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Analysis of the Impact of Worker Age on Behavioral Differences Occupational Safety and Health in Construction Ploso Jombang Bridge

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Abstract
The construction of the Ploso Bridge intends to connect access traffic road between Jombang on the north side and Jombang on the south side. The construction of the Ploso Jombang Bridge project, as in the construction of the bridges in general which give rise to various unintended consequences desire, among others, regarding aspects of occupational health and safety, occupational diseases and occupational diseases. This research has the aim of find out how much influence the age of workers has on behavior differences in health and work safety in the construction of the Ploso Bridge Jombang who has practiced the K3 system. The aims of this research are, 1) To recognize the impact of worker age on safety behaviour. 2) Use recognize the link between work experience and safety behaviour. 3) To identify the education level of workers with safety behavior. Collecting data in this research using questionnaires to the participants workers which include craftsmen and coolies, as many as 50 samples. based on because often work accidents in the field occur to craftsmen and coolies spearheading a construction project due to a work accident, with. After the results of the questionnaire have been filled in all then inputted into excel by making noun data. After that, the results can be compared workers for ages 17-30 years with workers 30-55 years old to measure there is a difference in safety behavior or not, by using tests predetermined test, In this analysis of the impact of worker age using Validity Test technique, Reality Test, Normality Test, Crosstab Test, F and Z . TEST

Keywords:
Age, Occupational Health and Safety, Ploso Bridge

1. Background
In the construction of the Ploso Bridge, it is intended to connect access road traffic between Jombang north side and Jombang south side. The existence of a bridge over the Brantas river which has sufficient function vital in overcoming congestion due to sufficient vehicle volume tall. The location of the new Ploso construction activity is about ±300m from the old ploso bridge and on the approach road on the north side (direction of Babatdan direction Gedek) with a length of ± 200m in the village of Rejoagung, Ploso sub-district, and on the south side (direction Jombang) with a length of ±258m in the village of Bedah Lawak, Tembelang district. Construction of the new Ploso bridge in addition to bringing changes to changes in the physical environment will also affect social conditions, vibration, noise and generation traffic.

In the construction of the Ploso Jombang Bridge project, as in the construction of bridges in general which gives rise to various consequences which is not desirable, among others, concerning aspects of health and occupational safety, occupational diseases and the effects of the work area. This research has the aim of knowing the effect of the age of workers on behavior behavior differences in occupational health and safety in bridge construction Ploso Jombang who has practiced the K3 system.

The effect of age on the occurrence of accidents is still being studied especially in terms of worker behavior, due to increasing age on workers, the behavior at work is getting better because they have sufficient work experience and more alert to work accidents.However, young workers are more concerned with first completion of work than safety, as a result safety is never pay attention at all, not only that, many workers have young people still don't really know how the machine works and safety (Helda, 2007).

Therefore, it is necessary to do research related to attitude work safety on age-based construction projects. In determination of the location of the project researchers sort out the Bridge Construction project Ploso which is located in Jombang because the project has implemented a system K3 management (Occupational Safety and Health).

The aims of this research are 1) To identify the impact of working age with safety behavior. 2) In order to recognize the relationship between work experience with safety behavior 3) To recognize education level of workers with safety behavior.

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2. Literature Review

Work safety is a means to avoid work accidents, Meanwhile, disability and death are the result of work accidents according to Suma'mur (2009). while for Bambang (2002) Work safety is something related to equipment work or material and the method of processing it, the place of work and area.

For Mangkunegara (2009: 160) occupational safety and health is a situation that is guaranteed or protected from burden, destruction or loss at work. Work safety risks are angles from work areas that can cause fires, electric current concerns decapitation, injuries, contusions to the body, sprains, fractures, loss of organs, vision and deafness.

K3 Benefits for Workers or employees In the company's internal area, workers can understand the threats and risks of their profession, avoid the formation of work accidents, play a role in a precarious atmosphere, and perform their rights and obligations related to K3 regulations.

Benefits of K3 for companies or industry for industry, application of K3 always want maximum productivity in various circumstances. Financially, K3 helps reduce expenses, especially for the budget health and worker insurance. The problem of workplace accidents is increasingly becoming a concern in many industries in Indonesia, especially in the construction sector. A work disaster is a an event that cannot be predicted and can be predicted worried about the process of work activities that have been arranged and there are some Aspects that can cause disaster in a construction work are: aspects of humans, the environment and equipment (Santoso, 2004).

There are two causes of work accidents in construction projects, namely: triggers in a direct way and triggers in an indirect way. Trigger direct work accident, one of which is uncomfortable behavior (unsafe acts) and unsafe conditions. According to Anton and Thomas (1989) in Subing that unsafe acts are something activities attempted by individuals that can cause themselves or other people are harmed, on the contrary, the uncomfortable situation is a where is the condition of the work area that can cause accidents to employees worker.

For Notoatmodjo (2007) explains that behavior is one of the cultural perspective and culture has a valuable impact on behavior. Human behavior is a condition of a balance between the driving forces and holding strength. Kwick and Notoatmojo reported that Behavior is an action or behavior of a living thing that can be reviewed let alone can also be studied.

Based on the Regulation of the Minister of Manpower Number PER. 05/ MEN/ 1996 1996, the OHS Management System is part of a system management covering the structure of the institution, the way in which the project is implemented, implementation procedures and the work and resources used to development of a project and predetermined targets and efforts to make always maintain the OHS policy in controlling risks to workers.

3. Methodology

This research was carried out at the Ploso Baru Bridge construction project which located in Jombang, East Java. Due to the project has been running K3 construction management system (work health and safety).

In this study, data collection was carried out using survey techniques or questionnaire distribution (questionnaire). Questionnaire is a data collection technique which is done by giving some written questions to the respondents to be answered and the method used is a closed questionnaire (Sugiyono, 2014)

The number of samples used in the research is 50, which is addressed to porters or craftsmen who are in the bridge construction project The Ploso Jombang project. the following percentage obtained:

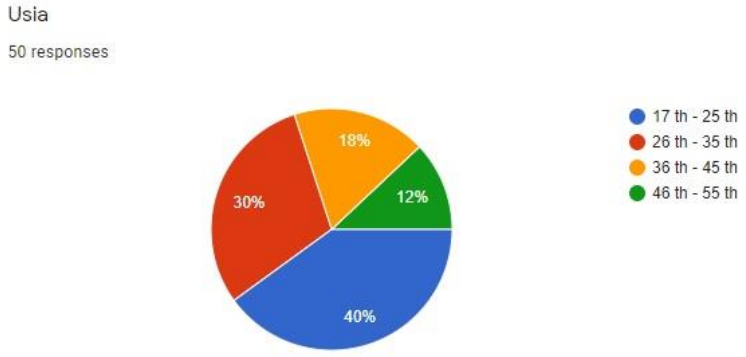

Figure 1. The Ploso Jombang project

The dominating workers in filling out this questionnaire are 17 years old - 25 yrs

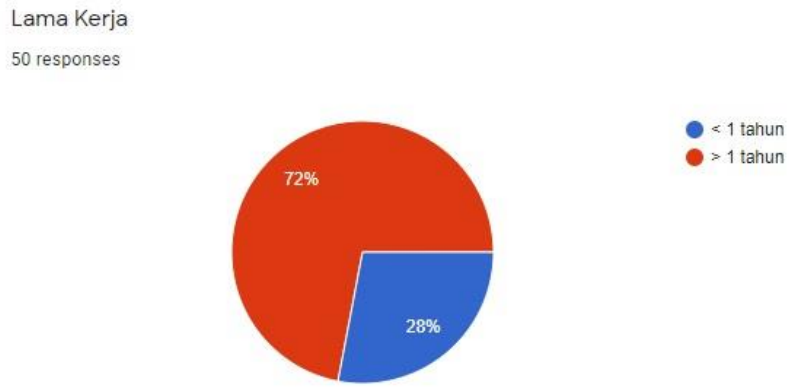

Figure 2. The dominating workers in filling

And most of the workers who are in the Project building project this ploso jombang bridge has more than 1 year of experience.

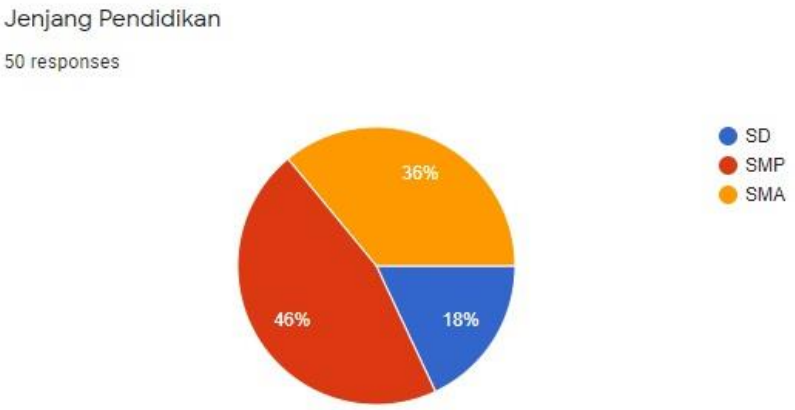

Figure 3. workers who are in the Project

As for the level of education, most of them are graduates or diplomas the last is junior high school.

After all the questionnaires are filled in, then they are inputted in excel with using noun data, which is between 1-5, then it is just inputted into SPSS and tested with validity test. So that you can check the questions asked valid or not. After the validity test, check gain with the reliability test to determine the consistency of the questionnaire.

The following standards for taking provisions in this validity test are: 1. if the value of r count > r table at 5% significance so that the data is valid. 2. If the value of r count < r table at 5% significance so that the data is not valid. The correlation value in the r table can be seen in the Corrected Item Total Correlation, the value of r table can be determined according to an equation such as: r table = sum respondents (n) – 2 = 50 – 2 = 48. And the value of r table with a level of significance of 5% then obtained = 0.2787

Table 1. Validity test result

No	Variable	r Count	R Table 5%	Information
	Use of PPE			
1.	X1.1	0.955	0.2787	VALID
2.	X1.2	0.959		
3.	X1.3	0.950		
4.	X1.4	0.910		
5.	X1.5	0.916		
	Regulations and Procedures			
6.	K3	0.748	0.2787	VALID
7.	X2.1	0.777		
8.	X2.2	0.782		
9.	X2.3	0.664		
10.	X2.4	0.602		
11.	X2.5	0.506		
12.	X2.6	0.508		
	X2.7			
	Working Environmnt			
13	X3.1	0.569	0.2787	VALID
14.	X3.2	0.672		
15.	X3.3	0.800		
16.	X3.4	0.835		
17.	X3.5	0.724		
18.	X3.6	0.690		
19.	X3.7	0.591		
	Regulatory Compliance			
20.	X4.1	0.725	0.2787	VALID
21.	X4.2	0.717		
22.	X4.3	0.555		
23.	X4.4	0.642		
24.	X4.5	0.498		
25.	X4.6	0.774		

Source : researcher analysis results, 2021

Measurement of reliability can be done by means of the Cronbach statistic test Alpha (α) with Cronbach alpha coefficient value > 0.60 then the variable can be said to be reliable

Table 2. Reliability test result

No	Variable	Cronabach Alpha Value	Information
1.	Use of Personal Protective Equipment	0.965 > 0.6	Reliability
2.	K3 Regulations and Procedures	0.762 > 0.6	Reliability
3.	Work Environment	0.819 > 0.6	Reliability
4.	Regulatory Compliance	0.711 > 0.6	Reliability

Source: results of the 2021 researcher analysis

Cross tabulation test or crosstab to analyze in tabular form which displays cross tabulation to identify and know. Is there a correlation or relationship between one variable and another variable? other. Where here will test about the level of education and work experience.

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Table 3. The relationship of education to safety behavior

No	Study	Safety Behavior		Total
		≤ 30 Years	≥ 30 Years	
1.	Elementary School	2.88	3.7	6.58
2.	Junior High School	2.5	3.41	5.91
3.	Senior High School	3.12	2.9	6.02

Source: results of the 2021 researcher analysis

Table 4. The relationship of work experience to safety behavior

No	Work Experience	Safety Behavior		Average Total
		≤ 30 Years	≥ 30 Years	
1.	< 1 Years	3	3.2	6.5
2.	> 1 Years	3	3.5	7.1

Source: results of the 2021 researcher analysis

Normality test is a test carried out with the aim of assessing the distribution of data in a group of variables whether the data is normally distributed or not.

Table 5. Normality test results

No	Variable	asymp value. Sig (2-tailed)	Information
1.	Use of Personal Protective Equipment	0.326 > 0.05	Normal
2.	K3 Regulations and Procedures	0.519 > 0.05	Normal
3.	Work Environment	0.105 > 0.05	Normal
4.	Regulatory Compliance	0.112 > 0.05	Normal

Source: results of the 2021 researcher analysis

The F statistical test is used to determine the magnitude of the difference between several variants, whether the variance is homogeneous or not. By formula as follows :

Fbf = $\frac{sy^2}{sx^2}$ Information: F bf = Homogeneity Test, Sx = Age under 30 years, Sy = Age above 30 years old

Table 6. Test Results F (Homogeneity)

No	Variable	Box's M	Sig	Information
1.	Occupational Safety Behavior	6.519	0.198 > 0.05	Homogen

Source: results of the 2021 researcher analysis

The Z test is used to determine the significance level of the mean difference the mean of the two groups of an analysis is significant or not. Z test it uses the following formula:

Ztest = $\frac{\bar{x}1-\bar{x}2}{S\,\bar{x}1-\bar{x}2}$ $\qquad S\bar{x}1-\bar{x}2 = \sqrt{\frac{s1}{n1}+\frac{s2}{n2}}$

This Z test is intended to find out if there are differences in worker behavior based on the age factor, the results of the influence can be seen from the result z count > z table or z count < z table. For table z values in get -1.6772 with a significance level of 0.05.

Table 7. Test Result Z

No	Variable	Z Count	Sig Value	Z Table	Information
1.	Occupational Safety Behavior	-5.127	0.05	-1.6772	Different

Source: results of the 2021 researcher analysis

4. Conclusion

a. After doing research, distributing questionnaires and analyzing the results, so the following conclusions can be drawn: There is a very, very important influence on safety behavior work based on age with a value of z count : - 5, 127 < z table : - 1, 6772.
b. There is a link between work experience and safety behavior with P value : i0, 000 < 0.05

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