



JNK

JURNAL NERS DAN KEBIDANAN
(JOURNAL OF NERS AND MIDWIFERY)

<http://jnk.phb.ac.id/index.php/jnk>



Occupational Health and Safety Knowledge correlated with The Use of PPE among Home Industry Furniture Workers in the Production Process



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Article Information

History Article:

Received, 08/11/2023

Accepted, 10/12/2023

Published, 30/12/2023

Keywords:

knowledge of occupational health and safety, use of PPE and furniture workers

Abstract

Work accident is an unexpected event that can cause loss and damage to both physical, and property and cause death. One way to prevent work accidents is to increase understanding related to occupational health and safety so that workers have the behavior of using Personal Protective Equipment (PPE) in accordance with the need to protect themselves in order to avoid work accidents. The aim of this study was to determine the correlation between knowledge about occupational health and safety and the use of Personal Protective Equipment (PPE) for furniture home industry workers in the production process in Balongrejo Village, Berbek District, Nganjuk Regency. The design of the study used correlational with a cross-sectional approach with a total of 42 respondents which selected by the Proportional Random Sampling technique. The independent variable in this study was knowledge of occupational health and safety and the dependent variable was the use of personal protective equipment (PPE). The results of the Spearman rank test showed that there was a correlation between Occupational Health and Safety Knowledge and the use of PPE for Home Furniture Industry workers in the production process in Balongrejo Village, Berbek District, Nganjuk Regency with strong correlation strength. The knowledge of workers with the behavior of using PPE is directly proportional so that the better the knowledge possessed, the better the behavior reflected, therefore it is important for nurses as educators to provide education to workers regarding the use of personal protective equipment.

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DOI: <https://doi.org/10.26699/jnk.v10i3.ART.p368-373>

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P-ISSN : 2355-052X

E-ISSN : 2548-3811

INTRODUCTION

Work accidents are risk of work that must be faced. Work accidents are unexpected and unwanted events that can cause physical loss, property, and even death (Handari & olbi, 2021). Work accidents are one of the impacts most immediately felt by field workers, on the other hand there are also long-term impact that can cause health problems for workers such as exposure to radiation, pollution or another dangerous chemical around the workplace (Saragih, 2016). Based on global data in Asia, it is estimated that as many as 1.83 million people die each year due to work accident. In 2018, it was recorded that more than 1,8 million deaths due to work accidents occurred in the Asia and Pacific region (ILO, 2018). Meanwhile, in 2021 the Minister of Manpower of the Republic of Indonesia stated that the number of work accident in Indonesia increased by 5,65% from the previous year, namely 221.740 cases to 234.270 cases. The increase in the number of work accidents is proof that the number of work accidents in Indonesia is still high. Work safety is a means of preventing work accidents which can cause losses in the form of injury, disability or death, property loss and damage to Equipment or machines and the environment at large (Heny, 2018). One effort that can be made as a form of protection for workers to overcome the problem of work accidents is to improve work safety through the use of Personal Protective Equipment (PPE) when carrying out work activities in the workplace. Every day there are workers who experience work-related accidents or work-related illnesses due to a lack of knowledge in using personal protective equipment (PPE). The use of Personal Protective Equipment (PPE) has many functions tailored to one's need. Personal Protective Equipment (PPE) is able to protect oneself from exposure to dangerous substances that can easily enter the body, such as dust, splashes of dangerous substances, or dangerous substances that can enter through the nose. The furniture business is a business that runs using wood as raw material as manufacturing capital, which includes the process of cutting, sawing, smoothing and forming wood into furniture, which can cause a high risk of workers falling on the wood, getting their hands hit by drills, ash from the wood can cause problems, breathing and injuring the eyes, causing irritation (Afredo & Tarigan, 2021).

The result of the identification in Balongrejo Village, Berbek District, Nganjuk Regency, show that in the production sector, injuries experienced by workers were hands cut by chainsaws, hands hit by

a pasha machine, hands hit by a planning machine for carving wood, hands hit by a grinding machine, feet hit by wood, feet or hands were caught in wood and pieces of wood flew toward his eyes. Apart from that, workers also experience coughing, sneezing, mild shortness of breath, and some even experience pneumonia so that workers need adequate rest so that workers do not work again if they have not recovered, hearing problems, back pain, tingling in the leg and muscle pain. From the results of previous research by (Hutama, 2019) it was concluded that coughing, sneezing, mild shortness of breath and asthma had the highest level of risk and those with the lowest risk were tingling. Preliminary study using interview techniques involving 10 people, one of whom had experienced a work accident and preliminary interviews (in 5 home Industries, namely UD Karya Jati, UD Wahyu Agung, UD Sekar Jati, UD Dia Mebel, UD Ateja in Balongrejo Village, there were 7 people who not using masks, and 3 people not using Welding Helmets). Workers consider that the work they do does not pose a dangerous risk to their personal safety, so workers are always negligent and ignore their work safety measures. Therefore, furniture industry workers' knowledge about the importance of using PPE is very important for furniture industry workers so that it can help minimize problems, both occupational diseases and work accidents. Therefore, workers' knowledge about the importance of using PPE is very important for home industry workers.

METHODS

This study used a correlational design with a cross sectional approach which emphasizes one-time measurements within a period of 1 month starting from 19 august to 19 september 2021 with a research population of 65 people who are furniture workers in the production process in Balongrejo Village, Berbek District, Nganjuk Regency. The sampling technique used Proportional Random Sampling. Through the results of sample calculations, the total sample of research respondents was 42 people. The variable used in this research is an independent variable that explains work health and safety knowledge which is defined as knowledge about one way to protect employees from the dangers of work accidents and work related diseases during work with indicators of memorizing, understanding and applying. The data scale used in the independent variable is ordinal which is measured using a questionnaire. Meanwhile the dependent variable used in this research is the use of Personal Protective

Equipment (PPE) which is defined as tools or Equipment used to protect and maintain the safety of workers when carrying out work that has potential danger or risk of work accidents with indicators of eye and face protection, head protection, head protections, hand protectors, ear protectors, respiratory protectors, foot protectors and protective

clothing. The data scale used for the dependent variable is nominal which is measured through a questionnaire. This research uses the Spearman's rank test for data analysis which can describe the relationship between variables by using the value $\alpha = 0,05$. Hypothesis testing guidelines if the p value $\leq \alpha = 0,05$ then there is a correlation between variables.

RESULT

1. Respondents' Knowledge About Occupational Health and Safety for Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency.

Table 1: Distribusi Frequency Distribution of Respondents Knowledge About Occupational Health and Safety for Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency on 19 August-19 September 2021

Knowledge of Occupational Health and Safety	Frequency (f)	Percentage (%)
Good	3	7,1
Enough	11	26,2
Not Enough	28	66,7
Total	42	100

Based on table 1, it is known that of the 42 respondents, the majority, namely 28 respondents (66,7%) had occupational health and safety knowledge in the poor category.

2. Use of Personal Protective Equipment (PPE) among Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency

Table 2: Frequency Distribution of Use of Personal Protective Equipment among Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency on 19 August - 19 September 2021

Use of Personal Protective Equipment	Frequency (f)	Percentage (%)
Good	0	0
Enough	10	23,8
Not Enough	32	76,2
Total	42	100

Based on table 2, it is known that of the 42 respondents, the majority, namely 32 respondents (76,2%) had the behavior of using Personal Protective Equipment (PPE) in the deficient category.

3. Correlation between Occupational Health and Safety Knowledge and the Use of Personal Protective Equipment (PPE) among Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency.

Table 3: Cross Tabulation of the Correlation between Occupational Health and Safety Knowledge and the Use of Personal Protective Equipment among Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency on 19 August - 19 September 2021

Knowledge of Occupational Health and Safety	Use of Personal Protective Equipment						Total	
	Good		Enough		Not Enough		Σ	%
	f	%	F	%	f	%		
Good	0	0	2	66,7	1	33,3	3	100
Enough	0	0	8	72,7	3	27,3	11	100
Not Enough	0	0	0	0	28	100	28	100
Total	0	0	10	23,0	32	76,2	42	100

Spearman's rank test result ρ value = $0,0001 \leq \alpha = 0,05$

Correlation Coefficient 0,774

Based on table 3, it is known that the results of the correlation test using Spearman's rank obtained p value = $0,0001 \leq \alpha = 0,05$ with a correlation coefficient of 0,774 which means there is a correlation between occupational

health and safety knowledge and the use of Personal Protective Equipment (PPE) among home industry furniture workers in Balongrejo District, Berbek District, Nganjuk Regency with very strong relationship strength.

DISCUSSION

Respondents' Knowledge About Occupational Health and Safety for Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency

Based on table 1, it is known that 28 respondents (66,7%) out of a total of 42 respondents had insufficient knowledge related to work health and safety. Respondents' lack of knowledge regarding occupational health and safety is influenced by many factors supporting knowledge. Knowledge itself is defined as the result of knowledge and occurs after someone senses a particular object (Notoatmodjo, 2010). Sensing occurs through the five human senses, namely sight, hearing, smell, taste and touch (Fitriani, 2011). Most human knowledge is obtained through the senses of sight and hearing, namely the eyes and ears. Knowledge has six levels, namely knowing, understanding, application, analysis, synthesis and evaluation (Induniasih & Ratna, 2017). If someone gets information related to something, they will understand and apply it so that good behavior or habits are formed in accordance with theory (Notoatmodjo, 2010).

Knowledge is also formed by many factors such as experiences that provide teaching to oneself, the surrounding environment, information obtained, and education that has been taken. In this study, the lack of knowledge of respondents in understanding occupational health and safety, the lack of information they received resulted in their level of knowledge being less. Apart from that, the environment where respondents work can also be a factor that cause a lack of knowledge regarding occupational health and safety.

In this research there are other factors that contribute to the formation of good knowledge, in line with the opinion expressed by Induniasih dan Ratna (2017) that knowledge can be influenced by many factors such as age, education level, experience, economic level and exposure to information. Based on research conducted on furniture works in the home industry in the production process in Balongrejo Village, Berbek District, Nganjuk Regency, the majority of respondents had insufficient knowledge regarding occupational health and safety. Researchers believe that this is because respondents do not know the definition of occupational health and asafety, the function of using personal protective equipment

(PPE) to prevent exposure to pollutants that can cause disease in respondents, risk that may arise when working without paying attention to occupational health and safety. This lack of knowledge results in the absence of habits or behavior that are instilled to pay attention to occupational health and safety in workers.

Use of Personal Protective Equipment (PPE) among Home Industry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency

Based on table 2, it is known that 32 people (76,2%) of the 42 respondents had the behavior of using Personal Protective Equipment (PPE) in the deficient category. The use of Personal Protective Equipment (PPE) is a behavior that is carried out because someone has applied the information or knowledge obtained so that is becomes a habit that can be carried out. The use of Personal Protective Equipment (PPE) among home industry workers in this study was at a low level. This is caused by many factors, one of which is knowledge regarding the use of Personal Protective Equipment (PPE), occupational health and safety function, risks that may arise from not using Personal Protective Equipment (PPE).

Personal Protective Equipment (PPE) helps workers protect themselves against health threats while working. The use of personal protective equipment (PPE) must be done wisely according to the potential danger that exist, in order to ensure the effectiveness of the personal protective equipment (PPE) that will be used by workers (Amellia, Setiadi, & Arifin, 2019). The application protective equipment (PPE) is a concrete manifestation of a person's understanding regarding self-awareness to maintain their health. For furniture workers, there are many potential work accidents that may arise during the production process, such as wood chips which injure the hands or skin, wood powder or dust which enters the eyes causing irritation, or powder and dust which enters the respiratory cavity causing disrupts the respiratory organs (Mongkau, Rattu, & Suoth, 2020).

There are many factors that encourage someone to apply the use of personal protective equipment (PPE) apart from knowledge, namely the existence of internal and external factors within oneself which act as major stimuli related to the

action of using personal protective equipment (PPE), such as the availability of personal protective equipment (PPE), supervision from special staff or leaders, the role of colleagues in using personal protective equipment (PPE) in the form of invitations, sanctions or giving gifts until it eventually becomes a habit.

The Correlation between Occupational Health and Safety Knowledge and the use of Personal Protective Equipment (PPE) among Home Insutry Furniture Workers in Balongrejo Village, Berbek District, Nganjuk Regency

Based on the results of research that has been carried out as written in table 3, it can be seen that after carrying out a correlation test using Spearman's rank the p value = $0,0001 \leq \alpha = 0,05$ with a correlation coefficient of 0,774 which means there is a correlation between health knowledge and work safety by using personal protective equipment (PPE) with a very strong correlation with home industry furniture workers in the production process in Balongrejo Village, Berbek District, Nganjuk Regency. Most respondents have insufficient knowledge regarding occupational health and safety, which is balanced by their behavior in using personal protective equipment which is also lacking.

Knowledge is the result of knowledge and occurs after someone senses a particular object (Notoatmodjo, 2010). Sensing occurs through the five human senses, namely sight, hearing, smell, taste and touch (Fitriani, 2011). Most human knowledge is obtained through the senses of sight and hearing, namely the eyes and ears. Meanwhile, the use of personal protective equipment (PPE) is a concrete form of a person applying the knowledge or information that has been obtained. The correlation between knowledge of occupational health and safety and the use of personal protective equipment (PPE) is very closely related, this is based on the fact that knowledge has six levels, namely knowing, understanding, application, analysis, synthesis and evaluation (Induniasih & Ratna, 2017). The use of personal protective equipment (PPE) is a manifestation of the third level of a person's understanding of knowledge.

Based on the results of research that has been carried out, there are 2 respondents (66,7%) who have a good level of knowledge but the use of personal protective equipment (PPE) is still at an adequate level, this shows that workers with a good level of knowledge still have good practices. This is not good, which may be because they do not have a

good attitude towards the use of personal protective equipment (PPE), supported by personal experience of not using personal protective equipment (PPE) but not experiencing health problems. A total of 28 respondents with a low level of knowledge and use of personal protective equipment (PPE) in the deficient category, this is in line with research conducted by (Amellia et al., 2019) which stated that as many 23 respondents (95,8%) in their research had knowledge in the poor category and did not use personal protective equipment (PPE), where the respondents thought that the use of personal protective equipment (PPE) did not increase work safety but increased the risk of work accidents and using or not using it could be a work accident. This assumption may arise because respondents lack knowledge regarding the importance of preventing diseases that arise due to exposure to pollution or substances that can enter the body and cause disease.

It can be concluded that the higher a person's level of knowledge regarding occupational health and safety allows a person to comply with the use of personal protective equipment (PPE), although in practice and theory it is still influenced by many factors. The lower a person's level of knowledge regarding occupational health and safety, the lower the compliance in using personal protective equipment (PPE) due to a lack of understanding regarding the importance of maintaining personal health while working.

CONCLUSION

The knowledge of respondents who were furniture workers in the production process section of the Home Furniture Industry in Balongrejo District, Nganjuk Regency, on 19 August-19 September 2021, mostly had insufficient knowledge, 28 respondents (66,7%). A total of 32 respondents (76,2%) were respondents who used personal protective equipment (PPE) in the deficient category in the Home Furniture Industry in Balongrejo Village, Berbek District, Nganjuk Regency. Based on the results of the between variables using the spearman rank test, the result show that there is a correlation between Occupational Health and Safety Knowledge and the use of PPe among Workers in the Home Furniture Industry in The Production Process in Balongrejo Village, Berbek District, Nganjuk Regency, proven by the correlation test using the spearman rank with p value = $0,0001 \leq \alpha = 0,05$ and a correlation coefficient of 0,774 which means the strength of the correlation is very strong.

SUGGESTION

It is hoped that this study can provide input or information, especially regarding public knowledge about the importance of occupational health and safety and the behavior of using Personal Protective Equipment (PPE) as a form of preventing accidents due to work in terms of education. It is hoped that educational institutions, especially STIKes Satria Bhakti Nganjuk, will be able to provide information and health education to furniture workers regarding the importance of using Personal Protective Equipment (PPE). It is also hoped that furniture workers will increase their knowledge and understanding so that they can improve the habit of using good Personal Protective Equipment (PPE) when working.

ACKNOWLEDGEMENT

This study was able to run well due to collaboration between the research site, respondents who were active in the data collection process and the research team.

FUNDING

This study was funded independently by the team.

CONFLICTS OF INTEREST

The authors declared there is no conflict of interest in publishing this article.

AUTHOR CONTRIBUTIONS

All authors actively contributed to the proposal preparation process collecting research data, processing and preparing reports and manuscripts.

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