Correlation Between the Set of Knowledge, Perception, Attitude, and Motivation with the Fire Risk Control Behaviour (A Case Study at Faletehan University Serang)

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Abstract: A fire accident may happen at anytime and anywhere. Such an accident happened in 2017 on the campus of Bogor Agriculture University (IPB). It was caused by an electricity short circuit. In 2013, an electricity panel exploded in a building at Faletehan University campus. A fire accident is an imminent threat that will result in a great loss so that an occupational health and safety program to deal with fire risks needs to be implemented in an academic community and other public space. To find out the correlation between the set of knowledge, perception, attitude, and motivation and the fire risk control behaviour. A quantitative statistical analysis was conducted on cross-sectional. The research was carried out at the Faletehan campus from July to September 2021. data obtained from all members of the academic community at Faletehan University (2144 persons). Out of that population of 2144 respondents, 377 respondents were made as samples. Data obtained from answers in the questionnaires distributed among all respondents were processed with univariate, bivariate, and multivariate analyses. Each member of the set of knowledge, perception, attitude, and motivation is correlated with the fire risk control behaviour. Knowledge and fire risk control behaviour have an OR (odds ratio) of 2.193 and p-value of 0.0000. Perception and fire risk control behaviour have an OR of 1.962 and p-value of 0.001. Attitude and fire risk control behaviour have an OR of 1.785 and p-value of 0.006. Motivation and fire risk control behaviour have an OR of 1.962 and p-value of 0.001. The dominating factor associated with the fire risk control behaviour is motivation with an OR of 2.538 and p-value of 0.000 on their relationship. Knowledge, perception, attitude, and motivation are strongly correlated with fire risks control behaviour. Suggestions: The top management of Faletehan University needs to maintain the motivation of all its academic community members in fire risk control behaviour and to strengthen occupational health and safety programs related to fire safety.

Keywords: Fire Safety, Knowledge, Perception, Attitude, Motivation, Behaviour.
A. INTRODUCTION

The problem of fire accident on campus can occur anytime and anywhere and is something that is impossible to prevent completely, so it needs serious attention, especially from the campus management itself. One form of serious attention that can be taken by campus managers is to implement an appropriate fire hazard prevention effort that can avoid losses and minimize damage. About 62.8% of fire cases in Indonesia are caused by electricity or a short circuit. Spatial planning and the lack of fire prevention infrastructure also contribute to the emergence of fires, especially fires that occur in the campus environment and settlements around campus.

One example of a fire accident that occurred on campus was happened the University of Lampung in 2000 which caused damage to the laboratory building. And most recently a fire on the campus of the Institute of Social and Political Sciences in Jakarta was caused by cigarette butts that were disposed of carelessly. The Bogor Agricultural University campus also experienced fires which were suspected to be caused by electrical short circuits. In 2014 in the seminar “Safety and Rescue Systems Against Fire Hazards in Buildings” organized by JICA (Japan International Corporate Agency) revealed that almost all campus buildings in Banten Province and other big cities in Indonesia are prone to fire hazards.

Occupational Safety and Health (K3) is a condition in a healthy and safe job both for the job, the company as well as for the community and the environment around the factory or workplace. Occupational Health and Safety is also an attempt to prevent any unsafe act or condition, which can result in an accident.

Occupational Safety and Health (K3) is an important part in today's world of work, because it is a form of cost efficiency and increased profits that needs to be considered along with suppressing the risk of accidents and occupational diseases. The occurrence of accidents at the company causes work delays which will have an impact on decreasing yields and loss of repairs and treatment. Therefore, K3 must be managed like the management of production and finance as well as other important company functions. One type of accident that is often encountered and causes huge losses is fire.

Wildfire is the occurrence of an unwanted fire. For workers, company fires can be suffering and disaster, especially for those who are affected by accidents and can result in physical disability, trauma, and even job loss. As for the company itself, it will be able to cause a lot of losses, such as damaged documents, property destruction and the cessation of the production process. Fire is one of the most common accidents. In addition to causing casualties and material losses, fires can also damage the environment as well as health problems caused by the smoke from these fires. Fires are something that often happens in buildings that start from small fires which then become large due to inadequate firefighting equipment or the unpreparedness of the equipment when it is about to be used (Summa'mur, 2009).

Management of Fire Control Equipment is a plan that contains procedures that regulate fire disaster protection equipment that must be provided as a tool to extinguish fires when a fire occurs suddenly and unexpectedly which can threaten life, assets and office operations as well as the environment. To minimize the occurrence of fires, it is necessary to apply Occupational Safety and Health as an effort to prevent and control fires.

Campus residents, namely lecturers, students, employees, office boys, and security guards have a common need and interest in maintaining a safe and comfortable workplace. A sense of security and comfort at work is a demand for campuses to be able to fulfill them in order to provide job security for implementers, supported by fire incidents that can have a negative impact on a campus both from time efficiency, campus image, psychological, and property damage caused can affect campus productivity so that campus management should
be able to implement fire management in accordance with applicable regulations.

In Banten Province and its surroundings, there are many campuses that have high-rise buildings in high-rise buildings. There have been many fire incidents in recent years, there have been fires that have resulted in substantial loss of life and material losses. This is because many of the building managers do not care about the Occupational Health and Safety aspects, one of which is by ignoring the Fire Protection System. In addition, it also ignores the aspects of Fire Safety Management.

Cases of fires that occurred in Serang increased from the previous year. From 2018, cases of fire that occurred in the capital city of Banten Province were 60 cases, and increased from January to October 2019 as many as 94 fire cases. Cases of fire in 2019 increased during the dry season, one of the causes of which was cigarette butts, the large number of weeds affected by wind friction and eventually burned.

The campus environment of the University of Faletehan Serang has also experienced a similar incident, in 2013 there was an explosion at the electric MCB at the Faletehan Foundation building but the explosion was immediately contained. In addition, there was also an explosion of chemicals in the Basic Natural Sciences laboratory when students did practicum. The near-fire incident in a high-rise building on the Faletehan campus is basically a public goods tragedy phenomenon (common pool). Public goods such as high-rise buildings on the Faletehan campus can be accessed by anyone without exception by residents of the Faletehan University campus. With the anonymity of users of high-rise buildings, it is necessary to evaluate the fire prevention and control system in high-rise buildings on the Faletehan campus, in order to reduce the risk of fire such as fatalities and high material losses.

The objectives of the research are: 1) to describe the level of knowledge, perception, attitude and motivation with fire hazard control behaviour; 2) determine the relationship between the level of knowledge with fire hazard control behaviour; 3) determine the relationship between perception and fire hazard control behaviour; 4) determine the relationship between attitude and fire hazard control behaviour; 5) determine the relationship between motivation and fire hazard control behaviour; and 6) determine the dominant factors related to fire hazard control behaviour.

B. METHOD

To examine the relationship related to fire hazard control behaviour at Faletehan University Serang, the research approach used is a quantitative method approach with a cross sectional type of research, which is characterized by collecting research data carried out at once (point time approach) (Notoatmodjo, 2010). The population in this study were all residents of the Faletehan University Serang campus (lecturers, students, employees, office boys, and security guards) total are 2,144 respondents. The sample in this study is part of the population that represents the population to be taken. The sampling technique in this study uses the Slovin formula, which is a formula or formula to calculate a large number of samples, so we need a formula to get a small sample but can represent the whole of the sample. Population number. From this formula, the research sample was 338 respondents. For respondents and to avoid data errors, 10% were added to 377 respondents.

The data collection technique is that the researcher conducts permission to test the validity and reliability of the questionnaire at the University of Serang Raya which is carried out directly by the researcher, then the researcher processes the validity and reliability test data, after that the researcher conducts research by distributing questionnaires and questionnaires according to the number of samples that have been collected. Calculated at the University of Faletehan Serang. In this analysis, statistical tests were carried out, with
univariate analysis, bivariate analysis using Chi-square test and multivariate analysis using multiple logistic regression with the aim of seeing the effect of the independent variables together on the dependent variable. The variables included in the multivariate analysis were obtained by looking at the significant p-value < 0.25 in the bivariate results and the variables that were theoretically supported. The research was conducted at the Faletehan University campus, Serang, in July to September 2021.

C. RESULT AND DISCUSSION

1. Result

Table 1. Description of Knowledge Level, Perception, Attitude, Motivation and Behavior of Fire Hazard Control

| No | Variable               | Frequency (Person) | Presentation (%) |
|----|------------------------|--------------------|------------------|
| 1  | Level of Knowledge     |                    |                  |
|    | Height                 | 237                | 62.9             |
|    | Low                    | 140                | 37.1             |
|    | Total                  | 377                | 100              |
| 2  | Perception             |                    |                  |
|    | Positive               | 202                | 53.6             |
|    | Negative               | 175                | 46.4             |
|    | Total                  | 377                | 100              |
| 3  | Attitude               |                    |                  |
|    | Positive               | 195                | 51.7             |
|    | Negative               | 182                | 48.3             |
|    | Total                  | 377                | 100              |
| 4  | Motivation             |                    |                  |
|    | Height                 | 190                | 50.4             |
|    | Low                    | 187                | 49.6             |
|    | Total                  | 377                | 100              |
| 5  | Behaviour              |                    |                  |
|    | Good                   | 210                | 55.7             |
|    | No Good                | 167                | 44.3             |
|    | Total                  | 377                | 100              |

Table 1 showed the majority of respondents (62.9%) have a high level of knowledge. The results of the analysis show that half of the total respondents have positive perceptions (53.6%), positive attitudes (51.7%), high motivation (50.4%), and good fire hazard control behaviour (55.7%).

Table 2. Correlation Between Level of Knowledge, Perception, Attitude, Motivation with Fire Hazard Control Behaviour and Variable Behaviour

| Variable    | Behaviour                  | Total | OR (CI 95%)     | P value |
|-------------|----------------------------|-------|-----------------|---------|
| Knowledge   | Good                       | 124   | 59.1            | 317     | 2.193 (1.433–3.356) | 0.000* |
|             | Not Good                   | 88    | 37.2            | 317     | 100               |
| Perception  | Good                       | 128   | 63.4            | 202     | 1.962 (1.299-2.963)| 0.001* |
|             | Not Good                   | 74    | 36.6            | 202     | 100               |
| Attitude    | Good                       | 82    | 46.9            | 175     | 1.785 (1.184-2.692)| 0.006* |
|             | Not Good                   | 93    | 53.1            | 175     | 100               |
| Motivation  | Good                       | 122   | 62.6            | 195     | 2.414 (1.592-3.662)| 0.000* |
|             | Not Good                   | 73    | 37.4            | 195     | 100               |
Table 2 showed that the majority of respondents with a high level of knowledge have good fire control behaviour (62.9%) and respondents with low level of knowledge have poor fire control behaviour (56.4%). Most respondents with positive perception have good fire control behaviour (63.4%) and respondents with negative perceptions have poor fire hazard control behaviour (53.1%).

The results of the analysis show that the majority of respondents with positive attitudes have good fire hazard control behaviour (62.6%) and respondents with negative attitudes have poor fire hazard control behaviour (51.6%). Likewise with the motivation variable, most respondents with high motivation have good fire hazard control behaviour (66.3%), and respondents with low motivation have poor fire hazard control behaviour (55.1%).

Based on the results of the analysis, it is showed that the variables that have a statistically significant relationship with fire hazard control behaviour are the level of knowledge (p value 0.000; OR 2.193), perception (p value 0.001; OR 1.962), attitude (p value 0.001) 0.006; OR 1.785), and motivation (p value 0.000; OR 2.414).

| Variable            | p value   |
|---------------------|-----------|
| The Level of Knowledge | 0.000*    |
| Perception          | 0.001*    |
| Attitude            | 0.006*    |
| Motivation          | 0.000*    |

Table 3 showed the results of the bivariate selection of each variable. Based on the table, it can be seen that all variables can enter the multivariate stage. The next stage is multivariate modelling by entering all the variables from the bivariate analysis into the logistic regression test. This stage removes one by one the variables that have p value > 0.05 starting from the largest p-value. The results of multivariate modelling are presented in table 4.

| Variable            | B     | Wald  | p value |
|---------------------|-------|-------|---------|
| The Level of Knowledge | 0.826 | 13.483 | 0.000   |
| Perception          | 0.327 | 1.410 | 0.235   |
| Attitude            | 0.018 | 0.004 | 0.949   |
| Motivation          | 0.791 | 10.230 | 0.001   |

The results of the analysis in table 4 can be seen from 4 variables that have a p-value > 0.05, namely perceptions and attitudes. The attitude variable has the largest p-value, so further modelling the attitude variable is excluded from the model. With the same steps finally obtained the results according to table 5.

| Variable            | OR attitude exists | OR attitude does not exist | OR Change | p value |
|---------------------|--------------------|---------------------------|-----------|---------|
| The Level of Knowledge | 2.284              | 2.285                      | <10%      | 0.000   |
| Perception          | 1.387              | 1.400                      | <10%      | 0.154   |
| Motivation          | 2.205              | 2.215                      | <10%      | 0.001   |

From table 5, all changes in variables are < 10% so that we can see the amount of p value of each variable. Variables with p value > 0.05 must be removed from the model, namely the perception variable, so the final multivariate modelling stage can be seen in table 6.
Table 6. Multivariate Final Stage Modelling Results

| Variable           | OR 95%             | p value |
|--------------------|--------------------|---------|
| The level of Knowledge | 2,324 (1,498-3,606) | 0.000   |
| Motivation         | 2,538 (1,655-3,890) | 0.000   |

The results of the final modelling of the multivariate test in table 5.6 show that the variable that has the greatest relationship is motivation with an OR of 2,538, meaning that respondents with high motivation have 2,538 times the opportunity to have better behaviour than other variables.

2. Discussion

Table 1. The level of knowledge showed the results of the study it is known that the majority of respondents 62.9% have a high level of knowledge and 37.1% have a low level of knowledge. Knowledge of a particular object is very important for the occurrence of behaviour change which is a very complex process. Behaviour based on knowledge will be better than behaviour that is not based on knowledge. Positive respondent knowledge also has a good impact on the research site, namely by reacting quickly to extinguishing fires when there is a fire.

The results of research on perceptions, namely residents of the Faletehan University campus, Serang have a positive perception (53.6%) and a negative perception (46.4%). Perception is a process that starts from sight to form a response that occurs within the individual, being aware of everything in the environment through the senses they have.

Attitude aspect showed that a positive attitude regarding fire hazard control is 51.7% and 48.3% negative attitudes. Attitude is a disposition to respond positively or negatively to a behavior. The more positive a person's attitude or view of something, the better the actions taken against it. So, lecturers, students, employees, office boys, and security guards who have a positive attitude towards controlling fire hazards will have good behaviour in controlling fire hazards. This attitude can also be seen by the number of smoking places/areas that already exist and have also been used by residents of the University of Faletehan.

Motivation Based on the results of the study, it is known that the residents of the University of Faletehan have high motivation regarding fire hazard control as much as 50.4% and low motivation as much as 49.6%. The role of motivation on fire hazard control behaviour can increase employee morale where employees will apply fire hazard control to the maximum and like their work environment and the benefits gained in a company are the creation of occupational safety and health which increases from year to year if this motivation continues.

Behaviour results showed that residents of the University of Faletehan Serang campus have good behaviour in controlling fire hazards as much as 55.7% and bad behaviour as much as 44.3%. More good behaviour in controlling fire hazards is due to the complete facilities provided by the campus for controlling fire hazards. One of them is the completeness of fire prevention facilities that have been prepared by the University of Faletehan, namely APAR which has been in various places, and also the provision of smoking facilities or places.

In table 2 showed an analysis of knowledge on fire hazard control behaviour on the campus of Faletehan University in 2020 shows that the majority of respondents with a high level of knowledge have good fire control behaviour (62.9%) and respondents with low level of knowledge have poor fire control behaviour (56.4%). Based on the results of bivariate analysis using the chi-square test, it is known that the level of knowledge has a statistically significant relationship with fire hazard control behaviour (p value 0.000; OR 2.193).
Positive employee knowledge of fire hazard control will encourage employees to carry out fire hazard control in daily life, so that various risks of work accidents caused by fire can be prevented. Especially the behaviour of employees who have high knowledge in controlling fire hazards is expected to be able to set a good example for employees who lack knowledge in controlling fire hazards.

In table 3. The results showed an analysis of perceptions of fire hazard control behaviour, that is, most of the respondents with positive perception have good fire control behaviour (63.4%) and respondents with negative perceptions have poor fire control behaviour (53.1%). Based on the results of bivariate analysis using the chi-square test, it is known that perception has a statistically significant relationship with fire hazard control behaviour (p value 0.001; OR 1.962). The value of a person's subjectivity is very dominant in perceiving something so that often assumptions about other people's perceptions are wrong, due to incomplete assumptions. Similarly, what happens in organizations, where subordinates may misperceive their superiors or vice versa, superiors may misperceive their subordinates.

Perception of fire hazard control is a process that occurs within employees which begins by money (financially), or provides a challenging job in order to have high motivation which had 2,538 times the opportunity to have a dominant relationship between other variables (level of knowledge, perception, and attitude) with fire hazard control behaviour.

In table 4. showed the results of the analysis of attitudes towards fire hazard control behaviour obtained the majority of respondents with positive attitudes have good fire control behaviour (62.6%) and respondents with negative attitudes have poor fire control behaviour (51.6%). Based on the results of bivariate analysis using the chi-square test, it is known that attitudes have a statistically significant relationship with fire hazard control behaviour (p value 0.006; OR 1.785). Attitude is a disposition to respond positively or negatively to a behaviour. Attitudes towards behaviour are determined by beliefs about the consequences of a behaviour, which are referred to as behavioural beliefs. Each behavioural belief relates behaviour to the outcomes that can be obtained from that behaviour. Attitudes toward behaviour are determined by the individual's evaluation of the outcomes associated with the behaviour and by the strength of the relationship between the two.

In table 5. The analysis showed that the motivation to control fire hazard behaviour is that most respondents with high motivation have good fire control behaviour (66.3%), and respondents with low motivation have poor fire control behaviour (55.1%). Based on the results of bivariate analysis using the chi-square test, it is known that motivation has a statistically significant relationship with fire hazard control behaviour (p value 0.000; OR 2.414). Motivating employees to carry out activities that are in line with organizational goals requires certain appropriate ways. The diversity of individual backgrounds in an organization has an impact on a person's motives in doing something. So that not everyone is motivated by money (financially), or provides a challenging job in order to have high motivation.

Table 6. analysis multivariate result showed that the variable that had the greatest relationship was motivation with an OR of 2,538, meaning that respondents with high motivation had 2,538 times the opportunity to have a dominant relationship between other variables (level of knowledge, perception, and attitude) with fire hazard control behaviour. So, the dominant actor related to behaviour is motivation. Motivation is an inner drive that directs a person to do certain activities to achieve goals. Motivation can’t be observed, but can be seen through the forms of behaviour. Motivation is innate and can be learned.
D. CONCLUSION

Based on the results of this study, it can be concluded several things, namely: 1) knowledge description of the majority of respondents 62.9% have a high level of knowledge, half of the total respondents have a positive perception 53.6%, positive attitude 51.7%, high motivation 50.4%, and good fire hazard control behaviour 55.7%; 2) the level of knowledge has a relationship with fire hazard control behaviour (p value 0.000; OR 2.193); 3) perception has a relationship with fire hazard control behaviour (p value 0.001; OR 1.962); 4) attitude has a relationship with fire hazard control behaviour (p value 0.006; OR 1.785); 5) motivation has a relationship with fire hazard control behaviour (p value 0.000; OR 2.414); and 6) the dominant factor influencing fire hazard control behaviour is motivation (p value 0.000; OR 2.538).

There are several suggestions that need to be done, such as: 1) The Faletehan University campus in Serang is more likely to maintain and increase the motivation of lecturers, employees, office boys, and security guards to be more responsive to Occupational Health and Safety/K3 especially the dangers of fire disasters by controlling fire hazards, one of which is in the morning apple activity providing knowledge about K3; 2) provide socialization for lecturers, students, employees, office boys, and security guards about the importance of fire hazard control behaviour by providing training on the use of fire control tools in this case the use of a Light Fire Extinguisher (APAR), or knowledge about extinguishing fires with simple tools like a burlap sack; 3) giving rewards to University of Faletehan residents who can be disciplined in implementing K3 and 4) The university of Faletehan campus can refer to ISO 9000 regarding quality improvement.

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