

THE EFFECT OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT (K3) ON WORK PRODUCTIVITY OF EMPLOYEES

Sinollah¹, Achmad Zaki²

Management Study Program, Raden Rahmat Islamic University, Malang¹
Management Study Program, Nahdlatul Ulama University, Sidoarjo²
e-mail: sinollah@gmail.com

Abstract

This study aims to determine the effect of the implementation of Occupational Health and Safety management (K3) on employee productivity at PG. Ngadirejo Kediri. To achieve this goal, this study uses quantitative research with a questionnaire as the main instrument in collecting data. To answer the hypothesis using multiple linear regression analysis. Based on tests conducted with multiple linear regression, it is evident that the variable level of occupational safety (X1) and the variable level of occupational health (X2) has a significant effect on employee productivity (Y) either partially or simultaneously. To reduce the risk of accidents such as fires, piles of mill residues containing flammable chemicals. That jam, PG. Ngadirejo Kediri should strive so that the remnants of the mill can be immediately utilized/sold.

Keywords: Occupational Safety, Occupational Health, Employee Productivity

INTRODUCTION

In the current era of industrialization, human resource issues play an important role in the production process. Of the various production factors such as humans, raw materials, nature and so on, humans play a very important role. This is because in the industry they will manage, maintain, use equipment and machines properly and correctly, so they can get high production. Realizing that humans are an important production factor known as *human investment*, every company is required to manage human resources in the hope of being oriented to the effective and efficient use of resources. The application of advanced technology on the one hand spurred economic development into the industrialization era, but on the other hand if it is not handled in a planned and integrated manner, it can increase work accidents, occupational diseases, ergonomics and even increase unemployment (Barthos, 2009).

The means of production (equipment, machinery, and chemicals) so that proper application is needed as well as knowledge and skills in operating the means of production. The use of advanced technology accompanied by modern equipment and machines always brings convenience in production, but on the other hand, if it is not handled in a planned manner, it can increase the risk of work accidents. Therefore, it requires high precision and vigilance in operating it.

Occupational Health and Safety refers to the physiological-fiscal and psychological conditions of the workforce caused by the work environment provided by the company. If a company implements effective safety and health

measures, fewer workers will suffer short and long term injuries or illnesses as a result of their work in the company (Schuler and Jackson, 1999).

Occupational Safety and Health (K3) is an important instrument that protects workers, companies, the environment and the surrounding community from the dangers of work accidents and occupational diseases. This protection is a human right that must be fulfilled by the company. Occupational Health and Safety (K3) aims to prevent, reduce, and even eliminate the risk of work accidents (*zero accident*). The application of the K3 concept should not be considered as an effort to prevent work accidents and occupational diseases that cost company a lot of money, but must be considered as a form of long-term investment that will provide abundant benefits in the future. The development of a company is strongly supported by a productive, healthy and quality workforce, it is necessary to have good management, especially those related to Occupational Safety and Health (K3) issues.

For companies that carry out the production process, Occupational Safety and Health (K3) must be considered because in line with increasingly sophisticated technology both in equipment, equipment, and production processes, it is possible to have a higher number of accidents and occupational diseases, with management work safety and health, it is expected that losses caused by accidents and occupational diseases can be overcome. This is done because the application of work standards that meet K3 requirements starts from applying it to oneself. A good company will implement K3 properly and correctly, implementing K3 properly and correctly by the company will ensure occupational safety and health, so that employees who work feel safe and avoid work accidents, with this condition expected productivity, satisfaction and loyalty employee work is created (Hidayat, 2015). This condition is supported by the results of research by Sihuhaji (2019), Haryono and Nugroho (2020), Rosento, *et.al* (2021), Lumenta, *et.al* (2021), Prabowo, *et.al* (2022), and Wibowo, *et. al* (2022) that the application of occupational health and safety has a significant effect on employee productivity.

PG, Ngadirejo Kediri is a company in the form of a Limited Liability Company (PT) which is engaged in the sugar industry which is domiciled in Ngadirejo Village, Ngadiluwih District, Kediri Regency. In carrying out the production process in addition to using work equipment and heavy machinery, raw materials and auxiliary materials in the form of chemicals also use human power. Efforts to increase production are, of course, related to Occupational Safety and Health (K3).

Work accidents that occurred in PG. Ngadirejo Kediri for example fell, pinched, exposed to electric currents and others that caused employees to experience temporary disability, while work-related illnesses that often occurred were allergies, infections, respiratory problems, hearing loss, radiation and others that could affect health and work productivity. employees, so that occupational safety and health is a top priority that must be considered by the company. Employees need a healthy body condition and a comfortable working environment in order to work optimally. If employees feel they are protected from work accidents and occupational diseases, and there is attention from the company regarding Occupational Safety and Health (K3), of course, employees will work harder so that the production produced is in accordance with the company's targets.

Starting from the above background, the objectives of this study are: "To find out and explain the effect of the implementation of Occupational Health and Safety (K3) management on employee productivity at PG. Ngadirejo Kediri."

LITERATURE REVIEW

The Theory of Work Safety

According to Mathis (2006), work safety refers to the protection of one's physical well-being. Work safety is a condition where workers feel safe and comfortable, with the treatment obtained from the work environment and affects the quality of work. Feelings of comfort start from within the workforce, whether he is comfortable with work safety equipment, the equipment used, the layout of the workspace and the workload he gets at work. According to the legal basis of the legislation regulated in the Law on Work Safety no. 1 of 1970 article II (two), this law provides work safety protection which includes all aspects of hazardous work in all workplaces, whether on land, on the ground, on the surface of the water, in the water or in the air in within the jurisdiction of the Republic of Indonesia. These workplaces are spread over all economic activities, such as agriculture, industry, mining, transportation, public works, services and others. The purpose of work safety implies that work safety activities in the workplace are carried out by identifying and formulating implementation activities that are supported by supervision in order to obtain satisfactory results (Suma'mur, 1994).

Schuler and Jackson (1999), suggest that the physical aspect of the work environment has an impact on Occupational Safety and Health (K3). One of the disturbances that become an obstacle in work safety that will affect work productivity that is less than optimal and company profits are not maximized is work accidents. According to Fillipo in Panggabean (2002), an accident is an unplanned event and must be analyzed in terms of costs and causes. According to Heidjrachman and Husnan (2002), the causes of accidents are grouped into two main causes, namely technical causes and human causes.

Occupational Health

According to Mondy and Noe in Panggabean (2002), occupational health refers to the freedom of employees from physical and mental illness. According to Suma'mur (2001), is a specialization in health/medical science and its practice which aims to make workers/communities obtain the highest degree of health, either physically or mentally, as well as socially, with preventive and curative efforts, against diseases/disorders. -health problems caused by work and work environment factors, as well as general diseases. According to Sedarmayanti (2009), the factors that cause occupational diseases are physical, chemical, biological, physiological and mental-psychological factors. According to Suma'mur (2001), the best prevention methods are substitution, general ventilation, local exit ventilation, isolation, use of protection, periodic health checks, lighting before work and health education.

Work Productivity Work

productivity is expressed as the willingness of employees to mobilize energy in producing goods and services that are the company's goals (Sinungan, 2008; Sastrowinoto, 1995). Work productivity is not only proposed to get as much work as possible, but the quality of work is also considered. Thus, work productivity implies activities carried out by companies that are not only focused on the amount of income used to achieve output, but also the efficiency of the production process over a certain period of time. The factors that affect work productivity according to Sastrowinoto (1995) are: work studies, work safety, occupational health, work environment safety and ergonomics. The measurement of productivity according to Sinungan (2000) includes: comparison of current implementation with historical implementation, comparison of implementation of one unit with other units, and comparison of current implementation with predetermined targets.

The Relationship between Occupational Safety and Health Management and Work Productivity

According to Sedarmayanti (2009), occupational safety and health is the supervision of people, machines, materials and methods that include the work environment so that workers do not get injured. Occupational safety and health is one of the basic needs of employees when the employee works for a company, because employees will try to maintain the safety of their body and soul. An occupational safety and health program needs to be implemented effectively by a company, because this can reduce the frequency of accidents. Besides that, it can increase work morale and can increase company productivity, as stated by Sastrowinoto (1995) and Nasution (1994) that occupational health and safety are several factors that affect employee productivity.

Based on the theoretical basis that has been stated above, the research hypothesis proposed in this study is: "It is suspected that there is a significant influence between the application of Occupational Health and Safety (K3) management on the work productivity of employees at PG. Ngadirejo Kediri".

RESEARCH METHODS

In accordance with the research objectives, this research uses quantitative research (Arikunto, 2006), which was conducted at the Ngadirejo Sugar Company (Persero) located in Ngadirejo Village, Ngadiluwih District, Kediri Regency. Referring to the opinion of Sugiyono (2014), the population in this study were all employees at the Ngadirejo Sugar Company which consisted of 463 permanent employees. By using the Slovin formula (Umar, 2011), the sample in this study was 83 people. Questionnaire as the main data collector. To answer the research objectives and hypotheses, the data analysis used in this study was multiple linear regression (Sugiyono, 2014a).

RESULTS OF RESEARCH AND DISCUSSION

Sugar Factory "Ngadirejo" is one of the business units of PT. Perkebunan Nusantara X (Persero) which is engaged in the business of managing sugar cane raw materials into the main production of granulated sugar with the by-product of drops used as raw material for alcohol, spiritus for medical purposes. The "Ngadirejo" Sugar Factory was founded in 1912 by a Dutch private company, namely NV HVA (*Handels Verniging Amsterdam*) located in Jambean Village, Kras District, Kawedanan Ngadiluwih, Kediri Regency. All of the marketing of sugar produced before 1998 was purchased by Bulog at a price determined by the government through a Decree of the Minister of Finance. auction. Usually the buyers are wholesalers with large purchases as well.

Respondents in this study amounted to 83 people with 95% already married, 100% male, the age of most (64%) ranged from 30-39 years, most of the education was high school (72%) with most of the years of service (62%) 8 – 11 years.

Based on the results of the product moment correlation test, all instruments are valid because the correlation coefficient value is greater than 0.3 (Sugiyono, 2014). Likewise, the results of the correlation test using Cronbach's alpha, all variables showed Cronbach's alpha value was greater than 0.6 (Arikunto, 2006), so all variables were reliable.

This study uses multiple linear regression calculations to determine the magnitude of the effect of the level of work safety (X1) and the level of occupational health (X2) as independent variables on employee productivity as the dependent variable which was carried out with the help of the software SPSS version 1195%

confidence or a significance level of 0.05 ($\alpha = 5\%$). The results of multiple regression analysis are shown in table 1 below:

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	0,960		2.265	0.027
X ₁	0.410	0.372	2.761	0.008
X ₂	0.307	0.325	2.411	0.019
Multiple R = 0.641 F _{arithmetic} = 21.548 Sig. F = 0.000 F _{table} = 3.15 T _{table} = 1.9996				

Source: Primary data processed, 2022

The regression results can be arranged as follows:

$$Y = a + b_1X_1 + b_2X_2 + e$$

$$Y = 0.960 + 0.410 X_1 + 0.307 X_2 + e$$

F_{table} it can be seen from the value of df₁ obtained from the number of independent variables in the study (k), so that df₁ = 2 while df₂ is obtained from the calculation of df₂ = Nk-1 = 65-2-1 = 62. Table F in df (2 , 62) with a significance level of 5%, the F table value is 3.15.

From the results of the calculation of F_{arithmetic} , the results obtained are 21.548, so F_{arithmetic} > F_{table} so that there is a **significant** between occupational safety and health on work productivity of employees at PG. Ngadirejo Kediri.

The way to see the t_{table} is to pay attention to the df value obtained from the calculation df = Nk-1 = 65-3-1 = 61, while the test is carried out using two directions (*two tails*) with a significance level of 5% and df (61, 0.05).) obtained t_{table} of 1.9996.

- 1) The effect of work safety on the work productivity of employees at PG. Ngadirejo Kediri. Based on the calculation results, it can be seen that t_{count} > t_{table} where t_{count} 2.761 > t_{table} 1.9996 so that there is a **significant** between work safety on employee productivity at PG. Ngadirejo Kediri.
- 2) The effect of occupational health on the work productivity of employees at PG. Ngadirejo Kediri. Based on the calculation results, it can be seen that t_{count} > t_{table} where t_{count} is 2,411 > t_{table} 1.9996 so that there is a **significant** between work safety on employee productivity at PG. Ngadirejo Kediri

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data in table 1 shows that the t value of 2.761 with a significance level of 0.008, this indicates that the occupational health variable has a significant influence on the work productivity variable of employees at PG. Ngadirejo Kediri. This research supports the research of Tjahjawati and Hidayatullah (2017), Sihuhaji (2019), Haryono and Nugroho (2020), Rosento, *et.al* (2021), Lumenta, *et.al* (2021),

Prabowo, *et.al* (2022), and Wibowo, *et.al* (2022) that occupational health has a significant effect on work productivity.

The Effect of Work Safety on Work Productivity of PG Employees. Ngadirejo Kediri The

data in table 1 shows that the t value_{2,411} with a significance level of 0.019, this indicates that the work safety variable has a significant influence on the employee productivity variable at PG. Ngadirejo Kediri. This research supports the research of Tjahjawati and Hidayatullah (2017), Sihuhaji (2019), Haryono and Nugroho (2020), Rosento, *et.al* (2021), Lumenta, *et.al* (2021), Prabowo, *et.al* (2022), and Wibowo *et al* (2022) that work safety has a significant effect on work productivity.

The Influence of Occupational Health and Safety on Work Productivity of PG Employees. Ngadirejo Kediri The

data in table 1 shows that the $t_{\text{calculated}}$ of the Occupational Health and Safety variable is 21.548 with a significance level of 0.000, this indicates that the occupational health and safety variable has a significant influence on the employee productivity variable at PG. Ngadirejo Kediri. This research supports the research of Tjahjawati and Hidayatullah (2017), Sihuhaji (2019), Haryono and Nugroho (2020), Rosento, *et.al* (2021), Lumenta, *et.al* (2021), Prabowo, *et.al* (2022), and Wibowo, *et.al* (2022) that occupational health and safety have a significant effect on work productivity.

Simultaneously occupational safety and health have a significant effect of 64.1%. This shows that occupational safety and health is important for employees and must be considered carefully by the company. By paying attention to occupational safety and health, it is expected that employee productivity will increase and in the end will lead to employee satisfaction.

CONCLUSION

Based on tests conducted with multiple linear regression, it is evident that the variable level of occupational safety and occupational health level variable has a significant influence on employee productivity either partially or simultaneously. In order to maintain occupational safety and health, training for employees is deemed necessary so that employees can better master the use of tools in their work environment, where better mastery in the use of tools in the work environment can help carry out tasks more safely. Reducing the risk of accidents such as fire piles of mill residues containing flammable chemicals, PG. Ngadirejo Kediri should strive so that the remnants of the mill can be immediately utilized / sold.

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