to increase it can accelerate metabolic processes that cause the body to get tired faster. Temperature will impose an additional load on labor.[10]

Conclusion

Research shows that there is a relationship between age, noise and PPE use to diseases due to labor relations in nickel mine workers in PT. Indrabakti Mustika North Konawe. Advice For related parties in this case the local government to continue to improve the prevention program for diseases due to labor relations by paying attention to the factors including the use of PPE, length of work, temperature and environmental noise.

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