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The Influence of Safety Talk Communicators on Compliance with Personal Protective Equipment (PPE) Use in Construction Project

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Abstract – Personal Protective Equipment (PPE) is the last individual protection to avoid occupational accidents. Incompliance with PPE use is still discovered in high rise building construction project at Siwalankerto Avenue 121-131, Surabaya city. Safety talk program is conducted by communicators in this project site and applied persuasively to increase workers' compliance with PPE use. Hence, the communicators play important roles in influencing the workers on compliance with PPE use. The aim of this study was to understand the influence of safety talk communicators including their attractiveness, credibility and power on construction workers' compliance with PPE use. This study was analytical observational with a cross sectional design. The result of linear regression showed regression coefficient score of attractiveness ($B=0,198$), credibility ($B=1,193$), and power ($B=-0,562$). It can be concluded that safety talk communicators' variables which highly influenced on the construction workers' compliance with PPE use were credibility and power. The communicators' credibility influenced positively on compliance with PPE use while the communicators' power influenced negatively.

Keyword – PPE, compliance, construction

I. INTRODUCTION

The number of occupational accidents in construction project sites technically could be decreased by reducing any kind of workers' unsafe actions. One of the unsafe actions frequently found in construction workers is not using PPE (Personal Protective Equipment). PPE is the last individual protection to avoid occupational accidents. Incompliance with PPE use is still discovered in building construction project at Siwalankerto Avenue 121-131, Surabaya city. Nearly in daily, the workers hardly use complete PPE, such as: mask, gloves, and boots.

Constructors as persons in charge of occupational safety at the project site have conducted several programs to foster the workers' compliance with PPE use. One of them is safety talk which is persuasively held once a

week. This program is able to give influence on the workers to comply in using PPE at the work place.

Related to the problem mentioned above, it is necessary to conduct a research regarding influence of individual characteristics on compliance with PPE use. Findings of the research could be references in construction workers' recruitment. In other words, requirement of decent workers recruitment will lead to obtain workers who comply in using proper PPE. As a result, it enables us to implement a zero accident at construction project sites.

II. METHODS

⁴This study was analytical observational with a cross sectional design. The aim was to analyze the influence of safety talk communicators on compliance with PPE use. The subject of this study was workers in construction project site at Siwalankerto Avenue, Surabaya city. The respondents were 44 irregular construction workers at the project site.

Variables of this study were independent and dependent variables. The independent ones included attractiveness, credibility, and power of communicators; perception of safety talk message; workers' knowledge; motivation; and attitude. One the other hand, the dependent variable was score of workers' compliance with PPE use including the use and maintenance of PPE.

Techniques of data collection applied in this study were interview and observation. Interview by questionnaires was used to gain the independent variable data, while observation was employed to gain the dependent variable score. Statistic analysis utilizing linear regression was used to understand the influence of each independent characteristic variable on the score of compliance with PPE use.

III. RESULT AND DISCUSSION

⁵Surabaya is the second largest city in Indonesia. The large of this city is 333.063km² with its population reaches 2.909.257. Surabaya is the capital city of East Java Province. According to Indonesian Statistic Center, the

growth of construction sites in East Java province on second quarter in 2015 was 5,2%. Construction projects in this city grow rapidly. One of the projects is high rise building construction. Implementation of this project is construction of apartment, mall, and university. This study was conducted in one university project site which is located at Siwalankerto Avenue 121-131. Majority of the workers were irregular hired by the company or contractors.

Safety talk program is one of the programs from HSE division aiming at preventing occupational accidents. This program persuasively gives information to workers related to safety and health issue at work place. The information conveys to workers is the use of PPE. Materials taught are the use and maintenance of PPE. It is expected that the workers would become more compliance with PPE use after participating in this program.

Analysis of linear regression was conducted to understand the influence of independent variables on a dependent variable. The independent variables included attractiveness, credibility, and power of communicators; perception of safety talk message; workers' knowledge on PPE; motivation in using PPE; and attitude in wearing PPE. One the other hand, the dependent variable was score of compliance with PPE use. The finding of computer analysis (Table 2) displayed the total of adjusted R^2 was 0,716 in other words 71,6% variation of compliance with PPE use was explained by the independent variables mentioned above. The rest of the score 28,4% ($100\% - 71,6\% = 28,4\%$) was affected by external causes.

The result of F test found that F score was 16,459 with probability 0,000. The probability was a lot smaller than 0,05. Consequently, regression model could be used to predict the workers' compliance with PPE use or in other words attractiveness, credibility, and power of communicators; perception of safety talk message; workers' knowledge on PPE; motivation in using PPE; and attitude in wearing PPE simultaneously influenced on the workers' compliance with PPE use.

The score of constant was 1,329 proved that if independent variable was constant, average score of the workers' compliance with PPE use was 1,329. Variables contributed highly on the compliance with PPE use were credibility and power of safety talk communicators. It was explained by regression coefficient scores which were higher than other variables. The regression coefficient score of safety talk communicators' credibility was 1,193 confirming that every increasing of safety talk communicators' credibility score by 1 led to increasing of compliance with PPE use score by 1,193. In contrast, the regression coefficient score of safety talk communicators'

power was -0,562 proving that every increasing of the safety talk communicators' power score by 1 led to decreasing of compliance with PPE use score by 0,562.

The credibility of safety talk communicators influenced positively on the workers' compliance with PPE use. Meaning that the higher credibility of safety talk communicators, the higher of workers' compliance with PPE use and maintenance. Unlike the influence of communicators' credibility, the safety talk communicators' power influenced negatively on the compliance with PPE use. It indicated that the more power of safety talk communicators showed to the workers, the less workers' compliance with PPE use.

According to Mulyana (2015), one of communication principals is irreversible, meaning once a communicator conveys a message; s/he could not control the influence of the message at all. Behavior is an event. Hence, it happens in time and irretrievable. Irreversible is implication of communication as a changing process. Compliance is significant communication function in order that behavior produced similar with message conveyed. Based on Budyatna & Ganiem (2011), compliance occurs if behavior of one or more individuals meets other's expectation. In communication pattern in which compliance represents level of environment restrain, necessities and results acquired by communicators are identical. Ability in restraining many external factor issues mostly depends on compliance of others to grant communicators' wishes in the form of a message. It was found in analysis result that variables of communicator which greatly contributed on compliance with PPE use were credibility and power of safety talk communicators.

According to Kiesler in Azwar (2013), popular and attractive communicators will be more effective than unpopular and unattractive ones. The result depicted that communicators' attractiveness gave minor influence on workers' compliance with PPE use. It might happen because the communicators tend to convey message authoritatively in daily. Based on Malik (1994) in persuasive meaning democratic leadership style is more excellent than authoritative style for majority of small group. If communicators' attractiveness were combined with authoritative leadership style, compliance with PPE use would be failure.

Observation result of safety talk program showed that the method used in conveying message was persuasive not compulsion method. Cesar M. Mercado in Susanto (1986) stated that difference between persuasive and compulsion strategy lays in which one of two factors change initially, attitude or action. It is explained previously that safety talk conducted persuasively is expected to change the workers' attitude. Afterwards, compliance behavior might

emerge. According to Azwar (2013), generally an individual tends to have conformist attitude or in line with his/her significant others. When communicator's credibility is able to convey important information, it will gradually change attitude in line with stated meaning. The next analysis result depicted that communicators' credibility influenced positively on attitude and the attitude influenced positively on compliance. The credibility also influenced positively on compliance. In persuasive method, communicators' credibility formerly changed the workers' attitude then changed the compliance with PPE use. The safety talk communicators' credibility enabled us to clarify information regarding the most significant use of PPE by the construction workers. As a result, the workers' attitude will change followed by their improvement in compliance with PPE use.

The other analysis result demonstrated that communicators' power influenced negatively on compliance. In other words, the workers would not be more comply and against persuasive messages. It was because the communicators were over power. French and Raven in Mc Quail (1987) stated that influence via communication is a form of power use relied on communicators' capital and wealth. Two kinds of capital mentioned are categorized as rewards and compulsion. Legitimation power existed meaning the influence is accepted. It assumes that communicators have rights to be followed or complied. Thing to be cautious is when communicators over power, it could lead to incompliance. In defensive behaviors, strategy to make persuasive method no longer effective is defaming source of message conveyer. Thus, their power or authority vanish.

IV. TABLES

Table 1. Frequency Distribution on Compliance in Using PPE

| No. | Compliance in PPE | Comply | Not Comply | Compliance Percentage |
|---------------------------|------------------------------|--------|------------|-----------------------|
| Use of PPE | | | | |
| 1 | Use of safety helmet | 44 | 0 | 100 % |
| 2 | Use of mask | 25 | 19 | 56,8 % |
| 3 | Use of gloves | 28 | 16 | 63,6 % |
| 4 | Use of safety shoes | 35 | 9 | 79,6 % |
| 5 | Using safety helmet properly | 22 | 22 | 50 % |
| 6 | Using PPE properly | 37 | 7 | 84,1 % |
| Maintenance of PPE | | | | |

| | | | | |
|---|------------------------------|----|----|--------|
| 7 | Maintenance of safety helmet | 33 | 11 | 75 % |
| 8 | Maintenance of gloves | 16 | 28 | 36,4 % |
| 9 | Maintenance of safety shoes | 25 | 19 | 56,8 % |

Table 2. Regression Analysis

| Model | B | F test | | Adjusted R ² |
|-----------------------------------|--------|--------|-------|-------------------------|
| | | F | Sig. | |
| (Constant) | 1,329 | 16,459 | 0,000 | 0,716 |
| Attractiveness | 0,198 | | | |
| Credibility | 1,193 | | | |
| Power | -0,562 | | | |
| Perception of safety talk message | 0,129 | | | |
| Workers' knowledge | 0,006 | | | |
| Motivation | 0,055 | | | |
| Attitude | 0,067 | | | |

V. CONCLUSION

Based on the analysis results regarding the influence of communicators on workers' compliance with PPE use, it was found that variables of safety talk communicators which had the highest and the most significant influence on compliance with PPE use were credibility and power of communicators. The credibility of communicators had positive influence on compliance with PPE use, while the power of communicators had negative influence. Based on this conclusion, it is suggested that the safety talk communicators' credibility needs to be improved in order compliance with PPE use improves. Also, the project's management should require the safety talk communicators to participate in Occupational Health and Safety (OHS) trainings particularly trainings related to the use of PPE.

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