The Influence of The Physical Work Environment on Worker Productivity in Krupuk SMEs in Sidoarjo

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Abstract
This study aims to examine the influence of the physical work environment of cracker factory workers in Sidoarjo and to find out which factors have the most influence among the factors of temperature, noise and lighting and the coloring of the work environment that are suitable for the work productivity of cracker factory workers in Sidoarjo. This research was conducted to improve the performance of Krupuk UKM workers in Gading Village, Krembung-Sidoarjo District by paying attention to a good physical work environment. The work environment is everything that exists around workers who can influence them in carrying out the tasks given. Working conditions where a good workplace includes a physical environment that can provide a sense of security, peace, and fun. The physical work environment is a work environment which includes several aspects that must be considered, these aspects include: a comfortable work space, safe environmental conditions, constant room temperature, adequate lighting, and appropriate room paint colors, so that a productivity result is achieved optimal work. The data analysis used in the study used the SPSS program aid with the linear regression method. The results of the study are the significance value of the correlation between productivity as measured through the completion time of the milling section and noise (dB) which has a significant correlation value of 0.364; productivity with lighting (lux) has a significant correlation value of 0.141 and productivity with temperature (OC) has a significant correlation value of 0.168. This proves that productivity has a strong relationship with noise (dB) with a significant correlation value of 0.364. The solution implemented to maintain work productivity related to noise is to provide personal protective equipment (PPE) to cover the ears, namely ear plugs or ear muffs.

***Keywords*:** *Physical Work Environment, Workplace color/paint, Productivity, Time Measurement,*

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SPSS, Linear Regression, Significance Correlation, PPE.

Abstrak

Penelitian ini bertujuan untuk mengkaji pengaruh lingkungan kerja fisik pekerja pabrik kerupuk di Sidoarjo dan untuk mencari faktor mana yang paling berpengaruh diantara factor temperatur, kebisingan, dan pencahayaan dan pewarnaan lingkungan kerja yang sesuai terhadap produktivitas kerja pekerja pabrik kerupuk di Sidoarjo. Penelitian ini dilakukan untuk meningkatkan kinerja pekerja UKM Krupuk di Desa Gading, Kecamatan Krembung-Sidoarjo dengan memperhatikan lingkungan kerja baik secara fisik. Lingkungan kerja merupakan segala sesuatu yang ada disekitar para pekerja yang dapat mempengaruhi dirinya dalam menjalankan tugas – tugas yang diberikan. Kondisi kerja dimana tempat kerja yang baik meliputi lingkungan fisik yang dapat memberikan rasa aman, tentram, dan menyenangkan. Lingkungan kerja fisik adalah lingkungan kerja yang meliputi beberapa aspek yang harus diperhatikan, aspek tersebut meliputi: ruang kerja yang nyaman, kondisi lingkungan yang aman, suhu ruangan yang tetap, terdapat pencahayaan yang memadai,dan warna cat ruangan yang sesuai, sehingga dicapai suatu hasil produktivitas kerja yang optimal. Analisa data yang digunakan pada penelitian menggunakan bantuan alat bantu program SPSS dengan metode regresi linier. Hasil dari penelitian adalah nilai signifikansi korelasi antara produktivitas yang diukur melalui waktu penyelesaian bagian penggilingan dengan kebisingan (dB) memiliki nilai korelasi signifiknasi sebesar 0,364; produktivitas dengan pencahayaan (lux) memiliki nilai korelasi signifikansi sebesar 0,141 dan produktivitas dengan suhu (°C) memiliki nilai korelasi signifikansi sebesar 0,168. Hal ini membuktikan bahwa produktivitas memiliki pengaruh hubungan yang kuat dengan kebisingan (dB) dengan nilai korelasi signifikansi sebesar 0,364. Adapun solusi yang diterapkan untuk menjaga produktivitas kerja yang berhubungan dengan kebisingan adalah dengan memberikan alat pelindung diri (APD) untuk menutup telinga, yaitu ear plug atau ear muff.

Kata Kunci: *Lingkungan Kerja Fisik, Warna/ cat tempat kerja, Produktivitas, Pengukuran Waktu, SPSS, Regresi linier, Korelasi Signifikansi, APD.*

1. Introduction

Competition in the increasingly fierce business world requires companies to increase efficiency and productivity. Based on the increasingly high demands that the company wants, it forces all factors within the organization to work optimally, including the resource factor.

Humans are the most valuable asset owned by an organization or company in achieving its goals, so companies should pay attention to the human factor in the company so that employees can work with good performance. Companies are required to be able to create a good work environment, by paying attention to the physical and non-physical work environment Sandhria, 2016). The physical work environment in question can be in the form of good lighting, a clean office, not disturbed by noise, or comfortable and cool air circulation for employees (Norianggono et. al., 2017). The non-physical work environment can be in the form of good communication with superiors, subordinates and fellow co-workers. This comfortable and conducive work environment will affect employees in carrying out their duties (Febrianti, 2022).

At the workplace, there are several factors that affect the work environment such as: noise, temperature, lighting, vibration, odors, radiation, toxic hazardous materials, and ventilation. All of these factors can cause disruption to the work atmosphere and affect occupational health and safety. A comfortable work environment is needed by workers to be able to work optimally and productively (Suhadri, 2015).

At present there are still many companies that have not paid attention to the physical and non-physical work environment in their work atmosphere. There are even companies that have not paid attention to the elements of lighting, temperature and noise in their workplaces. This is compounded by the company's lack of attention to the implementation and availability of K3 tools (Tarwaka et. al., 2004)

Previous research has proven that the physical and non-physical work environment has a positive influence on job satisfaction which will impact worker productivity (Muhraweni and Rasyid, 2017). Besides that, the company's attention in the form of improvements to the physical and non-physical work environment is still 34.6% (Sandhria, 2016).

Based on studies that have been conducted by previous researchers regarding the effect of the physical work environment on productivity, it has not been discussed specifically about the factors that have the most dominant influence on the completion time of the milling section. In this study, we will look for the variable that has the most dominant influence and the color/paint of the work environment that is suitable for the work environment of the cracker factory, so that it is hoped that productivity will increase.

2. Method

2.1 Location and Time of Research

The location of the research was carried out at Krupuk UKM, Gading Village, Krembung, Sidoarjo District. This research was conducted from January to June 2023.

2.2 Observation

In this direct observation or observation activity is carried out by going directly to the field, namely Krupuk UKM Gading Village which focuses on the milling operator part to observe productivity during the completion of cracker milling.

2.3 Interview

The interview is a method or technique that aims to collect data on operator complaints at work aimed at milling operators at Krupuk UKM, Gading Village for complaints related to infrastructure/physical work environment on milling completion time.

2.4 Literature Review

Apart from direct data, this study also cites literature or sources, such as: books, articles and previous studies related to the physical work environment. With a number of literature reviews, an understanding of the physical work environment can be generated, which includes noise (dB), lighting (lux) and temperature (^oC) as well as productivity as measured by the completion time of milling work at Krupuk UKM.

2.5 Data Processing

Data processing in this study included the variable values of noise, lighting and temperature on the completion time of milling work using the SPSS computer program. The method used is linear regression.

2.6 Discussion Analysis

At the analysis stage the discussion will explain the results of calculations in data processing

2.7 Research Flowchart

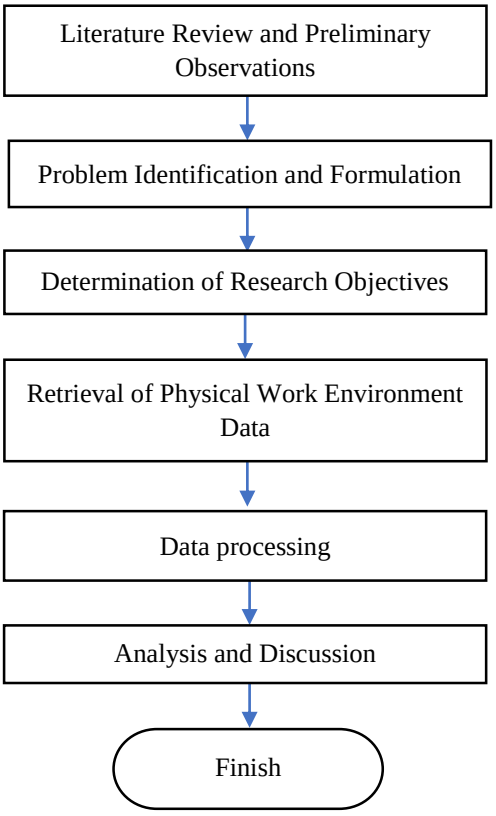

Figure 1. Research Flowchart

3. Result and Discussion

The results of this study can be seen in picture 2, the significant value of the correlation between productivity as measured by the completion time of the milling section and noise (dB) which has a significant correlation value of 0.364; productivity with lighting (lux) has a significant correlation value of 0.141 and productivity with temperature (OC) has a significant correlation value of 0.168. This proves that productivity has a strong relationship with noise (dB) with a significant correlation value of 0.364.

Tabel 1. Correlations Result

Correlations

		Produktivitas	dB	Lux	Suhu
Pearson Correlation	Produktivitas	1.000	-.091	-.276	-.248
	dB	-.091	1.000	-.070	.181
	Lux	-.276	-.070	1.000	-.169
	Suhu	-.248	.181	-.169	1.000
Sig. (1-tailed)	Produktivitas	.	.364	.141	.168
	dB	.364	.	.394	.244
	Lux	.141	.394	.	.258
	Suhu	.168	.244	.258	.
N	Produktivitas	17	17	17	17
	dB	17	17	17	17
	Lux	17	17	17	17
	Suhu	17	17	17	17

4. Conclusion

The results of the study are the significance value of the correlation between productivity as measured through the completion time of the milling section and noise (dB) which has a significant correlation value of 0.364; productivity with lighting (lux) has a significant correlation value of 0.141 and productivity with temperature (OC) has a significant correlation value of 0.168. This proves that productivity has a strong relationship with noise (dB) with a significant correlation value of 0.364.

The solution implemented to maintain work productivity related to noise is to provide personal protective equipment (PPE) to cover the ears, namely ear plugs or ear muffs.

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