

RELATIONSHIP BETWEEN PERSONAL CHARACTERISTIC AND TRAINING WITH FIRE EXTINGUISHER'S KNOWLEDGE

Titin Nasiatin¹, Wiwik Eko Pertiwi^{2*}, Silvia Derti³, Ahmad Jubaedi⁴

^{1,2,3,4}Public Health Department Faculty of Health Science Universitas Faletehan, Indonesia

ABSTRACT

Every building needs to apply building safety requirements in an effort to prevent and control fires by providing a Fire Extinguisher as fire protection. The availability of Fire Extinguisher needs to be supported by good knowledge from inhabitants. This study is aimed to determine the relationship between education, age, gender, work period and training to Fire Extinguisher knowledge. The research design is quantitative with a cross sectional approach. The research was conducted at Faletehan University Serang-Banten in April-July 2020 with the study population of all employees with a sample of 62 respondents taken by a simple random sampling method. Primary data collection using questionnaires with interview techniques. Data analysis was performed by univariate and bivariate using chi-square tests. The results of the analysis showed that 58,1% respondents were good knowledge about Fire Extinguisher, 88,7% respondents were highly educated, 69,4% respondents were aged ≤ 40 years, 61,3% respondents were female, 66,1% respondents had work period > 5 years, and 69,4% respondents had never attended training. The results of the analysis showed that there is a relationship between education (p value=0,018) and training (p value=0,049) with Fire Extinguisher knowledge. Faletehan University needs to hold regular Fire extinguisher training that must be attended by all employees.

Keywords: Fire Extinguisher, knowledge, education, training

1. INTRODUCTION

The development of technology in the era of globalization is very influential on various aspects of human life. In addition to providing a positive impact, technological developments also have a negative impact, namely the emergence of potential hazards that if not accompanied by proper control can threaten the safety and security of workers (Tarwaka, 2017). Government Regulation No. 50 of 2012 explains that Occupational Safety and Health (OSH) aim to prevent work accidents and occupational diseases, including preventing fire hazards.

Every building needs to apply building safety requirements in an effort to prevent and control fire hazards by providing fire protection facilities (UU No. 28 Tahun 2002). The lecture building as an asset or property must guarantee security and safety against fire hazards for its occupants during their activities by providing fire protection facilities in the form of a light fire extinguisher (APAR). Husen and Lestari (2016) explain that there are many discrepancies about APAR, both in how to use, place, check and maintain APAR due to employee ignorance. The availability of

APAR in Higher Education needs to be supported by good knowledge from its residents. According to Insani, et al. (2017) correct knowledge of fire extinguishers is one of the factors that affect the effectiveness of using fire extinguishers to minimize failure of the fire-fighting process in the early stages of fire.

The Department of Fire in the United States reports that as many as 1,318,500 fires occurred in 2018 that left 3,655 civilians dead, 15,200 injured in fires for an estimated \$ 25.6 billion dollars in losses (Evarts, 2019). Based on Disaster Data from the National Disaster Management Agency (BNPB) in 2014 there were 896 cases of fire, of which 587 (65.51%) cases of fire were caused by electrical short circuits (Ayu et al., 2018). According to data from the Regional Disaster Management Agency (BPBD) of Serang Regency in January - August 2018, there were 38 cases of fires triggered by electric short circuit stoves that forgot to extinguish and cigarette butts that were thrown away carelessly (Rozak, 2018). Meanwhile, in January - October 2019 there were 80 fire incidents in the Serang Regency BPBD data, where fire cases were dominated by land fires due to human negligence and housing fires caused by electrical short circuits (Hasanudin, 2019).

One of the factors that affect a person's knowledge of the light fire extinguisher (APAR) is education. A person with high education has 2 times the chance to have good knowledge of APAR than someone with low education (Sari et al., 2019). According to Notoatmodjo (2012) the older a person is, the more his maturity will be and the more information he gets. Someone aged > 40 years has four times the chance of having a good level of knowledge about APAR compared to those aged \leq 40 years (Sari et al., 2019).

According to Zar (2012) there is a significant relationship between gender and knowledge of APAR with p value = 0.003 at PT. Pertamina Geothermal Energy Area Kamojang. A male person has a better knowledge of APAR than women. This is because extinguishing fire is considered a male profession so that it is more important for men to get knowledge about APAR than women (Sari et al., 2019). Someone who has worked for a long time will have broader insight and better experience (Anderson theory, 1975 in Fitriana et al., 2017). Research Sari, et al. (2016) explained that someone who has a working period of > 5 years has 4 times the chance to have good knowledge of APAR compared to someone with a working period of \leq 5 years. Sinaga and Handayani's research (2017) explains that there are differences in workforce scores before and after training in the use of a Light Fire Extinguisher (APAR). A person who has never attended

training has a 2 times greater risk of not knowing how to use APAR than respondents who have attended fire training (Husen and Lestari, 2016).

Universitas Faletahan Serang – Banten is a university that has the potential for class A fire hazards which are sourced from solid materials in the form of wood. One of the fires that occurred at the University of Faletahan Serang - Banten, was the burning of a tree near the TPS in 2019 which was caused by cigarette butts that were thrown away carelessly. Based on the preliminary survey, it was found that APARs at the University of Faletahan were not placed with signs. In addition, there are empty APAR storage boxes in building D and Building H. There is an APAR storage box in building G that is locked. As one of the residents at the University of Faletahan, employees need to have a good knowledge of APAR, but based on the results of a preliminary study of 10 employees, it was found that 60% of employees had poor knowledge of APAR.

This study aims to determine the relationship between individual characteristics and training on knowledge of light fire extinguishers (APAR) for employees at the Universitas Faletahan Serang – Banten in 2020.

2.MATERIALS AND METHODS

The research design was quantitative with a cross sectional approach. The research location was conducted at the Universitas Faletahan Serang – Banten in April - July 2020. The population in this study were all employees at the Universitas Faletahan Serang – Banten as many as 139 employees. The sample of this study was 62 respondents who were taken by means of probability sampling using simple random sampling technique.

This study uses inclusion criteria where the respondents are employees listed in the active employment data who work at the Kampus Universitas Faletahan on Jl. Raya Cilegon Km. 06 Pelamunan Kramatwatu Serang - Banten. Respondents aged 23 - 66 years with a work period of 0 - 40 years and are willing to become research respondents voluntarily. Primary data obtained by interview using a questionnaire sheet. Data analysis performed in this study is univariate analysis presented in the form of frequency distribution of each variable and bivariate analysis using the chi-square test

3.RESULTS.

Table. 1 Research Variables' Frequency Distribution

Variable	Frequency	Percentage
Knowledge about APAR		
Poor	26	41,9
Good	36	58,1
Education Level		
Low	7	11,3
High	55	88,7
Age		
≤ 40 year	43	69,4
> 40 year	19	30,6
Sex		
Female	38	61,3
Male	24	38,7
Work Period		
≤ 5 year	21	33,9
> 5 year	41	66,1

Training		
Never	43	69,4
Ever	19	30,6
TOTAL	62	100

Based on Table 1, 58.1% of the respondents had good Knowledge about APAR, 88.7% of the respondents had high education level, 30.6 % of the respondents are on age >40 years, 38.7% of the respondents are male, 66.1% of the respondents had > 5 years work period, 30.6% of the respondents had ever training.

Table. 2 Analysis of Knowledge about APAR in Employees

Variable	Knowledge About APAR				Total	P Value	OR
	Poor		Good				
	f	%	f	%			
Education Level							
Low	6	85.7	1	14.3	7	0.018	10.5
High	20	36.4	35	63.6	55		
Total	26	41.9	36	58.1	62		
Age							
≤40 year	20	46.5	23	53.5	43	0.413	-
>40 year	6	31.6	13	68.4	19		

Total	26	41.9	36	58.1	62		
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Sex							
Female	12	31.6	26	68.4	38	0.069	-
Male	14	58.3	10	41.7	24		
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Total	26	41.9	36	58.1	62		
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Work Period							
≤ 5 year	8	38.1	13	61.9	21	0.868	-
> 5 year	18	43.9	23	56.1	41		
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Total	26	41.9	36	58.1	62		
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Training						0.049	0.282
Never	14	32.6	29	67.4	43		
Ever	12	63.2	7	36.8	19		
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Total	26	41.9	36	58.1	62		
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Based on Table 2, there were no significant relationships of age, sex, and work period and there were significant relationships of knowledge and training with knowledge about APAR.

4.DISCUSSION

Education

Based on table 2, it is obtained from 7 respondents with low education, there are 6 respondents (85.7%) who have poor knowledge of APAR and 1 respondent (14.3%) have good knowledge of APAR. Meanwhile, of the 55 respondents with high education, there were 20 respondents (36.4%) who had poor knowledge of APAR and 35 respondents (63.6%) had good knowledge of APAR. The results of the chi-square test with a confidence level of 95% obtained Pvalue = 0.018, it can be concluded that there is a significant relationship between education and knowledge of APAR for employees at the Universitas Faletahan Serang – Banten in 2020. From the analysis

results also obtained the $OR = 10.5$ This means that respondents with high education have a 10.5 times risk of having good knowledge of APAR compared to respondents with low education. The results of this study are in line with the research of Sari et al. (2016) where there is a relationship between education and the knowledge level of employees of the hemodialysis unit related to APAR as a means of active fire protection.

Notoatmodjo (2012) explains that knowledge is closely related to education where it is hoped that someone with higher education will have a wider knowledge. According to Wied (1996) a person's education is a factor that determines whether or not a person can easily absorb and understand the knowledge they acquire, so that the higher a person's educational background, the better the knowledge they have (Rinawati et al., 2016).

The results of the analysis show that respondents with higher education are more likely to have good knowledge about APAR because the education of respondents affects the learning process and information retention so that it has an impact on their insight and knowledge. In theory, a person's knowledge can be obtained through the sense of sight, for example observing APAR so that curiosity arises and respondents try to dig up information from various sources, such as discussions with other people or seeking additional information through reading books or the internet so that understanding regarding APAR is increasingly developing. The higher the educational background of the respondents, the easier it is to receive information so that their knowledge will be better, including knowledge of APAR

Knowledge

Based on table 2, it was obtained from 43 respondents aged ≤ 40 years, as many as 20 respondents (46.5%) had poor knowledge about APAR and 23 respondents (53.5%) had good knowledge about APAR. Meanwhile, of the 19 respondents aged > 40 years, there were 6 respondents (31.6%) who had poor knowledge of APAR and 13 respondents (68.4%) had good knowledge of APAR. The results of bivariate analysis using the chi-square test with a confidence level of 95% obtained $Pvalue = 0.413$, it can be concluded that there is no significant relationship between age and knowledge of APAR in employees at the Universitas Faletehan Serang – Banten in 2020. The results are not in line with Sari's research. , et al. (2016) where there is a significant relationship between age and the knowledge level of employees of the hemodialysis unit regarding APAR as a means of active fire protection ($Pvalue = 0.024$) at RSUPN Dr. Cipto Mangunkusumo. Sanifah (2018) explains that age affects a person's perceptive power and thought patterns, the more people get older, the more their perceptive power and thinking patterns develop. Increasing a person's age can affect the increase in knowledge he / she gets, but at a certain age or before old age the ability to accept or remember a knowledge will decrease (Rinawati et al., 2016).

The results of the analysis showed that respondents aged ≤ 40 years had more good knowledge about APAR. This is because respondents who are ≤ 40 years old generally do not have a

relatively long working period, so that respondents have a high curiosity about their work and work environment, so that their insight and knowledge will increase, including knowledge about APAR. Respondents aged > 40 years do not necessarily have better knowledge than respondents aged ≤ 40 years. This is because increasing age has an impact on changes in various systems in the body that tend to decline, including the ability to remember certain information. If a person is not given continuous information, the knowledge about APAR tends to be less good.

Based on the result, it is obtained from 38 respondents who are female, as many as 12 respondents (31.6%) have poor knowledge about APAR and 26 respondents (68.4%) have good knowledge about APAR. Meanwhile, of the 24 male respondents, there were 14 respondents (58.3%) who had poor knowledge about APAR and 10 respondents (41.7%) had good knowledge about APAR. The results of bivariate analysis using the chi-square test with a confidence level of 95% obtained p value = 0.069, it can be concluded that there is no significant relationship between gender and knowledge of APAR among employees at the Universitas Faletehan Serang – Banten in 2020. The results are not in line with the research. Sari, et al. (2016) where there is a significant relationship between gender and the knowledge level of employees of the hemodialysis unit related to APAR as a means of active fire protection (p value = 0.034) in Dr. Cipto Mangunkusumo. Gibson's theory, Ivanerich and Donelly (1997) in Sari, et al. (2016) argued that men and women have the same abilities in knowledge such as learning abilities, memory, reasoning abilities and intelligence. So that there is no difference in knowledge between women and men.

The results of the analysis showed that female employees had good knowledge of APAR. Meanwhile, more male respondents had less knowledge of APAR. This is because women are able to remember information in more detail than men who tend to forget easily. However, gender differences are not a factor affecting knowledge of APAR, because the provision of information and training does not consider gender. Every employee has the right to receive new knowledge regarding APAR and is entitled to participate in training related to APAR.

Work period

The results of bivariate analysis using the chi-square test with a confidence level of 95% obtained p value = 0.868, it can be concluded that there is no significant relationship between tenure and knowledge of APAR among employees at the Universitas Faletehan Serang – Banten in 2020. This is not in line with the research. Sari, et al. (2016) where there is a significant relationship between tenure and the knowledge level of employees of the hemodialysis unit related to APAR as a means of active fire protection (p value = 0.037) at RSUPN Dr. Cipto Mangunkusumo.

Anderson's theory (1975) states that someone who has worked for a long time has a broader insight and better experience (Fitriana et al., 2017). However, according to Apriluana (2016) someone who has a longer working period sometimes decreases his productivity due to boredom.

The results of the analysis showed that respondents who had a service period of > 5 years had more good knowledge of APAR than respondents with a service life of ≤ 5 years. The working period of a person is related to work experience, so the longer a person works, the more skilled and knowledgeable he is. Although more respondents with a working period of > 5 years had good knowledge of APAR, more respondents with a service period of > 5 years had less good knowledge of APAR than respondents with a service life of ≤ 5 years. This is because respondents with a service period of > 5 years feel bored looking for new information related to work and their environment. Regardless of how long a person's working period is, if the respondent is not given information about APAR continuously, the respondent will have poor knowledge about APAR.

Training

Based on the research result it is obtained from 43 respondents who have never attended training, as many as 14 respondents (32.6%) have poor knowledge about APAR and 29 respondents (67.4%) have good knowledge about APAR. Meanwhile, of the 19 respondents who had attended the training, there were 12 respondents (63.2%) who had poor knowledge about APAR and 7 respondents (36.8%) had good knowledge about APAR. The results of bivariate analysis using the chi-square test with a confidence level of 95% obtained p value = 0.049, it can be concluded that there is a significant relationship between training and knowledge of APAR for employees at the Universitas Faletehan Serang – Banten in 2020. The results of this study are in line with Husen's research and Lestari (2016) where there is a significant relationship between training and knowledge of the use of APAR for employees at the Grand Kamala Lagoon Bekasi Keet Project in 2016 (p value = 0.037).

Training is important because almost every building has fire protection equipment. If these tools are installed, all employees must be given training so that employees have a good knowledge of APAR and know how to use it properly (Sulaksmono, 1997 in Fitriana et al., 2017).

Based on the results of the analysis in the field, it was found that respondents who had never attended training but had good knowledge about APAR because respondents could get information about APAR through the internet, social media or read literature available in the library. With the specialization in Occupational Safety and Health (K3) at the University of Faletehan, respondents can gather information through discussions with educators (lecturers), other employees and students.

In addition, there are weaknesses in the technical data collection online using google form, where there is a possibility that the respondent will fill out the questionnaire with the help of other employees or the respondent can find and read the material first before filling out the questionnaire, so that the respondent's knowledge regarding APAR is in the good category even though it has never been attend training. Meanwhile, respondents who have participated in training, however, are more knowledgeable about APAR because the training is not carried out

routinely so that the memory of respondents has decreased because information about APAR is not given continuously

5.CONCLUSION

Based on the research results, it was found that 58.1% of respondents had good knowledge about APAR. There is a significant relationship between education (p value = 0.018) and training (p value = 0.049) with knowledge of APAR. There was no significant relationship between age (p value = 0.413), gender (p value = 0.069), and period of work (p value = 0.868) with knowledge of APAR

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