Correlation of Knowledge and Metabolic Syndrome in Container Crane Operator

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Correlation of Knowledge and Metabolic Syndrome in Container Crane Operator

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ABSTRACT

This study aimed to know the correlation between knowledge and incident of metabolic syndrome in container crane operators. The design of the study was observational method and conducted by cross sectional approach in an international container terminal facilities company in Surabaya. The independent variable was knowledge of metabolic syndrome using questionnaires method. The dependent variable was metabolic syndrome using International Diabetes Federation criteria. The number of population was 68 container crane operators and 40 operators as the samples were taken randomly. The results showed that knowledge did not have significant correlation with metabolic syndrome incident. Considering the study's result, the company needs to find other cause of the metabolic syndrome in their container crane operator population and find effective health promotion in metabolic syndrome prevention.

Keywords: Knowledge, Metabolic Syndrome, Crane Operator.

I. INTRODUCTION

Cardiovascular disease, diabetes mellitus and stroke are degenerative diseases that allegedly afflict more and more workers in the world. These diseases can cost the company's health and reduce the quality of life of the workers. The diseases may also be an underlying factor cause of workers unsafe action. Unsafe actions may lead to work accidents.

Metabolic syndrome is a collection of symptoms that consist of glucose intolerance, insulin resistance, central obesity, dyslipidemia, and hypertension which can be a risk factor for cardiovascular disease and diabetes mellitus [1, 2]. Researchers believe that low physical activity and unhealthy lifestyles are related to metabolic syndrome in workers. To increase crane operator awareness in low physical activity and unhealthy lifestyles effects, the company held seminar about metabolic syndrome in 2015.

Health seminar in health promotion has important role in the company's occupational health and safety programs. The purpose of seminar is to give knowledge about metabolic syndrome. The knowledge is expected to change worker health's behavior. A container crane operator must have good condition of health including sufficient physical strength, endurance, agility, coordination, and reaction speed to meet the demands of working as a container crane operator.

II. METHODS AND MATERIAL

This study aimed to know the correlation between knowledge and incident of metabolic syndrome in container crane operators. This study was designed as an observational study and conducted by cross sectional method. Forty container crane operators as respondents were obtained by using simple random sampling technique. The dependent variable in this study was metabolic syndrome using International Diabetes Federation criteria, while the independent variable was worker's knowledge about metabolic syndrome. This

study data get through questionnaires and direct measurements of blood pressure, waist circumference, fasting triglyceride (TG), high density lipoprotein (HDL) and blood glucose. The ethics committee for Research Project in Airlangga University, Surabaya, Indonesia approved the study. The study was held in an international company that provides container terminal facilities in Surabaya, Indonesia.

Validity and Reliability

The questionnaires instrument was validated by 13 operators excluded from the respondents. Cronbach's Alpha reliability method was adopted to determine the internal consistency of the instrument. A reliability coefficient of 0.91 was obtained.

III. RESULT AND DISCUSSION

Knowledge of metabolic syndrome data obtained by calculating the total score of the correct answers. Each correct answer is worth 1 score. Table 1 show that the average score of container crane operator knowledge was 8.03. The lowest score is 0 and the highest score of 13 out of 18 questions. Based on the calculation of 95% Confidence Interval, the average metabolic syndrome knowledge in the population of PT. X container crane operator was 7 to 9 score.

Table 1. Distribution of Respondents Knowledge Score

Variable	Mean	Median	Modus	SD	95% CI
Knowledge Score	8,03	8	8	2.64	7.18-8.87

For correlation analysis, knowledge variable was transformed into categorical variable. As seen in Table 2, the respondents knowledge score most frequents were less than 9 point (23 men).

Table 2. Distribution of Categorical Data in Knowledge Score Variable

Data		Frequency	Percentage (%)
Knowledge Score	**≤8**	23	57.5
	>8	17	42.5
	Total	40	100

Based on the examination results of the respondents fasting TG, HDL, blood sugar, blood pressure and abdominal circumference added with history of blood pressure medications, history of treatment of cholesterol as well as diabetes mellitus, the study found the number of respondents who have metabolic syndrome according IDF criteria as much as 40% or 16 of the total 40 respondents as seen in Fig 1.

Dyslipidaemia was the most frequent result came from 32 people or 82.5%, then the second rank was the abdominal circumference (above 90 cm for Asian ethnic) which was found in 30 people or 75% of total respondents, followed hypertension and blood sugar levels above normal (hyperglycaemia).

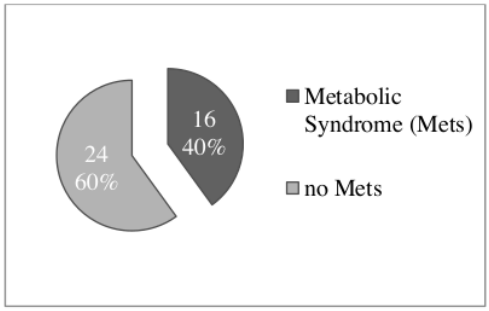

Figure 1. Percentage of Metabolic Syndrome Incidents

Correlation between knowledge score and metabolic syndrome incident was analysed using Chi-square test and α 0.05. Chi-square analysis was due to the non-parametric data category. This analysis aims to examine differences in the proportion of two or more groups of samples [3, 4]. Knowledge of the metabolic syndrome that ≤ 8 score had fewer metabolic syndrome incidences than > 8 score as seen in Table.

Table 3. Correlation between Knowledge Score and Metabolic Syndrome

Variable	Mets		N (%)	*p-value*	Correlation
	Yes	No			
Knowledge Score					
>8	10 (58.8%)	7 (41.2%)	17 (100%	0.08	Not Significant
≤ 8	6 (26.1%)	17 (73.9%)	23 (100%)		

Occupational health care in PT. X had health education in metabolic syndrome theme which was attended by representatives of employees in 2015. This study found that many respondents could only answer questions less than 9 questions. Percentage of metabolic syndrome in operator who can answer ⩽8 questions and > 8 question was 26.1% and 58.8% and showed no significant correlation.

Metabolic syndrome can be prevented with a workers healthy behaviour. Benjamin Bloom theory, quoted by Notoatmodjo [5] stated that health behaviour could be shaped by knowledge along with an attitude, and practice. Knowledge has 6 levels intensity, which are knowing, understanding/comprehension, application, analysis, synthesis, and evaluation. Data analysis showed that the operator with a high score had greater risk of metabolic syndrome. This result might be caused the operator was on the knowing level and did not understand also able to evaluate the hazards of the metabolic syndrome.

Lawrence Green theory mentioned that health problems caused by behavioural factors and non-behavioural factors. Though with increasing one's knowledge did not necessarily lead to behaviour change. Changes in healthy behaviour required an enabling factor and reinforcing factors [5]. According to Rowe*, et al* cited by [6], enabling factors are health facilities availability, availability of infrastructure to support the success of the program. In this study, enabling factors could be achieved by providing the sports infrastructure for operators, health care and referrals system. Reinforcing factors could be given through the figure of someone who had influence in the company and provided continuous monitoring of workers health.

Notoatmodjo also added that a person's health behaviours related his socio-economic level, culture, religion, education and experience [5]. Knowledge could not associate with the occurrence of the metabolic syndrome directly be caused of a lot of other factors involved. Operators with knowledge score above 8 points might be at risk of metabolic syndrome due to unsuccessful influence figure health workers in health presentation class, the absence of supporting healthy habits infrastructure, his culture, his socio-economic, education and experience. Similarly, the operator that had score knowledge under 8 points more likely to have metabolic syndrome risk factors from the opposite of the previous explanation.

IV. CONCLUSION

There is no significant correlation between knowledge and metabolic syndrome incident. The company owner must find the cause of metabolic syndrome incident among workers and the worker themselves should aware of the importance having healthy behaviour and prevention of metabolic syndrome.

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PAGE 1

PAGE 2

PAGE 3