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Non-Communicable Disease Education through Risk Factor Screening on Employees of Bondowoso Campus, University of Jember

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Abstract Non-Communicable Disease is a chronic disease that tends to last a long time and can cause death. It can cause individuals to become less productive. However controlling risk factors through early detection can prevent these problems. At this time, early detection is mostly carried out at the village / health facilities level, not yet at work / institutional level. Bondowoso Campus Jember University is one of the largest educational institutions in the BASUKI RAYA area, which has many employees, and an average age of over 20 years, which is the productive age group. Early detection through Non-Communicable Disease screening activities is important in preventing and reducing morbidity and mortality due to the disease. This activity is also useful in regularly monitoring the health of employees and also minimizing lost opportunities for employees to carry out early detection of diseases due to examinations. Methods of this activity include counseling, early detection of PTM as well as counseling and counseling based on screening results. Data analysis were performed using univariate and bivariate. Different test was performed using Wilcoxon with a level of α = 0.05. The results showed that there was an increase in employee knowledge regarding non-communicable diseases and how to prevent them. (p = 0.03, sig <0.05).

1. INTRODUCTION

Non-Communicable Diseases (NCD) is a chronic disease that tends to a long and caused by interaction of genetic, hereditary, degenerative, environmental and behavioral factors including an poor lifestyle such as smoking and lack of physical activity (Theodore, 2014 and WHO, 2019). NCD is the cause of death for almost 70% in the world. This is indicated by the tendency of the incidence rate to increase from time to time (Theodore, 2014).

According to the results Basic Health Research of Indonesia (Riskesdas) in 2007, 2013, and 2018 there is a tendency to increase the prevalence of NCD such as diabetes, hypertension, stroke, and joint disease/rheumatism/gout. Based on Bondowoso Non-Communicable Disease Case Report in 2018, there has been an increase in NCD cases compared to 2017 included hypertension (40714 cases), coronary heart disease (724 cases), heart failure (1804 cases), COPD (1136 cases), stroke (1273 cases), type I diabetes mellitus (1656 cases), type II diabetes mellitus (6643 cases), gestational diabetes mellitus (156 cases), DM-TB (22 cases) and obesity (5041 cases).

NCD cases in general are not contagious from one person to another, but NCD is deadly and can cause individuals to become unproductive or less productive. However, these problems can be prevented by controlling risk factors through early detection (Theodore, 2014). This is expected to increase one's work productivity and be able to identify/detect early risk factors for non-communicable diseases.

University of Jember at Bondowoso Campus is one of the largest educational institutions in the BASUKI RAYA area. It have many employees with an average age of over 20 years. Health monitoring have never been carried out, especially screening related to Non-Communicable Diseases (NCD). Based on several studies that have been conducted, it is known that someone who is more than 20 years old has a higher risk of contracting non-communicable diseases. NCD can reduce a person's work productivity which means it will also affect the quality or performance of work (Kemenkes RI, 2019).

This activity aims to increase the level of awareness of employees at the University of Jember Bondowoso Campus

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through screening activities to detect risk factors for non-communicable diseases in the campus and can be increase work productivity. In addition, this activity also aims to minimize the loss of opportunities for employees to carry out early detection of diseases due to current examinations/ services located only in villages/health facilities and carried out during working hours. This activity is expected to increase employee awareness, understanding and knowledge and can be an effort to reduce morbidity, mortality and disability rates of Non-Communicable Diseases at the University of Jember, Bondowoso Campus. Based on the above, Non-Communicable Disease Education activities through Risk Factor Screening for Employees at the Bondowoso Campus, Jember University are necessary to be carried out.

2. METHOD

This study used a cross sectional design. The research was conducted at the University of Jember, Bondowoso Campus, in October – December 2020. The population in this study were all employees of the University of Jember, Bondowoso Campus. Sample in this study was by using purposive sampling technique obtained as many as 30 respondents. Data collection was carried out by conducting direct measurement including measurements of weight, height, Body Mass Index (BMI), abdominal circumference, analysis of body fat, blood pressure, blood sugar and cholesterol. Measurements and diagnosed by professionals who have legal certificate. In addition, interviews were also conducted using a questionnaire structured to determine the risk factors for NCD. Pre and post-test were conducted to describe the knowledge before and after this activities. Pre and post-test were measured using an instrument (questionnaire). Data analysis in this study was carried out descriptively. The difference test was carried out using Wilcoxon with a level of = 0.05.

Activity

This activity is carried out through several stages :

a. Counseling of risk factor Non-Communicable Disease to all participant

b. Screening

Conducted by interview to explore risk factor which is then followed by measurements which are grouped into 3 Posts :

1. Pos I

Participants will be interviewed for NCD Risk Factors such as family history, consumption patterns of fruit vegetables, physical activity, alcohol consumption, smoking and stress

2. Pos II

Anthropometric measurement such ac height, weight, abdominal circumference and body mass index. After that, participants will have their blood pressure checked

3. Pos III

Participants will have blood sugar, cholesterol and uric acid check

c. Individual Counseling

Individual counseling is carried out based on the screening results. This activity doing with strict health protocols.

3. RESULT AND DISCUSSION

The respondent characteristics are presented in the following table.

Table 1. Characteristics of community service participants concerning non-communicable diseases at Bondowoso Campus, University of Jember.

Characteristics	Total
Gender	
1. Male	25 (83.3%)
2. Female	5 (16.7%)
Age group	
1. Teenagers	3 (10%)
2. Adult	21 (70%)
3. Early elderly	3 (10%)
4. Late elderly	3 (10%)
Education level	
1. High school	17 (56.7%)
2. College	13(43.3%)
Marital status	
1. Single	8 (26.7%)
2. Married	20 (66.7%)
3. Divorced	2(6.6%)
Smoking	
1. Yes	13 (43.3%)
2. No	17(56.7%)

Based on Table 1, most employees at Bondowoso Campus, University of Jember were male (83.3%) and in the productive age group, 15-65 years old (Kemenkes RI, 2018). Those in their productive age have a higher productivity level than old workers due to their weakness and limited physical abilities. According to research by Aprilyanti (2017), those of adult and productive age have a high workload, inadequate physical activity, and a diet high in carbohydrates and fat, so they are at risk for suffering from non-communicable diseases such as cardiovascular disease.

As many as 43.3% of employees at Bondowoso Campus were smoking or using tobacco products, and based on the field results, 36.4% of employees admitted to smoking every day. From the risk interviews conducted, a few employees claimed to have smoked for 35 years. There are 40.9% of employees who have tried to quit smoking but have not succeeded. Based on research by Amalia (2017), cigarette consumption has a significant effect on labor productivity.

Early detection of non-communicable diseases in employees through NCD screening was carried out by assessing the anthropometric measurements, nutritional status, blood pressure, blood sugar, cholesterol, and uric acid. The following table shows the results of the assessments carried out.

The examination results of early detection of non-communicable diseases show that 31.8% of employees at Bondowoso Campus, University of Jember had high blood pressure, 45.5% of employees had high cholesterol levels, 22.7% of employees had high uric acid levels, 54.5% of employees were overweight, and 13.6% of employees had obese index body status.

It can be concluded that more than 50% of the employees at Bondowoso Campus of University of Jember have excessive nutritional status and are obese. Overnutrition and obesity can increase the risk of diabetes, hypertension, coronary heart disease, stroke, certain cancers, obstructive sleep apnea, and osteoarthritis (WHO, 2014).

In line with the research of Sugiritama et al. (2020) that respondents who have a BMI in the overweight and obese categories tend to have blood sugar levels and blood pressures above normal (pre-hypertension). In addition, it was also found that most respondents had cholesterol levels in the high category, which is a risk factor for cardiovascular disease. From this screening, several employees at Bondowoso Campus, University of Jember, had a history of hemorrhoid, asthma, and digestive disorders. Based on the anamnesis performed, the employees of University of Jember at Bondowoso Campus had a family history of diseases such as diabetes, heart disease, hypertension, and stroke.

Based on the pre- and post-test results, the knowledge level of the employees of University of Jember at Bondowoso Campus before and after participating in a series of community service activities showed that the average value of the pre- and post-test results increased by 13.33 points. The pre-test shows that participants had an average score of 66.67 with the lowest score of 20 and the highest score of 80 points, while in the post-test, the average score for participants was 80, with the lowest and highest scores of 60 and 100 points, respectively.

Table 2. Results of NCD early detection examinations on employees at Bondowoso Campus, University of Jember.

Indicator	Criteria	n	Value	
			Lowest	Highest
Abdominal circumference	Normal Abnormal	16 (53.3%) 14 (46.7%)	71 cm	110 cm
Body Mass Index	Underweight Normal Overweight Obese	1 (3.3%) 8 (26.7%) 17 (56.7%) 4 (13.3%)	17.5 kg/m2 17.5 kg/m2	38.9 kg/m2 38.9 kg/m2
Blood pressure	Low Normal High	1 (3.3%) 19 (63.3%) 10 (33.3%)	70/100 mmHg	100/190 mmHg
Blood sugar Cholesterol	Normal Normal High	30 (100 %) 16 (53.3%) 14 (46.7%)	79 mg/dL 139 mg/dL	121 mg/dL 265 mg/dL
Uric Acid	Normal High	23 (76.7%) 7 (23.3%)	4.3 mg/dL	9 mg/dL

Table 3. Average pre-test and post-test scores of participants' knowledge related to non-communicable diseases

Variable		Mean ± SD	Value		z	p
			Min	Max		
Knowledge Level of Non-Communicable Diseases	Pre-test	**66,7 ± 18,3**	20	80	-2.952	0.03
	Pre-test	**80,0 ± 16,7**	60	100		

Knowledge is information known or realized by a person based on sensory observations (Tjandra, 2004). According to Latipun (2001), a person's knowledge affects his perspective on something and makes it easier to accept or adopt positive behavior. Knowledge is influenced by several factors, including education, media, and exposure to information. The results of this activity show a significant difference, as shown in Table 3, between the level of employee knowledge carried out using pre- and post-test related to nutritional status, blood sugar, uric acid, cholesterol, and blood pressure examination results. In addition, employees were also given education related to risk factors and the prevention of several non-communicable diseases from the aspects of a clean and healthy lifestyle, diet to do, as well as hygiene and sanitation. Thus, it can be concluded that the selection of methods to increase employee knowledge through material counseling about non-communicable diseases, followed by NCD screening through interviews, risk measurement, and counseling is the right effort to increase employee understanding and knowledge. According to Ambarwati et al. (2013), counseling fosters good cooperation and communication between counselors to create a comfortable atmosphere. This allows the counselor to explore the extent of the respondent's knowledge and develop a better one.

The implication of NCD early detection examination carried out on the employees resulted in important information for both employees and the agency, considering that health problems can affect employees' work performance. Regular early detection activities are important to do to facilitate health status monitoring.

4. CONCLUSION

Most of the employees of University of Jember at Bondowoso Campus are in their productive age and have over nutrition and obese status. Therefore, it is necessary to have an examination and education related to NCD for early detection to minimize health problems, especially NCD, that affect employees' work performance. Future community services should be done on similar and more sustainable service activities by cooperating with various relevant stakeholders so that the activities will be more optimal and sustainable.

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