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Factors Related to Ground Support Equipment (GSE) Damage (Case Study PT Gapura Angkasa Makassar)

Faktor-Faktor yang Berhubungan dengan Kerusakan Ground Support Equipment (GSE) (Studi Kasus PT Gapura Angkasa Makassar)

A. Ferina Herbourina Bonita[1*], Rendhar Putri Hilintang[2], Ummu Kamilah[3], Amilah Eka Putri[4]
[1,2,3,4]Department of Occupational Safety and Health, Faculty of Public Health, Tadulako University

***Corresponding Author: E-mail:** andibonita@untad.ac.id

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ABSTRAK

Faktor manusia atau perilaku kerja, karakteristik atau faktor lingkungan kerja, faktor peralatan dan material serta faktor metode kerja merupakan sumber penyebab risiko kecelakaan. PT Gapura Angkasa Bandar Udara Sultan Hasanuddin memiliki ratusan karyawan, pada Divisi GSE. Dilihat dari proses selama beroperasi, GSE tidak luput dari bahaya dan risiko. Hal ini mengindikasikan adanya penyebab kerusakan pada GSE agar kestabilan pekerja tetap berjalan dengan baik dan kelancaran pengoperasian pesawat udara dan penumpang. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang berhubungan dengan kerusakan Ground Support Equipment (GSE) di PT Gapura Angkasa Makassar. Metode penelitian ini merupakan penelitian observasional analitik dengan menggunakan rancangan penelitian cross sectional. Populasi dalam penelitian ini adalah seluruh jumlah pekerja teknik. Sampel dalam penelitian ini sebanyak 44 operator GSE yang ditentukan dengan menggunakan metode total sampling dimana seluruh anggota populasi dijadikan sampel dan data yang terkumpul dianalisis dengan menggunakan uji chi square. Hasil analisis dengan menggunakan uji chi kuadrat menunjukkan bahwa variabel pengetahuan tidak berhubungan dengan kerusakan GSE (p=0,143), sikap tidak berhubungan dengan kerusakan GSE (p=0,062), tindakan berhubungan dengan kerusakan GSE (p=0,039), tindakan tidak aman (unsafe action) tidak berhubungan dengan kerusakan GSE (p=0,277), dan kondisi tidak aman tidak berhubungan dengan kerusakan GSE (p=0,038). Dapat disimpulkan bahwa variabel sikap dan kondisi tidak aman memiliki hubungan dengan kerusakan GSE dan variabel pengetahuan, tindakan, dan tindakan tidak aman tidak memiliki hubungan dengan kerusakan GSE. Dapat disimpulkan bahwa variabel tindakan tidak aman merupakan variabel intervening pengaruh shift kerja, kelelahan kerja, terhadap kecelakaan kerja. Diharapkan peneliti selanjutnya dapat memperluas populasi dan jumlah sampel agar memperoleh hasil penelitian yang lebih baik.

ABSTRACT

Human factors or work behavior, characteristics or work environment factors, equipment and material factors and work method factors are sources that cause accident risk. PT Gapura Angkasa Sultan Hasanuddin Airport has hundreds of employees, in the GSE Division. Judging from the process during operation, GSE is not free from danger and risk. This indicates that there is a cause of damage to the GSE so that the stability of workers continues to run well and the smooth operation of aircraft and passengers. This research aims to determine factors related to damage to Ground Support Equipment (GSE) at PT Gapura Angkasa Makassar. This research method is an analytical observational study using a cross sectional research design. The population in this study is the total number of engineering workers.The sample in this study consisted of 44 GSE operators who were determined using the total sampling method where all members of the population were used as samples and the data collected was analyzed using the chi squared test. The results of the analysis using the chi squared test showed that the knowledge variable was not related to GSE damage (p=0.143), attitudes were not related to GSE damage (p=0.062), actions were related to GSE damage (p=0.039), unsafe action (unsafe action) not related to GSE damage (p=0.277), and unsafe conditions not related to GSE damage (p=0.038). It can be concluded that the attitude and unsafe condition variables have a relationship to GSE damage and the knowledge, action and unsafe action variables have no relationship to GSE damage. It can be concluded that the unsafe action variable is an intervening variable for the influence of work shifts, work fatigue, on work accidents. It is hoped that future researchers will expand the population and sample size to obtain better research results.

PRELIMINARY

A work accident (accident) is an undesirable incident or occurrence that causes harm to humans, harm to processes, or damage to property that occurs in an industrial work process. Work accidents occur as a result of a series of previous events or factors, where if one part of the event or factors is removed then the work accident does not occur. In general, the causes of work accidents are classified into two, namely unsafe actions and unsafe conditions [1]. Not all work accidents result in injury, some result in damage to materials, equipment and the environment. However, in this case work accidents that result in injury are of concern in order to reduce the death rate due to work accidents [3].

Human factors or work behavior, characteristics or work environment factors, equipment and material factors and work method factors are sources that cause accident risk [1]. Behavior is the reaction of an individual or a person to a stimulus that is very influential on a person both from within and outside his personality. The knowledge obtained by the subject will then give rise to an inner response in the form of an attitude towards the object that he already knows. So it can be concluded that if your knowledge is good you will also have a good attitude. Attitudes can be influenced by other factors such as environment, culture, customs, or experience. Actions will be in accordance with increased knowledge if a person has a strong goal to motivate himself to act in accordance with the knowledge he has [2].

Research conducted by [3] states that 80% -85% of work accidents are caused by negligence or human factor errors. Unsafe actions are actions that can endanger the worker himself or other people which can cause accidents which can be caused by various things such as not wearing personal protective equipment, not following work procedures, not following work safety regulations and working carelessly. -Be careful, where for every 300 unsafe actions, 1 (one) accident will occur which results in lost work days. Environmental factors and human factors can cause work accidents. Environmental factors include policies or regulations, work equipment, work area conditions and work procedures regarding the implementation of occupational safety and health (K3). Human factors in the form of unsafe behavior or work habits (unsafe action) [4].

PT Gapura Angkasa Sultan Hasanuddin Airport has hundreds of employees, the Ground Support Equipment (GSE) Division has 44 operators, each of whom has responsibility for their Ground Support Equipment (GSE) equipment. Judging from the process during operation, GSE is not free from danger and risk. These dangers and risks then have the potential to cause the equipment used to operate aircraft services, namely the GSE, to be damaged at any time. In secondary data PT. Gapura Angkasa in 2022-2023, it appears that the GSE Division has the greatest risks, including findings of both unsafe acts and conditions. From data on the number of accidents that occurred from 2020-2021, it shows that there are still work accidents that occur, with the largest number of accidents occurring, namely in the GSE operations process. The history of accidents in the GSE operations process shows the highest fluctuation in the number of work accidents compared to other work processes.

METHOD

This research is a quantitative study using an analytical observational design and a cross-sectional study approach. Quantitative research is an approach to testing objective theories by examining relationships between variables. The aim is to see the indirect relationship of the independent variables (independent variables), namely knowledge, attitudes, actions, unsafe actions and unsafe conditions, to the dependent variable (dependent variable), namely damage to Ground Support Equipment (GSE). This research was carried out at PT. Sultan Hasanuddin Airport Space Gate. The time for conducting the research is July 2023 – February 2024. The population in this research is all Ground Support Equipment (GSE) operators at PT Gapura Angkasa Makassar Branch as many as 44 people. The sampling technique in this research was carried out using the total sampling method. Total sampling is a sampling technique where the number of samples is the same as the population.

RESULTS

Based on data obtained from the data collection and processing carried out, the results obtained are as follows

Table 1. Respondent characteristics are innate characteristics of the respondent. Age, length of service and education are characteristics of respondents used in research.

Respondent Characteristics	Frequency	
	n	%
Age group		
1) 25-30 years old	6) 13	11) 38.64
2) 31-35 years old	7) 12	12) 22.73
3) 36-40 years old	8) 10	13) 22.73
4) 41-45 years old	9) 6	14) 9.09
5) 46-50 years old	10) 3	15) 6.82
Working time		
16) 1-5 years old	20) 7	24) 15.91
17) 6-10 years old	21) 22	25) 50.00
18) 11-15 years old	22) 13	26) 29.55
19) 16-20 years old	23) 2	27) 4.55
Education		
28) SD (elementary school)	31) 4	34) 9,09
29) SMP (junior high school)	32) 25	35) 56.82
30) SMA (senior high school)	33) 15	36) 34.09

Source: Primary data, 2023.

Table 1 Based on the results of research on the characteristics of respondents, it shows that of the 44 respondents, the largest age group of respondents was in the 25-30 year age group, namely 13 respondents (38.64%), the highest number of respondents working period was in the 6-10 year working age group, namely as many as 22 respondents (50.00%), and the largest educational group of respondents was in the working junior high school education group, namely 25 respondents (56.82%).

Table 2. Direct influence between variables

1)	2)	3) Risky	4) No Risk	5) Total	6) P Values
7) Knowledge -> GSE Damage	8) Not enough	9) 0.0	10) 20.5	11) 100.0	12) 0.143
	13) Good	14) 100.0	15) 79.5		
16) Attitude -> GSE Damage	17) Not enough	18) 0.0	19) 35.2	20) 100.0	21) 0,062
	22) Good	23) 10	24) 64.9		

			0.0			
25) Action -> GSE Damage	26) Not enough	27) 14.3	28) 56.8	29) 100.0	30) 0.039	
	31) Good	32) 85.7	33) 43.2			
34) Unsafe Action -> GSE Damage	35) Not enough	36) 14.3	37) 35.1	38) 100.0	39) 0,277	
	40) Good	41) 85.7	42) 64.9			
43) Unsafe Condition -> GSE Damage	44) Not enough	45) 0.0	46) 40.5	47) 100.0	48) 0,038	
	49) Good	50) 100.0	51) 59.5			

Source: Primary data, 2023.

Table 2 shows that the p value = 0.143 > 0.05 so it can be interpreted that there is no relationship between knowledge and ground support equipment (GSE) damage at PT Gapura Angkasa Makassar, that the p value = 0.062 > 0.05 so it can be interpreted that there is no relationship between attitude with damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar, that the p value = 0.039 < 0.05 so it can be interpreted that there is a relationship between actions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar, that the p value = 0.277 > 0.05 so it can be interpreted that there is no relationship between unsafe actions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar, that p value = 0.038 < 0.05 so it can be interpreted that there is a relationship between unsafe conditions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

The results in table 2 were subjected to bivariate analysis to determine the relationship between independent and dependent variables using the Chi Square test in a 2x2 tabulation table.

DISCUSSION

This research aims to determine factors related to damage to ground support equipment (GSE) (case study of PT Gapura Angkasa Makassar). The discussion of the results of the analysis of research variables is narrated as follows.

Knowledge of Ground Support Equipment (GSE) Damage

The knowledge possessed by a person is a factor that plays a very important role in shaping a person's actions. So that workers who have good knowledge are able to identify the dangers around

them through their senses and can prevent work accidents [4]. Of the 44 respondents, there were 0 (0.00%) respondents who were in the Lack of Knowledge category which caused the risk of GSE damage and there were 9 respondents with Lack of Knowledge (35.14%) who had no risk of GSE damage. causing damage to the GSE. Then there were 7 (100%) respondents who were in the Good knowledge category which caused a risk of GSE damage and 28 (79.55%) respondents had Good knowledge which did not pose a risk of GSE damage. Based on the results of the Chi Square test analysis, it can be seen that the value of $p = 0.143 > 0.05$ so it can be interpreted that there is no relationship between knowledge and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

The results of Nofiyanti's research (2015) show that the knowledge obtained by the subject will then give rise to an inner response in the form of an attitude towards objects that he already knows. So it can be concluded that if your knowledge is good you will also have a good attitude. Attitudes can be influenced by other factors such as environment, culture, habits or experience [5].

The results of this study are not in line with research conducted by Sangaji (2018) which found that there is a relationship between knowledge and unsafe behavior which can cause damage and accidents with a value of $p = 0.037 < 0.05$ [6]. In other research conducted by Shiddiq (2014) also showed that there was a significant relationship between knowledge and unsafe behavior, seen from the p value of 0.002 [7].

Attitude of Ground Support Equipment (GSE) Damage

Workers' attitudes can be in the form of attitudes towards factors that cause work accidents, attitudes towards the risk of work accidents that they may experience while working, and attitudes towards efforts to take action to prevent work accidents (Pratama, 2015) [8]. Of the 44 respondents, there were 0 (0.00%) respondents who were in the Poor Attitude category which had a risk of causing damage to the GSE and there were 13 Poor respondents (35.14%) who had no risk of causing damage to the GSE. Then, there were 7 (100%) respondents who were in the Good attitude category which caused a risk of GSE damage and 24 (64.86%) respondents who had a Good attitude which did not cause a risk of GSE damage. Based on the results of the Chi Square test analysis, it can be seen that the p value = $0.062 > 0.05$ so it can be interpreted that there is no relationship between attitude and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

According to Notoatmodjo (2010), states that action is a real manifestation of attitudes or attitudes, but facilities can be one of the supporting factors or conditions that make it possible to turn attitudes into real actions [9]. According to Iqbal M.S (2014) in Fikra Wahyuni (2019) stated that attitude is a person's closed response to the stimuli received. Real attitudes show alignment with certain stimulus reactions. Attitudes do not include actions but are predispositions for actions or behavior [10].

Actions of Ground Support Equipment (GSE) Damage

According to Notoatmodjo (2003), states that action is a real manifestation of an attitude or behavior. However, facilities can be one of the supporting factors or supporting conditions (so that conditions are unsafe) in turning attitudes into real actions [11]. Of the 44 respondents, there was 1 (14.29%) respondent who was in the Insufficient Action category who had a risk of causing damage to the GSE and there were 21 respondents who took less action (56.76%) who had no risk of causing damage to the GSE. Then, there were 6 (85.71%) respondents who were in the good category which caused a risk of GSE damage and 16 (43.23%) respondents who took good actions which did not cause a risk of GSE damage. Based on the results of the Chi Square test analysis, it can be seen that the p value = $0.039 < 0.05$ so it can be interpreted that there is a relationship between actions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

The results of this research are in line with Savira Salsabila's research that 73.5% of fishermen behaved without risk and 69.4% of fishermen behaved with risky behavior. In Notoatmodjo

(2003) behavior is human actions or activities that can be observed directly or that cannot be observed directly [11]. The results of this research are not in line with research by Fikra Wahyuni (2019) at PT. Angkasa Gapura Sultan Hassanudin Makasar Airport found that 8.7% of respondents did good deeds and 91.3% of respondents did bad deeds [10]. According to Notoatmodjo (2003) in Simanjuntak (2014) states that action will be realized when the person acting has knowledge and attitude towards what he is doing. In Notoatmojo (2003) states that an action will actually occur if the supporting factors or availability of equipment are appropriate to the work conditions [12].

Unsafe Action of Ground Support Equipment (GSE) Damage

Unsafe action is related to the occurrence of work accidents, because workers' actions or behavior while working can affect worker safety. When a worker does not protect himself from dangers around the workplace, it will increase the risk of work accidents and vice versa. This is in accordance with the opinion of Heinrich (1980) who revealed that 88% of the causes of industrial accidents are unsafe actions, 10% are caused by unsafe conditions, and 2% cannot be prevented [13].

Of the 44 respondents, there was 1 (14.29%) respondent who was in the Less Unsafe Action category which caused a risk of damage to the GSE and there were 13 Less Unsafe Action respondents (35.14%) who had no risk of causing damage to the GSE. Then, there were 6 (85.71%) respondents who were in the Good unsafe action category which caused a risk of GSE damage and 24 (64.86%) Good unsafe action respondents which did not cause a risk of GSE damage. Based on the results of the Chi Square test analysis, it can be seen that the p value = 0.277 > 0.05 so it can be interpreted that there is no relationship between unsafe actions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

The results of the research are not in line with those carried out at PT Freya Abadi Indotama in 2013 which showed that unsafe action had a positive and significant effect on work accidents and damage. The results of the analysis show that unsafe actions have an influence of 22% on work accidents and damage. Statistical test results show that unsafe action is a variable that influences work accidents and damage [14].

The results of this research are in line with research conducted by Lombogia (2018) regarding the relationship between unsafe worker behavior and damage at PT Tropica Cocoprima, Lelema Village, South Minahasa Regency. In this study, the results showed that there was no relationship between unsafe worker behavior and damage with a value of p = 1,000. This happened because in this study the majority of workers who experienced work accidents that resulted in damage were in the low unsafe action category [15].

Unsafe Condition of Ground Support Equipment (GSE) Damage

Dangerous or unsafe conditions that arise from the work environment, work processes, work equipment, work characteristics and the way they work which at any time can give rise to and give rise to accidents or work accidents, are called unsafe conditions [16]. Of the 44 respondents, there were 0 (0.00%) respondents who were in the Less Unsafe Condition category which caused a risk of damage to the GSE and there were 15 Unsafe Condition Less respondents (40.54%) who had no risk of causing damage to the GSE. Then, there were 7 (100%) respondents who were in the Good unsafe condition category which caused a risk of GSE damage and 22 (59.46%) Good unsafe condition respondents which did not cause a risk of GSE damage. Based on the results of the Chi Square test analysis, it can be seen that the p value = 0.038 < 0.05 so it can be interpreted that there is a relationship between unsafe conditions and damage to ground support equipment (GSE) at PT Gapura Angkasa Makassar.

The results of this research are in line with research by Irawati (2018) regarding the relationship between unsafe actions and unsafe conditions in work accidents and welding damage processes with unsafe conditions as many as 17 (89.5%). The Chi Square test results obtained a value of p = 0.000,

meaning there is a relationship between the variable unsafe conditions and work accidents and damage [17]. The results of this research are not in line with research conducted by Fitria (2016) at Jatindo Carving Jepara. The results of statistical tests using Fisher's Exact Test show that there is no relationship between unsafe conditions and work accidents and equipment damage with a value of p = 0.322 > 0.05 [18].

CONCLUSION

There is no relationship between knowledge and the cause of damage to PT ground support equipment (GSE) operators. Makassar Space Gate.

There is no relationship between attitude and the cause of damage to PT ground support equipment (GSE) operators. Makassar Space Gate.

There is a relationship between the action and the cause of damage to PT ground support equipment (GSE) operators. Makassar Space Gate.

There is no relationship between unsafe actions and the cause of damage to PT ground support equipment (GSE) operators. Makassar Space Gate.

There is a relationship between unsafe conditions and the causes of damage to PT ground support equipment (GSE) operators. Makassar Space Gate.

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