JOURNAL OF HEALTH
COMMUNITY SERVICE

UNUSA / **JOURNAL OF HEALTH COMMUNITY SERVICE**

Community Service About the Risk of Degenerative Diseases and Infections in Aru Surabaya Student Association (HIMAS) Dorms

Rahayu Anggraini[1], Handayani[2], Eppy Setiyowati[3], Rofi'usyani[1], Ebeth Jeremy Selly[1], Melky Malae[1]

[1] *Departement of Health, Faculty of health, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia*

[2] *Departement of Medicine, Faculty of Medicine, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia*

[3] *Departement of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, East Java, Indonesia*

ABSTRACT

The Aru Surabaya Student Association (HIMAS) dormitory is inhabited by 32 students from Maluku who are currently studying in Surabaya. Most students who are living in this dormitory have habits of smoking and heavy coffee. Smoking can cause health problem if it is done exscesively. Health problems that can occur generally are degenerative and infectious diseases, such as coronary heart disease, diabetes mellitus, and the risk of lung infection. Second, the method used in this PPM was health education and laboratory examinations to determine whether there is a risk of coronary heart disease, diabetes mellitus, and lung infection. Third, the seminar's results of CHD risk, DM, and Pneumonia, on the pre and post-test CHD results there was an increase in understanding of 60%, and the pre and post-test DM results there was an increase in understanding of 50%, while the laboratory screening results on the Fasting Blood Glucose and HbA1c test, had a 35% risk of Diabetes Mellitus (7/20), total cholesterol and hs-CRP tests had a 60% risk of coronary heart disease (10/20) and throat swab test results on Blood Agar and CRP media have a risk of developing pulmonary pneumonia by 40% (8/20). Fourth, in conclusion, students at HIMA Dormitory consisting of adult men with smoking and heavy coffee habits have a 60% risk of coronary heart disease, 35% diabetes mellitus, and 40% lung pneumonia. As a step of PPM sustainability, it is necessary to periodically hold local institutions or health centers to provide counseling and laboratory examinations, so that in the future students in the HIMAS dormitory as the nation's next-generaion can be completely healthy physically and mental.

INTRODUCTION

The HIMAS Dormitory is located on Jalan Nginden Baru 4/32, Surabaya is kept clean. Data from the person in charge of HIMAS, Mr. Masak Paidjala, who is from Maluku, Ambon, states that the HIMAS Dormitory has been established since 2014 until now. The initial plan and the good intention of Mr. Himas were to accommodate students from Maluku who wished to study at several universities in Surabaya. Within his limitations, Mr. Cook has managed to build 14 rooms with 4 bathrooms and 2 kitchens. Each room is occupied by about 2-3 students, so the total number of students living in the HIMAS Dormitory is around 34 people. In day-to-day affairs, the division of tasks is carried out, as chairman of HIMAS is Brother Ponty, secretary brother Willy, and as treasurer brother Rony, while Security is brothers David and Husein, Spirituality is Brothers Nadly and Ogen, and Housekeeping is Brothers Riskito and Risen. Like most people in Maluku, they are very fond of drinking coffee and smoking. The number of cigarettes smoked daily is no less than 1 pack per day. This was moved to

conduct PPM regarding the incidence of risk of degenerative and infectious diseases such as type 2 diabetes mellitus and coronary heart disease, as well as the incidence of lung infections due to smoking. Since its establishment until now, the HIMAS hostel has never had a medical check-up on its occupants, they are very enthusiastic about participating as participants. This community service will not only provide counseling about the incidence of degenerative and infectious diseases, but laboratory tests will also be carried out, such as fasting blood glucose, total cholesterol, HBA1c, hs-CRP and throat swabs (to determine the incidence of lung infectious diseases such as pneumonia). Applicative health education will involve the participation of health cadres who will explain the risk of infectious and degenerative diseases. Health cadres are lecturers and students from the Medical Technologies Program, Medicine and Nursing, while the laboratory examination techniques will be carried out by lecturers and students from the Medical Technologies Program, Universitas Nahdlatul Ulama Surabaya.

Figure 1 (left) is the HIMAS dormitory and (right) the location of the HIMAS dormitory. Personal Sources, Primary Data (2021)

1.1 Partner Issues

The priority problems of partners that have now been mutually agreed upon are the limited knowledge about healthy living behavior, considering that they seek knowledge in Surabaya, not in the field of Health, and limited knowledge about the risk of degenerative and infectious diseases, due to excessive smoking behavior, as well as limited knowledge about laboratory examination.

Figure 2. Students' habit of smoking and drinking coffee in the HIMAS dormitory. Personal Sources, Primary Data (2021)

1.2 Problem Solution

The solution to the problems offered to solve the problems faced in the provision of counseling and laboratory examinations, to determine the risk of degenerative and infectious diseases by health experts from the Faculty of Health, Medicine, and Nursing study programs. Then proceed with the provision of consultation on the interpretation of the laboratory tests results which include examination of fasting blood glucose levels, total cholesterol, hemoglobin A1c (HbA1c) levels, and high sensitivity C-Reactive Protein (hs-CRP). Providing consultation on the interpretation of microbiological examination results which include examination of Blood Agar Plate (BAP).

The resulting output, it is hoped that there will be an increase in knowledge about the incidence of degenerative and infectious diseases in students in the HIMAS dormitory, and an increase in healthy living behavior, as well as an increase in knowledge about the results of laboratory tests and the clinical meaning of the risk of the occurrence of a disease.

METHOD

The method used in this community service activity was the Participatory Technology Development and educative model with the following description, the time and place of the implementation of this community service activity program will be held at the HIMAS Dormitory on Jalan Nginden Baru 4/32, Surabaya. The program will be carried out for 1 month with the target participants being students who live in the HIMAS Dormitory, Surabaya, amounting to about 34 people, and the implementation stages are as follows, sending a letter of application for permission to carry out community service to the HIMAS Dormitory, Surabaya and the local Neighborhood Association Chair, determining the meeting schedule among resource persons who are competent in their field. The meeting will be held 3 times with material on the concept of degenerative diseases which include: diabetes mellitus, coronary heart disease, and lung infectious diseases, then proceed with laboratory tests such as total cholesterol, fasting blood glucose, HbA1c, and hs-CRP, then carry out examinations throat swab to determine the presence or absence of lung infection.

Providing counseling materials related to Diabetes Mellitus (DM) which contains the risk of Type 2 Diabetes Mellitus. Type 2 DM is a metabolic disorder characterized by an increase in blood sugar due to a decrease in insulin secretion by pancreatic beta cells and insulin resistance. The Health Research results in 2008, showed the incidence of diabetes mellitus in Indonesia reached 57%, while the incidence of type 2 diabetes mellitus in the world was 95%. The risk factors for type 2 diabetes mellitus are age, gender, obesity, hypertension, diet, smoking, alcohol, lack of activity, high waist circumference (Kautzky-Willer et al., 2016). Treatment using hyperglycemic drugs and insulin as well as lifestyle modifications can reduce the incidence and micro-and macrovascular complications of type 2 diabetes mellitus (DeFronzo et

al., 2015). Age is one of the risk factors for diabetes mellitus. This is caused by changes in body composition due to the aging process (Yuliani et al., 2014). Obesity is a multifactorial disease that occurs due to the accumulation of excessive fat tissue in the body called dyslipidemia (Mokdad et al., 2003). Dyslipidemia is a lipid metabolism disorder characterized by an increase or decrease in the lipid fraction in plasma. The main lipid fraction abnormalities were increased levels of total cholesterol, Low-Density Lipoprotein (LDL), triglycerides, and decreased levels of High-Density Lipoprotein (HDL). In insulin resistance, lipoprotein metabolism is slightly different. In this condition, hormone-sensitive lipase in adipose tissue will become active, so that lipolysis of triglycerides in adipose tissue will increase (Kautzky-Willer et al., 2016). Smoking is one of the factors that play an important role in increasing the risk of developing diabetes mellitus. Smoking can cause blood glucose concentrations and increase insulin resistance. Smoking habits can increase free radicals in the body that can damage pancreatic beta cells (Eyres et al., 2016).

Providing Counseling Materials related to Coronary Heart Disease (CHD) which contains about the cause of CHD, which is not exactly known, but in general, various factors that play an important role in the occurrence of CHD are known as CHD risk factors (Noyes et al., 2014). Cardiovascular disease is the leading cause of death in diabetics. The risk of myocardial infarction (MI) in diabetic patients is similar to that of recurrent myocardial infarction in nondiabetic persons who have had a previous myocardial infarction. Thus, diabetes is not only a risk factor for cardiovascular disease, but an equivalent risk for coronary artery disease (CAD) (Dagogo-Jack, 2003). Although the degree of glycemia (as assessed by percent HbA1c) is an independent predictor of coronary risk, hyperglycemia is one of the major etiologic factors for macrovascular complications. Thus, intensive glucose control significantly prevents microvascular complications. Broader policies involving the reduction of multiple risk factors should be pursued to prevent macrovascular complications of diabetes. The development of effective interventions to reduce the macrovascular disease burden can be facilitated by a more complete understanding of the mechanisms underlying this burden. Insulin resistance syndrome predisposes to macrovascular complications of type 2 diabetes. This condition, also known as metabolic syndrome, syndrome X, cardiovascular dysmetabolic syndrome, etc., often precedes the diagnosis of type 2 diabetes by several years. The features of the metabolic syndrome include upper body obesity, hyperinsulinemia, hypertriglyceridemia, elevated serum LDL cholesterol and decreased HDL cholesterol levels, hypertension, hyperuricemia, and a pro-coagulant state. Endothelial dysfunction also tracks the severity of insulin resistance. Metabolic syndrome affects millions of pre-diabetic people in the United States, is associated with a twofold increased risk for CAD, and has recently been assigned the International Classification of Diseases (ICD) code -9 of 277.7. The main criteria for diagnosis included abdominal

4

Rahayu Anggraini - Community Service About the Risk of Degenerative Diseases
and Infections in Aru Surabaya Student Association (HIMAS) Dorms

obesity, hypertriglyceridemia (>150 mg/dl), hypertension (>130/80 mmHg, low HDL cholesterol in men < 40 mg/dl and in women <50 mg/dl) and impaired fasting glucose (>110 mg/dl) (Dagogo-Jack, 2003).

Provision of Counseling Materials related to Lung Infection (Pneumonia) which contains the incidence of Pneumonia in low and middle-income countries, especially the incidence of HIV risk in smoking mothers and men. The incidence of malnutrition is often associated with an increased incidence of pneumonia (Wardani et al., 2020). Some compounds in cigarette smoke that are pro-inflammatory are nitrogen oxides, acetaldehyde, acrolein, hydrocyanic acid and ammonia. Nitrogen oxides and ammonia are irritants to the respiratory tract. Acrolein and acetaldehyde are unsaturated aldehydes that can reduce the phagocytic ability of alveolar macrophages to fight pathogens. Hydrocyanic acid also has a ciliatoxic effect (poisonous to cilia/fine hairs in the respiratory tract), so Streptococcus pneumoniae bacteria easily enter the body to infect and provide an inflammatory response to the lung parenchyma (Eyres et al., 2016). Streptococcus pneumoniae enters the peripheral lungs through the respiratory tract. The first reaction causes edema due to tissue reactions that facilitate the process of proliferation and spread of bacteria to surrounding tissues. The infected part of the lung underwent consolidation, namely the invasion of PMN cells, fibrin, erythrocytes, edema fluid, and bacteria were found in the alveoli. This condition is known as the red hepatization stage. Furthermore, the deposition of fibrin and PMN leukocytes is increasing in the alveoli, if the patient immediately stops smoking, a rapid process of phagocytosis will occur. This stage is called grey hepatization. Furthermore, the number of macrophages increases in the alveoli and then the cells will degenerate, so that fibrin thins, germs and cell debris disappear. This stage is called the resolution stage. If the bronchopulmonary system of the lung tissue is not exposed, it will avoid pneumonia (Chang et al., 2012).

Furthermore, an extension evaluation activity is carried out, which is usually carried out every time the material is delivered, where the participants will always be given a pretest and post-test to measure the level of understanding of the participants so that the presenters know the extent of the success of the material that has been delivered. Further evaluation of the laboratory examinations results, if found things that need to be followed up, then medical action or prescription of drugs will be immediately carried out. Each activity has a standardized assessment to motivate participants to be more concerned with personal health and the environment.

RESULT AND DISCUSSION

3.1 Fasting blood glucose and HBA1c

Diabetes Mellitus (DM) is 35% (7/20), obtained from abnormal Fasting Blood Glucose results as much as 20% (4/20) and abnormal HBA1c results are 20% (4/20).

Table 1 Results of Examination of Blood Glucose and HbA1c

5

Rahayu Anggraini - Community Service About the Risk of Degenerative Diseases and Infections in Aru Surabaya Student Association (HIMAS) Dorms

No	Sample Code	Fasting Blood Glucose (N: 70-110 mg/dL)	HbA1c (<6,5%)	Diabetes Mellitus Risk Prediction
1.	S/K	118	6,46	(+)
2.	E/L	104	5,81	
3.	R/E	83	6,9	(+)
4.	B/J	84	6,46	
5.	S/T	90	5,96	
6.	R/H	92	5,13	
7.	K/G	88	4,46	
8.	S/I	91	4,59	
9.	N/S	91	6,9	(+)
10.	D/D	152	5,85	(+)
11.	V/O	122	9,68	(+)
12.	W/A	88	4,46	
13.	H/P	100	6,65	(+)
14.	R/M	92	5,87	
15.	E/B	91	5,13	
16.	A/Q	80	5,27	
17.	S/R	130	6,08	(+)
18.	R/C	89	< 4,0	
19.	N/N	108	5,26	
20.	S/F	99	5,35	
		4/20 = 20%	4/20= 20%	
	Risk Of About Diabetes Mellitus			7/20= 35%

Personal Sources, Primary Data (2021)

Results of Table 1 showed that smoking is one of the factors that play an important role in increasing the risk of developing diabetes mellitus. Smoking can cause blood glucose concentrations and increase insulin resistance. Cigarette smoke can increase free radicals in the body that can damage pancreatic beta cells (Eyres et al., 2016).

3.2 Results of Examination of Total Cholesterol and hs-CRP

The diagnosis of CHD results, from the laboratory examinations results, the risk of coronary heart disease (CHD) was 60% (12/20), obtained from the results of abnormal total cholesterol as much as 35% (7/20) and abnormal hs-CRP results as much as 40% (8 /20).

Table 2 Results of Examination of Total Cholesterol and hs-CRP

No	Sample Code	Total Cholesterol (N: < 200 mg/dL)	hs-CRP (N: 0 – 1,0 mg/L)	CHD Risk Prediction
1.	S/K	218	< 0,5	(+)
2.	E/L	212	3,81	(+)
3.	R/E	162	< 0,5	
4.	B/J	152	< 0,5	
5.	S/T	191	1,07	(+)
6.	R/H	180	0,81	
7.	K/G	171	0,64	
8.	S/I	164	< 0,5	
9.	N/S	199	> 5,0	(+)
10.	D/D	324	3,49	(+)
11.	V/O	231	3,14	(+)
12.	W/A	193	< 0,5	
13.	H/P	191	3,95	(+)
14.	R/M	193	0,55	
15.	E/B	204	< 0,5	(+)
16.	A/Q	229	0,67	(+)

No	Sample Code			
17.	S/R	176	< 0,5	
18.	R/C	116	> 5,0	(+)
19.	N/N	304	0,93	(+)
20.	S/F	163	1,55	(+)
		7/20 = 35%	8/20 = 40%	
	Risk of Coronary Heart Disease			12/20 = 60%

Personal Sources, Primary Data (2021)

The results of table 2 showed that smoking greatly increases cardiovascular disease. Smoking can increase the risk of coronary heart disease by 50%. Certain components of tobacco and cigarette smoke are known to damage the walls of blood vessels and can lead to the formation of atherosclerosis, thereby increasing the risk of myocardial infarction. Acute smoking increases thrombus formation (Ainiyah, N. Izzah, S. R. Zahroh, C., Bistara, D. N. Faizah, 2021). The Community service results showed that 60% of smokers are at risk of developing coronary heart disease. The risk of myocardial infarction (MI) in diabetic patients is similar to that of recurrent myocardial infarction in nondiabetic persons who have had a previous myocardial infarction (Dagogo-Jack, 2003).

3.3 Results of examination S. pneumoniae culture and CRP

Diagnosis of Pneumonia from laboratory examination results, the risk of developing Pulmonary Pneumonia is 40% (8/20), obtained from the results of Blood Culture (BAP) growing and confirmed as much as 35% (7/20) and abnormal CRP results in as much as 10% (2 /20).

Table 3 Results of Culture Examination of S. pneumoniae and CRP

No	Sample Code	Kultur S. pneumonia (N: BAP Neg)	CRP (N: 0-10 mg/L)	Pneumonia Risk Prediction
1.	S/K		< 5	
2.	E/L	-	< 5	
3.	R/E	(+)	< 5	(+)
4.	B/J	-	< 5	
5.	S/T	(+)	< 5	(+)
6.	R/H	-	< 5	
7.	K/G	-	< 5	
8.	S/I	-	< 5	
9.	N/S	-	< 5	
10.	D/D	(+)	< 5	(+)
11.	V/O	(+)	< 5	(+)
12.	W/A	(+)	< 5	(+)
13.	H/P	-	< 5	
14.	R/M	-	< 5	
15.	E/B	(+)	< 5	(+)
16.	A/Q	-	< 5	
17.	S/R	-	< 5	
18.	R/C	(+)	**78,49**	(+)
19.	N/N	-	**15,16**	(+)
20.	S/F	-	< 5	
		7/20= 35%	2/20= 10%	
	Risk of Pneumonia			8/20= 40%

Personal Sources, Primary Data (2021)

7

Rahayu Anggraini - Community Service About the Risk of Degenerative Diseases and Infections in Aru Surabaya Student Association (HIMAS) Dorms

The results of table 3 showed that cigarette smoke contains a lot of nitrogen oxides, acetaldehyde, acrolein, hydrocyanic acid and ammonia. Nitrogen oxides and ammonia are irritants to the respiratory tract. Acrolein and acetaldehyde are unsaturated aldehydes that can reduce the phagocytic ability of alveolar macrophages to fight pathogens. Hydrocyanic acid also has a ciliatoxic effect (poisonous to cilia/fine hairs in the respiratory tract), so Streptococcus pneumoniae bacteria easily enter the pulmonary alveoli to infect and provide an inflammatory response to the lung parenchyma (Eyres et al., 2016).

3.4 Pretest and Post-test Questionnaire Diabetes Mellitus

The Pretest and Post-test results of Diabetes Mellitus Questionnaires resulted in an increased level of understanding of 41%, obtained from the posttest results of 96% and the pretest results of 55%.

Table 4 Pretest Diabetes Mellitus Questionnaire

No	Questionnaire	Respondent's Answer (C)	(W)	Correct Answer	Understanding Value (%)
1	If a teenager is confirmed to have Diabetes Mellitus (DM) type 2, it will not cause complications in the heart and kidneys	4 persons	6 persons	wrong	70
2	Frequent feelings of dizziness, hunger, thirst, nausea, vomiting and frequent urination are the most easily recognizable symptoms of DM	9 persons	1 person	correct	90
3	The HbA1c test requires an 8-hour fast and should be done in the morning	10 persons		wrong	0
4	If a teenager is confirmed with type 2 DM, it is easy to cure	7 persons	3 persons	wrong	30
5	HbA1c examination can be done at any time because what is measured is glucose bound to red blood cells		10 persons	correct	0
6	Blood pressure checks are done to see if DM has led to the kidneys	4 persons	6 persons	correct	40
7	Cholesterol and triglyceride levels are checked to monitor DM disease that has caused heart organ abnormalities	9 persons	1 person	correct	90
8	Adolescents are declared DM-free if the Fasting Blood Glucose results are not more than 100 mg/dL	7 persons	3 persons	correct	70
9	Ideal body weight if Body Mass Index (BMI) is between 18.5 – 23	9 persons	1 person	correct	90
10	How to measure BMI, by dividing your weight by your height in square meters	8 persons	2 persons	correct	80
	Diabetes Mellitus Understanding Score				**550/10= 55**

Personal Sources, Primary Data (2021)

Table 5 Post-test Diabetes Mellitus Questionnaire

No.	Questionnaire	Respondent's Answer (C)	(W)	Correct Answer	Understanding Value (%)
1	If a teenager is confirmed to have Diabetes Mellitus (DM) type 2, it will not cause complications in the heart and kidneys	1persons	9persons	wrong	90
2	Frequent feelings of dizziness, hunger, thirst, nausea, vomiting and frequent urination are the most easily recognizable symptoms of DM	10persons	0persons	correct	100
3	The HbA1c test requires an 8-hour fast and should be done in the morning	0persons	10 persons	wrong	100
4	If a teenager is confirmed with type 2 DM, it is easy to cure	3persons	7persons	wrong	70
5	HbA1c examination can be done at any time	10 persons	0persons	correct	100

	because what is measured is glucose bound to red blood cells			
6	Blood pressure checks are done to see if DM has led to the kidneys	10 persons 0persons	correct	100
7	Cholesterol and triglyceride levels are checked to monitor DM disease that has caused heart organ abnormalities	10persons 0persons	correct	100
8	Adolescents are declared DM-free if the Fasting Blood Glucose results are not more than 100 mg/dL	10persons 0persons	correct	100
9	Ideal body weight if Body Mass Index (BMI) is between 18.5 – 23	10persons 0persons	correct	100
10	How to measure BMI, by dividing your weight by your height in square meters	10persons 0persons	correct	100
	Diabetes Mellitus Understanding Score			**960/10= 96**

Personal Sources, Primary Data (2021)

3.5 Pretest and Post-test Questionnaire Coronary Heart Disease (CHD)

The Pretest and Post-test results of Coronary Heart Disease (CHD)Questionnaires resulted in an increased level of understanding of 35%, obtained from the post-test results of 98% and the pretest results of 63%.

Table 6 Pretest Coronary Heart Disease Questionnaire

No.	Questionnaire	Respondent's Answer (C) (W)	Correct Answer	Understanding Value (%)
1	Coronary heart disease is the main cause of death in Indonesia.	10persons 0persons	correct	100
2	The cost of treating coronary heart disease is not expensive.	6persons 4persons	correct	60
3	Location of the heart is on the left chest.	10 persons 0persons	correct	100
4	The blood vessels that surround and nourish the cells of the heart are called coronary arteries.	8persons 2persons	wrong	20
5	Coronary heart disease is a disorder of heart function due to a lack of blood in the heart muscle due to blockage of coronary blood vessels.	10persons 0 persons	wrong	0
6	Hardening of the artery walls caused by the accumulation of fatty cholesterol is called atherosclerosis	8persons 2persons	correct	80
7	Plaque that ruptures and detaches can cause blockage of blood vessels, causing symptoms of an Acute Coronary Syndrome.	9 persons 1 person	correct	90
8	Symptoms of acute coronary syndrome are right chest pain, radiating to the right shoulder and arm.	8persons 2persons	wrong	20
9	Smoking is not harmful and is not a risk factor for CHD.	3persons 7persons	wrong	70
10	Quitting smoking can reduce the risk of CHD.	9persons 1person	correct	90
				630/10= 63

Personal Sources, Primary Data (2021)

Table 7 Post-test Coronary Heart Disease Questionnaire

No.	Questionnaire	Respondent's Answer (C) (W)	Correct Answer	Understanding Value (%)
1	Coronary heart disease is the main cause of death in Indonesia.	10persons 0persons	correct	100
2	The cost of treating coronary heart disease is not expensive.	8persons 2persons	correct	80
3	Location of the heart is on the left chest.	10 persons 0persons	correct	100

4	The blood vessels that surround and nourish the cells of the heart are called coronary arteries.	0persons	10persons	wrong	100
5	Coronary heart disease is a disorder of heart function due to a lack of blood in the heart muscle due to blockage of coronary blood vessels.	0persons	10 persons	wrong	100
6	Hardening of the artery walls caused by the accumulation of fatty cholesterol is called atherosclerosis.	10persons	0persons	correct	100
7	Plaque that ruptures and detaches can cause blockage of blood vessels, causing symptoms of Acute Coronary Syndrome.	10persons	0 persons	correct	100
8	Symptoms of an acute coronary syndrome are right chest pain, radiating to the right shoulder and arm.	0persons	10persons	wrong	100
9	Smoking is not harmful and is not a risk factor for CHD.	0persons	10persons	wrong	100
10	Quitting smoking can reduce the risk of CHD.	10persons	0 persons	correct	100
					980/10= 98

Personal Sources, Primary Data (2021)

CONCLUSION

After conducting Community Service at the HIMAS Surabaya Student Dormitory on Jalan Nginden Baru IV No 32 Surabaya, it can be concluded that students have a habit of smoking and drinking excessive coffee. After conducting health education about the risk of Diabetes Mellitus, there was an increase in understanding of 41% and understanding of coronary heart disease increased by 35%. Meanwhile, from the laboratory tests results, the incidence of coronary heart disease risk is 60%, Diabetes Mellitus is 35%, and lung pneumonia is 40%.

UNKNOWLEDGEMENTS

We would like to thank the HIMAS Coordinator Mr. Mesak Paidjala, S.Sos., M.Si and the Village Head of Nginden Baru IV Surabaya who have permitted us to do community service at the HIMAS Surabaya Dormitory.

REFERENCE

Ainiyah, N. Izzah, S. R. Zahroh, C., Bistara, D. N. Faizah, I. (2021). FAMILY KNOWLEDGE ON PREHOSPITAL STROKE DETECTION CORRELATES WITH HOSPITAL ARRIVAL TIME IN STROKE PATIENTS AT THE NAVAL HOSPITAL DR. RAMELAN, SURABAYA. *Nurse and Holistic Care*, *1*(2), 73–81. https://doi.org/https://doi.org/10.33086/nhc.v1i2.2221

Chang, Y.-C., Uchiyama, S., & Varki, A. (2012). *Leukocyte Inflammatory Responses*.

Dagogo-Jack, S. (2003). Preface [Hot Topic: Inflammatory Markers and Mediators: Emerging Therapeutic Targets in Diabetes, Cardiovascular and Metabolic Disorders (Guest Editor: Samuel Dagogo-Jack, MD)]. *Current Drug Targets*, *4*(6), i–iii.

DeFronzo, R. A., Ferrannini, E., Groop, L., Henry, R. R., Herman, W. H., Holst, J. J., Hu, F. B., Kahn, C. R., Raz, I., & Shulman, G. I. (2015). Type 2 diabetes mellitus. *Nature Reviews Disease Primers*, *1*(1), 1–22.

10

Rahayu Anggraini - Community Service About the Risk of Degenerative Diseases and Infections in Aru Surabaya Student Association (HIMAS) Dorms

Eyres, L., Eyres, M. F., Chisholm, A., & Brown, R. C. (2016). Coconut oil consumption and cardiovascular risk factors in humans. *Nutrition Reviews*, *74*(4), 267–280.

Kautzky-Willer, A., Harreiter, J., & Pacini, G. (2016). Sex and gender differences in risk, pathophysiology and complications of type 2 diabetes mellitus. *Endocrine Reviews*, *37*(3), 278–316.

Mokdad, A. H., Ford, E. S., Bowman, B. A., Dietz, W. H., Vinicor, F., Bales, V. S., & Marks, J. S. (2003). Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *Jama*, *289*(1), 76–79.

Noyes, A. M., Dua, K., Devadoss, R., & Chhabra, L. (2014). Cardiac adipose tissue and its relationship to diabetes mellitus and cardiovascular disease. *World Journal of Diabetes*, *5*(6), 868.

Wardani, E. M., Bistara, D. N., & Setiyowati, E. (2020). The Influence of Social Media About Covid-19 on Handwashing Behavior, Mask Wearing and Physical Distancing of Indonesian Students. *STRADA Jurnal Ilmiah Kesehatan*, *9*(2), 1338–1345.

Yuliani, F., Oenzil, F., & Iryani, D. (2014). The relationship of various risk factors to the incidence of coronary heart disease in people with type 2 diabetes mellitus. *Andalas Health Journal*, *3*(1), 1–4.

11

Rahayu Anggraini - Community Service About the Risk of Degenerative Diseases
and Infections in Aru Surabaya Student Association (HIMAS) Dorms