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MANAGEMENT & BUSINESS REVIEW

Management and Business Review

The effect of occupational safety and health on employee productivity in furniture industry

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Abstract: The risk of work accidents is a major concern in companies. This is caused by the consequences that occur in work accidents to the deadly consequences of these accidents, so risk analysis even more important. The business process of the furniture industry from upstream to downstream has risk of occupational accidents. This study aims to determine the effect of occupational safety and health on employee productivity. Based on the results of data analysis, it can be concluded that the occupational safety does not have a significant effect on work productivity and occupational health variable has a significant effect on work productivity. Simultaneously the independent variables have a significant relationship with work productivity. For future research, other variables that influence productivity can be added, such as leadership style, work discipline, and work motivation to expand the research area, so that it can produce new thoughts or studies.

Abstrak: Risiko kecelakaan kerja menjadi perhatian utama di perusahaan. Hal ini disebabkan oleh akibat yang terjadi pada kecelakaan kerja hingga akibat yang mematikan dari kecelakaan tersebut, maka analisis risiko menjadi lebih penting. Proses bisnis industri mebel dari hulu hingga hilir memiliki risiko kecelakaan kerja. Penelitian ini bertujuan untuk mengetahui pengaruh keselamatan dan kesehatan kerja terhadap produktivitas karyawan. Berdasarkan hasil analisis, keselamatan kerja tidak berpengaruh signifikan terhadap produktivitas kerja sedangkan kesehatan kerja berpengaruh signifikan terhadap produktivitas kerja. Bagi penelitian selanjutnya dapat ditambahkan variabel lain yang mempengaruhi produktivitas seperti gaya kepemimpinan, disiplin kerja, dan motivasi kerja untuk memperluas wilayah penelitian, sehingga dapat menghasilkan pemikiran atau kajian baru.

Introduction

Work productivity is related to the quality of work produced by employees (Kurniawan & Rimas, 2021). Productivity does not mean only in quantity but also always related to the suitability of work results with the specifications desired by the company (Dharliana & Wibowo, 2022). To be able to compete with competitors, company implements strategies to increase the productivity of its human resources (Sovitriana et al., 2023). Human resources are the most important asset because they produce goods or services to keep company's business running well (Susan, 2019). This is the focus of the company so that its human resources can produce appropriate goods or services. Therefore, companies must be able to create a work atmosphere that is safe from occupational accidents and a positive work environment (Wahyuni et al., 2018).

International Labor Organization data stated that workers in the world die every 15 seconds and 160 workers got injury due to occupational accidents (Sujadi et al., 2021). In 2013 in Indonesia no less than six workers died due to work accidents. Throughout 2013, as many as 12,745 companies violated occupational safety and health regulations, both physically and non-physically. This will certainly have an impact on employee productivity at work which results in the output produced to meet customer needs and be able to compete with competitors (Laksmiari, 2019).

Accidents caused by human actions that do not fulfill safety are called unsafe human actions such as not wearing personal protective equipment (PPE), working not according to procedures, working while joking, placing work items or tools incorrectly, unsafe work attitudes, working near moving or rotating tools, fatigue, boredom, and others (Devi & Setiyawan, 2017). Meanwhile, accidents caused by unsafe environmental conditions are called unsafe conditions, such as machines without safety and still using inadequate equipment (Purnamasari, 2020). Lighting in the room is inadequate, ventilation is not good, layout is not good, floors are slippery, etc (Adiasa et al., 2020). The risk of work accidents is a major concern in companies. This is caused by the consequences that occur in work accidents to the deadly consequences of these accidents. This makes risk analysis even more important. Occupational safety and health is also a major concern worldwide due to the fact that occupational risks are a major source of danger. Taking precautions against risks and hazards in the workplace is one of the basic duties and responsibilities in occupational health and safety management. Action to provide safety at work are not only significant for the health of workers but also managerial activities that are inevitable for economic and financial performance, productivity of facilities and quality and stability of production (Mahadevan, 2017).

Employee work productivity is a parameter for every company in carrying out its business activities both in terms of product quality and quantity (Nurhendi et al., 2019). As is the case in today's business competition where companies must prioritize

the quality and welfare of their employees which are the competitiveness. Companies do not only have large capital to achieve their goals but companies need to pay attention to other production factors including nature, labor, and expertise where these factors can not stand alone but must support each other to achieve goals effectively and efficiently (Akbar, 2018). Companies in increasing efficiency and effectiveness become capital for a management. The company's main goal is to make a profit and be the best in meeting consumer needs. Among these goals the company is required to always be productive in producing high quality products, quality and have sustanability (hayu kartika). Some of the factors that can affect the high or low work productivity of employees include occupational safety and health which are supported by an adequate work system. Utilization of quality human resources in the industrial sector is the key to success in achieving company goals (Javed et al., 2017). Thus, an employee who has a low potential risk of occupational accidents can run business process according to predetermined targets and can increase productivity (Nomura et al., 2023).

The business process of the furniture industry from upstream to downstream has risk of occupational accidents (Ersoz et al., 2018). Raw materials used such as woods, metals, plastics and other raw materials that have a risk of occupational accidents in the process of material handling, inventory process in warehouses and taking of raw materials to be processed (Namichev & Petrovski, 2019). Production processes using machines such as milling, construction, assembling and finishing have a high risk of occupational accidents which have an impact on injuries and even death (Kaden et al., 2015). Furniture products that have been distributed to customers also have a risk of occupational accidents. The risk of occupational accidents does not only occur in the production department but also in the office. From the various risks of work accidents that exist, the furniture industry must implement an occupational safety and health system for all employees such as using personal protective equipment at work, monitoring, regulations, as well as equipment and medicines that must be provided to minimize the risk of work accidents (Indrawati et al., 2018). This aims to be able to protect all employees so that they can minimize the chance of occupational accidents so that all employees can be productive in carrying out the company's business processes (Paz et al., 2023). Therefore, this study aims to determine the effect of occupational safety and health on employee productivity. This study uses two variables, namely occupational safety and occupational health. Both of these variables will look for a relationship spatially or simultaneously to employee productivity. Data obtained through filling out a questionnaire using a Likert scale. The data obtained was processed using multiple linear regression methods.

The influence of occupational safety on employee productivity

Occupational safety is an important factor in creating employee work productivity because occupational safety equipment has a direct influence on

employees in completing work which will ultimately increase employee work productivity. Several studies have proven that occupational safety and health influence employee productivity (Astutik & Dewa, 2019).

H1. The higher occupational safety, the higher employee work productivity.

The influence of occupational health on employee productivity

Occupational health is an important factor in creating employee work productivity because company occupational health regulations have a direct influence on employees in completing work which will ultimately increase employee work productivity. Several studies have proven that occupational health influences employee productivity (Astutik & Dewa, 2019; Hidayatullah & Tjahjawati, 2017; Sattar et al., 2021).

H2. The higher occupational health, the higher employee work productivity.

Method

The object of this research is the furniture industry. The sample used in this study were employees who are currently working in furniture company with total 50 employees. Research variables include independent variables, namely occupational safety and health, work environment, and the dependent variable work productivity. The sampling method used is saturated sampling, which means that all members of the population are sampled with a minimum data requirement of 30. The questionnaire is filled out using a Likert scale with a scale of 1-5 with a classification with details 1 : Strongly disagree; 2 : Disagree; 3 : Enough; 4 : Agree; 5 : Strongly Agree. The data were processed using the multiple linear regression method to obtain the results of which variables most influence employee productivity.

Result

The validity test is used to demonstrate the accuracy of the measuring instrument by comparing the r count value with the r table. Testing was carried out using the Statistical Package for Social Science (SPSS) software. The validity test calculates the correlation between the assessment scores on each variable. Data is said to be valid when rcount is greater than rtable. The validation test uses a significance level of α of 5% with a total of 50 samples. The validity test result in appendix 1 can be seen that the value of the product moment correlation coefficient or r-count for each item Productivity (Y), occupational Safety (X1) and occupational health (X2) have a value greater than the r-table value of 0.279. So from this it can be stated that the statement items on the research instrument or questionnaire can be said to be valid and suitable.

The consistency of measurement results is known through reliability tests. Measurement results are said to be reliable if Cronbach's Alpha is greater than 0.6 (Etruly & Putri, 2023). The reliability test result in appendix 2, it is found that the Cronbach's Alpha value is greater than 0.6 of each variable, so it can be concluded that the data obtained for the reliability dimension is reliable and can be applied for research.

Multiple linear regression analysis is to determine the condition of the dependent variable, namely the productivity variable, if the independent variables consisting of occupational safety and occupational health are in an increasing or decreasing state.

Table 1. Multiple Linier Regression Analysis Result

Model	B	Std. Error	Beta	T	Sig.
Constant	3.575	3.239		1.104	.275
X1	.189	.126	.186	1.504	.139
X2	.630	.139	.561	4.544	.000

Dependent Variable: Y	
R	.671
R Square	.450
Adjusted R Square	.427
F	19.250
Sig.	.000

Source: Data Analysis. 2023

Based on the results of the multiple linear regression equation (table 1), can be seen the constant has a positive value 3.575 meaning occupational safety and occupational health are zero then the Work Productivity value is 3.575. The occupational safety coefficient is positive value 0.189, this states that for every increase in the occupational safety program or the addition of 1 occupational safety program, the Work Productivity value will also increase by 0.351. The occupational health coefficient is positivie 0.630, this states that for every increase or addition of 1 occupational health program, the Work Productivity value will decrease by 0.630

So it can be concluded that a strong positive correlation is expressed in the same direction, with the results of the correlation calculation being close to or equal to +1, this means that if value of variable X increases, variable Y also increases, if variable X decreases then variable Y also decreases.

Analysis of the coefficient of determination (Adjusted R Square) is to determine the contribution of the Occupational Safety (X1) and Occupational Health (X2) variables to the Occupational Productivity variable (Y). The Adjusted R Square value is 0.427 or 42.7%, stating that the Occupational Safety (X1) and Occupational Health (X2) variables are able to influence the Work Productivity (Y) variable by 42.7% while

57.3% is influenced by other factors, outside research such as compensation, motivation, leadership, communication and others. This is because the independent variable in explaining the variation in the dependent variable is very limited. The result of the correlation coefficient or R value is 0.671, meaning that the independent variable and the dependent variable have a moderate correlation or level of relationship. The correlation coefficient interval is in the range of 0.40-0.599, which means the level of relationship between the two independent variables and the dependent variable is moderate.

The results of the F test (Table 1) are shown to determine whether the independent variables consisting of occupational safety (X1) and occupational health (X2) simultaneously influence the dependent variable which is work productivity (Y). The results of the F test are at a significance level of 5% (0.05) with a total of 50 respondents, it can be seen that the Pvalue of 0,00 is smaller than 0.05, meaning that the independent variable consists of the variables Occupational Safety (X1) and Occupational Health (X2) simultaneously has a significant effect on the dependent variable consisting of the Work Productivity (Y) variable for employees.

The results of partial regression coefficient testing (t test) are aimed to find out whether the independent variables consisting of occupational Safety (X1) and occupational Health (X2) partially influence the dependent variable consisting of Work Productivity (Y). Based on the table 1, it can be seen that the occupational Safety variable (X1) at a significance level of 5% (0.05) with a total of 50 respondents. P value of 0.139 is greater than 0.05, so the H1 is rejected. This means that occupational Safety (X1) partially does not have a significant effect on Work Productivity (Y). Meanwhile, the Occupational Health variable (X2) has P value of 0.000 is smaller than 0.005, so the H2 is accepted. This means that occupational Health (X2) partially has an insignificant effect on Work Productivity.

Discussion

Based on the results of the F test in table 1, Fcount has a value greater than the Ftable value, so the hypothesis is accepted, meaning that the Occupational Safety variable and Occupational Health variable simultaneously have a significant effect on Work Productivity. The results of the F test are supported by previous research from Syafi'i (2008) that the Occupational Safety variable and Occupational Health variable simultaneously have a significant effect on Work Productivity.

The Occupational Safety variable based on the t-test results, the hypothesis is rejected, meaning that the Occupational Safety variable partially does not have a significant effect on Work Productivity. The results of the t test are supported by previous research from Syafi'i (2008) and Sattar et al. (2021) states that the work safety variable partially does not have significant effect on employee work productivity. The Occupational Health variable based on the t-test results, the

hypothesis is accepted, this means that the Occupational Health variable partially has a significant effect on Work Productivity. The results of the t test in this research are supported by Astutik and Dewa (2019); Sattar et al. (2021) and Hidayatullah & Tjahjawati (2017) that occupational health influences employee productivity.

Researchers compare the values between the occupational Safety variable and the occupational Health variable based on the Beta value produced in the Standardized Coefficients table. The Beta value for the occupational safety variable is 0.189, while the Beta value for the occupational health variable is 0.630. The occupational health variable has a greater Beta value than the Beta value of the occupational safety variable. This means that the occupational health variable of 63% is able to influence work productivity, while the occupational health variable of 18.9% is able to influence productivity so that the occupational health variable is the variable that has the dominant influence on work productivity.

Conclusion

Based on the results of data analysis and discussion, it can be concluded that the Occupational Safety variable partially does not have a significant effect on Work Productivity and Occupational Health variable partially has a significant effect on Work Productivity. Simultaneously the independent variables have a significant relationship with work productivity. For future research, other variables that influence productivity can be added, such as leadership style, work discipline, and work motivation to expand the research area, so that it can produce new thoughts or studies so that we can find out other variables that influence productivity.

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Appendix 1. Validity Test Result

Variable	Item	r-count	r-table	Result
Productivity (Y)	Y1	0.715	0.279	Valid
	Y2	0.794	0.279	Valid
	Y3	0.793	0.279	Valid
	Y4	0.599	0.279	Valid
	Y5	0.758	0.279	Valid
Occupational safety (X1)	X1.1	0.564	0.279	Valid
	X1.2	0.472	0.279	Valid
	X1.3	0.430	0.279	Valid
	X1.4	0.495	0.279	Valid
	X1.5	0.624	0.279	Valid
	X1.6	0.397	0.279	Valid
Occupational health (X2)	X2.1	0.555	0.279	Valid
	X2.2	0.755	0.279	Valid
	X2.3	0.485	0.279	Valid
	X2.4	0.564	0.279	Valid
	X2.5	0.776	0.279	Valid

Source: Data Analysis. 2023

Appendix 2. Reability Test Result

Variable	Cronbach's Alpha	N of Items	Result
X1	0.694	6	Reliable
X2	0.781	5	Reliable
Y	0.911	5	Reliable

Source: Data Analysis. 2023