The Level of Knowledge of the Community About Heart Health in The Covid-19 Pandemic Era

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ABSTRACT

Background: Cardiovascular disease is still a global health problem. Data obtained from the World Health Organization (WHO) states that the death rate from cardiovascular disease (CVD) is 17.7 million people every year and 31% is the cause of all global deaths. The purpose of this study was to determine the level of public knowledge about heart health in the covid-19 pandemic era.

Method: The sampling technique used consecutive sampling, namely subjects who came and met the inclusion criteria were included in the study until the number of samples was met. This study is expected to provide information to the public about heart health and its relationship to the era of the covid-19 pandemic in the community/employees in the USU Medical Faculty

Results: In this study, the number of samples was 100 people, the age group > 30 years (62%), while the age group ≤ 30 years (38%). The majority of the sample works as official governments 40 people (40%), had good score predicate, good level of knowledge is Government Employees 20 peoples (20%), health workers (20%), while the level of education is Strata 1.

Conclusion: The level of knowledge of the community about heart health in the Covid-19 pandemic era is good with education level Strata 1 and most of them are Government Employees

Keywords: Covid-19, Knowledge Level, Heart Health

ABSTRAK

Latar Belakang*: Penyakit kardiovaskular masih merupakan masalah kesehatan global. Data yang diperoleh dari Organisasi Kesehatan Dunia (WHO) menyebutkan bahwa angka kematian akibat penyakit kardiovaskular (CVD) adalah 17,7 juta orang setiap tahunnya dan 31% merupakan penyebab seluruh kematian global. Tujuan dari penelitian ini adalah untuk mengetahui tingkat pengetahuan masyarakat tentang kesehatan jantung di era pandemi Covid-19.*

Metode*: Teknik pengambilan sampel menggunakan consecutive sampling, subjek yang datang dan memenuhi kriteria inklusi dimasukkan dalam penelitian hingga jumlah sampel terpenuhi. Penelitian ini diharapkan dapat memberikan informasi kepada masyarakat*

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tentang kesehatan jantung dan hubungannya dengan era pandemi Covid-19 di masyarakat/karyawan di Fakultas Kedokteran USU

Hasil: *Dalam penelitian ini, jumlah sampel adalah 100 orang, kelompok usia > 30 tahun (62%), sedangkan kelompok usia ≤ 30 tahun (38%). Mayoritas sampel bekerja sebagai pejabat pemerintah 40 orang (40%), memiliki predikat skor yang baik, dan tingkat pengetahuan yang baik adalah Pegawai Pemerintah 20 orang (20%), tenaga kesehatan (20%), sedangkan tingkat pendidikannya adalah Strata 1.*

Kesimpulan: *Tingkat pengetahuan masyarakat tentang kesehatan jantung di era pandemi covid-19 adalah baik dengan jenjang pendidikan Strata 1 dan kebanyakan dari mereka adalah Pegawai Pemerintah*

Kata Kunci: *Covid-19, Tingkat Pengetahuan, Kesehatan Jantung*

1 Introduction

Cardiovascular disease is still a global health problem. Data obtained from the World Health Organization (WHO) states that the mortality rate due to cardiovascular disease (CVD) is 17.7 million people annually and 31% is the cause of all global deaths. By 2020, heart disease and stroke will be the leading causes of death and disability worldwide, with the number of deaths projected to rise to more than 20 million per year and by 2030 to more than 24 million per year. The American Heart Association (AHA), reports that coronary heart disease contributes to 1 in 7 deaths in the United States, killing about 3% of adults or about 366,800 people annually. [1,2] The presence of comorbidities in patients with a diagnosis of coronary heart diseases such as diabetes, hypertension, and heart failure will increase mortality due to coronary heart disease. Therefore, stricter intervention and prevention efforts are needed in people with a high risk of developing coronary heart disease. The buildup of flakes in the coronary arteries carrying oxygen to the heart muscle can cause coronary heart disease (CHD). WHO says that heart and blood vessel disease is the leading cause of death in the world. A total of 17.9 million people died from CHD in 2016, accounting for 31% of all global deaths. More than three-quarters of deaths are from heart and vascular disease in developing countries. In 2016 CHD caused 36.32% of the causes of death. The prevalence of heart disease diagnosed by doctors in all age groups in 2018 in Indonesia was 1.5%.[1] Deaths from coronary heart disease are projected to increase by 2030 to 25 million deaths per year in the world. CHD is not an infectious disease but if left unchecked, there can be a decrease in community productivity due to not being able to carry out activities. This situation can affect the quality of life of the sufferer. Increasing age will increase the risk of suffering from CHD because the blood vessels change progressively over a long time. CHD in Indonesia has increased in socioeconomic status which causes unhealthy lifestyle changes such as smoking, obesity, alcohol consumption, lack of physical activity, sugar disease (DMT2), and hypercholesterolemia.[1] On December 31, 2019, the WHO China Country Office reported a case of pneumonia of unknown etiology in Wuhan City, Hubei Province, China. On January 7, 2020, China identified pneumonia of unknown etiology as a new type of coronavirus (novel

coronavirus). In early 2020 NCV began to become a global pandemic and became a health problem in several countries outside the PRC. According to the World Health Organization (WHO), cases of pneumonia clusters with unclear etiology in Wuhan City have become a worldwide health problem. The spread of this epidemic continued to grow until it was finally discovered that the cause of this pneumonia cluster was the Novel Coronavirus. The pandemic has continued to evolve until there are reports of deaths and new cases outside China. WHO designated COVID-19 as a Public Health Emergency of International Concern (PHEIC) On February 12, 2020, WHO officially designated this novel coronavirus disease in humans as Coronavirus Disease (COVID-19). COVID-19 is caused by SARS-COV2 which belongs to the same large family of coronaviruses that caused SARS in 2003, only different types of viruses. The symptoms are similar to SARS, but the mortality rate of SARS (9.6%) is higher than that of COVID-19 (currently less than 5%), although the number of COVID-19 cases is much higher than SARS. COVID-19 also has a wider and faster spread to several countries than SARS.[3-5] The increase in the number of COVID-19 cases is taking place quite quickly and there has been a spread outside the Wuhan area, including to Indonesia. North Sumatra is one of the provinces with the highest population in Indonesia, and this causes the potential for COVID-19 transmission in North Sumatra to also be very high. Data as of September 1, 2021, shows that there are 43,788 confirmed cases, with 34,512 recovered cases, and 846 deaths. Several areas in Medan City are designated as red zones, namely Medan Selayang District, Medan Sunggal, Medan Johor, Medan Tuntungan, Medan Amplas, Medan Kota, Medan Denai, and Medan Tembung. Other sub-districts in Medan City have the status of a yellow zone and there is not a single area in Medan that is still classified as a green zone.[6] One of the main causes of high transmission of COVID-19 cases is low public awareness which is associated with a low level of knowledge. Not to mention that there is a lot of misinformation and *hoax* news circulating on social media resulting in misunderstandings and misperceptions related to COVID-19. This misconception further negatively affects negative behaviors addressed to patients who are declared positive for COVID-19 such as being ostracized and shunned by society. The physical distancing policy also cannot be said to be fully successful considering that here and there are still crowds of people without even wearing masks.[7]

2   Methods

This research is descriptive research to determine the description of the level of knowledge in the community and employees in the FK USU campus environment. The research was conducted at the Faculty of Medicine Campus Universitas Sumatera Utara after obtaining the approval of the Research Ethics Commission for Health, FK USU / RSUP H.Adam Malik Medan. The research time was carried out in May 2022. The research sample is the community or employees in the FK USU campus environment who are willing to take part in the research and meet the inclusion criteria (age > 18 years old, and not health workers. Sampling is carried out by *the consecutive sampling* method, namely, subjects who come and meet the inclusion criteria are included in the

study until the number of samples is met. From the calculations, it was found that the number of samples to be studied in this study amounted to at least 96 samples. The research stage begins with selecting samples based on inclusion and exclusion criteria. The appropriate sample will then be given a questionnaire that must be filled out without being allowed to look for answers from other sources in any form. Then an examination or scoring is carried out according to the answers of each research subject on the questionnaire that has been filled out. The data that has been collected is corrected and then coded by the researcher manually before being processed with a computer. The program used is SPSS version 22. Data entry is performed on a *Data View* sheet, where each row represents one respondent and each column represents each variable. The data is presented descriptively, by displaying frequency and percentage distributions for categorical data. While the numerical data is presented by displaying the average and standard deviation data.

3   Result

In this study, the number of samples was 100 people with the most education in strata 1. From table 1, the age group that was sampled was the age group > 30 years (62%), while the age group ≤ 30 years (38%).

Table 1 Frequency and Percentage Distribution By Sex and Age

No	Age	n=100	%
1	Gender (M/F)	52/48	52/48
2	Age (yr)		
	≤ 30	38	38
	> 30	62	62

From table 2, the majority of the sample works as official governments 40 people (40%), self-employed (30%), health workers (22%), housewives (5%), and Information technology experts 3 people (3%).

Table 2 Frequency and Percentage Distribution By Occupation

No	Work	n=100	%
1	Housewives	5	5
2	IT Expert	3	3
3	Self-employed	30	30
4	Health Workers (Non-Doctors)	22	22
5	Government Employees	40	40

Based on table 3, the majority of samples received a good score predicate of 69 people (52%), while the sample who had a medium and low score predicate 27 (27%) and 4 (4%) people respectively.

Table 3 Frequency and Percentage Distribution Based on Public Knowledge of Level
The score of Heart Health

No	Score	N=100	%
1	Good (9-10)	69	69
2	Moderate (6-8)	27	27
3	Low (0-5)	4	4

Based on table 4, the best proportion of public knowledge levels based on the level of education is in the group with Strata 1 and Strata 2 education levels, which is 81 people (81%). Meanwhile, the sample that has a low level of knowledge is mostly found in the group with an elementary-advanced education level.

Table 4   Proportion of People's Knowledge Level by Education Level

No	Education Level	Level of Knowledge			%
		Good	Moderate	Low	
1	Advanced School	3 (4%)	5 (5%)	4 (4%)	12
2	Strata 1	63 (53%)	22 (22%)	0 (0%)	85
3	Strata 2	3 (3%)	0 (0%)	0 (0%)	3

Based on table 5. the proportion of people who have a good level of knowledge is Government Employees 20 peoples (20%), health workers (20%), self-employed (13%), and IT experts (2%). Meanwhile, the sample that has a poor level of knowledge is mostly found in the group with the work of housewives 3 people (3%).

Table 5   The proportion of People's Knowledge Level by Occupation

No	Education Level	Level of Knowledge			%
		Good	Moderate	Low	
1	Housewives	0 (0%)	2 (2%)	3 (3%)	5
2	IT Expert	2 (2%)	1 (1%)	0 (0%)	3
3	Self employed	13 (13%)	16 (16%)	1 (1%)	30
4	Health Workers	20 (20%)	2 (2%)	0 (0%)	22
5	Government Employees	34 (34%)	6 (6%)	0 (0%)	40

4   Discussion

Globally, cardiovascular disease (CVD) is responsible for one in four deaths or a total of up to 12.9 million deaths per year. Eighty percent of CVDs are the result of behaviors such as tobacco smoking, unhealthy diets, physical inactivity, and harmful alcohol consumption. The risk of all-cause death among individuals who scored poorly in behavioral factors was four times higher than those who had healthy behaviors.[8] COVID-19 is a disease caused by infection with the SARS-CoV-2 virus, first identified in the city of Wuhan, in Hubei province, China in December 2019. COVID-19 was formerly known as the 2019 Novel Coronavirus (2019-nCoV), a respiratory disease before the World Health Organization (WHO) declared its official name as COVID-19 in February 2020.[9] Initial COVID-19 case reports indicate that patients with the underlying

condition are at a higher risk for complications or death, and up to 50% of hospitalized patients have chronic medical diseases (40% cardiovascular or cerebrovascular diseases). In the largest COVID-19 clinical cohort study published to date, acute heart injury, shock, and arrhythmias occurred in 7.2%, 8.7%, and 16.7% of patients, respectively, with a higher prevalence among patients requiring intensive care. Initially, the main complications of COVID-19 were considered to be related to the lungs, then it was quickly observed that COVID-19 affects many organs, including the heart muscle, vascular endothelium, and cardiovascular system in general, increasing morbidity and mortality, especially in patients with other cardiovascular risk factors (hypertension, diabetes, obesity, cerebrovascular and renal diseases). In patients with this condition, morbidity is up to 10%. In significant numbers of infected patients, severe myocardial damage, malignancy of arrhythmias and cardiac arrest have occurred.[10] Based on the results of the study, the proportion of people who have a good level of knowledge based on work is in the group with civil servant jobs, namely, 20 people (20%), followed by other jobs such as non-doctor health workers (20%), self-employed (13%) and IT experts (2%).

In high-income countries, the decline in mortality from CVD is largely due to a reduction in risk factor behavior. Underlying socioeconomic parameters and social influences affect exposure and susceptibility to CVD risk factors. Therefore, surveillance of risk factors for non-communicable diseases should include social determinants.[8] As a precursor to beneficial health behaviors, experts have advocated community-based health literacy since the intervention began to explore the potential impact of behavior change on CVD. WHO promotes public awareness of diet and physical activity as a best effort to promote healthy cardiovascular behavior. However, achieving the desired health behavior requires a deeper understanding of the social context in which the disease is underlying. Therefore, the study of knowledge, attitudes, and exercises is considered to be able to improve the understanding of cardiovascular health literacy and people's behavior.[8] Greater knowledge about CVD and its risk factors, along with a healthy lifestyle, has been shown to reduce its risk of morbidity and encourage individuals to choose the right healthcare decisions. Lifestyle influences including physical activity, eating habits, tobacco use, excessive alcohol consumption, and stress on CVD have been well explained. Likewise, adopting a healthy lifestyle can reduce the incidence of CVD and mortality at the population level. Studies show that knowledge of behavioral risk is central to lifestyle change and individuals who perceive themselves as at higher risk of developing CVD are more likely to adopt a healthy lifestyle.[11] Therefore, measuring knowledge, risk perception, and intention for a healthy lifestyle is essential for developing and implementing targeted public health interventions. Evidence limited to differences in knowledge and perceptions of risk and their role in CVD load variation has been shown in vulnerable communities. As a result, it is imperative to investigate the level and socioeconomic gaps in knowledge about CVD, risk perceptions, and the intention to change lifestyles that can play a role in vulnerable communities.[11] In this study, it was found that the best proportion of public knowledge levels based on education level was in the group with S1 and S2 education levels, namely 81 people (81%). So it can be interpreted that the level of education

affects the individual's knowledge of heart health. The same was explained by Bernal-Jimenez et al in their research.

They stated that there were significant results between the differences in the level of knowledge at each level or level of education, where the sample with the highest level of education had a higher level of knowledge also when compared to the level of education below it.[12] The study conducted by Hassen et al also had results in line with this study, where the level of education had a significant relationship with the level of knowledge of cardiovascular diseases. The predictive and causal effects of education on CVD are controversial, meaning whether the correlation is due to inverse causality or confounding with other determinants. Similar studies have also reported the positive effects of education on knowledge of CVD risk factors and their prevention, which implies special attention that education is required for those with lower levels of education. Furthermore, research also shows that higher levels of education are associated with better dietary behaviors.[11] To measure the level of knowledge, appropriate instruments are needed, such as validated and reliable questionnaires. However, there is no gold standard for measuring the level of knowledge of CVD and its risk factors, which ended up generating many studies carried out over the years after making questionnaires for this purpose. It is largely designed to assess knowledge of various cardiovascular disorders and their relation to the pandemic era itself and awareness of the risk of suffering from CVD but not specifically focused solely on the role played by those CVD risk factors. Knowledge of the disease and its risk factors is considered a prerequisite for making decisions about health care. This knowledge helps patients control risk factors and adopt behaviors that promote cardiovascular health. In addition, individuals must be motivated and willing to actively participate in implementing a healthy lifestyle.[12] Understandably, the COVID-19 pandemic has had a significant impact and tremendous fear on patients and their families.

Due to concerns about contracting the infection, cardiovascular patients avoid medical contact altogether regardless of the cost required which sometimes harms them. While the pandemic has resulted in high mortality so far in the United States and around the world, there has been a sharp increase in terms of deaths unrelated to this infection. More people will likely die from cardiovascular disease than COVID-19.[13] COVID-19 is a global tragedy that leaves ongoing stressors on the healthcare system that is likely to result in a restructuring of healthcare practices both now and in the future. As this may survive into the foreseeable future, people must adapt in the delivery of health care to continue to fight against the number one killer disease that is cardiovascular disease. Strategies to reduce risks for personal care, the adoption of new strategies to enable remote care, and strong education about prevention and immediate care for cardiovascular emergencies are the foundations of cardiovascular care during the pandemic and beyond.[13]

5   Conclusion

The level of knowledge of the community about heart health in the Covid-19 pandemic era is good with education level Strata 1 and most of them are Government Employees

REFERENCES

[1]   Kemenkes, Hasil Utama Riskesdas, Kementerian Kesehatan Badan Penelitian dan Pengembangan Kesehatan. 2018

[2]   Supriyono, M. Faktor-faktor yang Berpengaryh Terhadap Kejadian Penyakit Jantung Koroner Pada Kelompok Usia ≤ 45 Tahun. Tesis. Semarang: Universitas Diponegoro.2008

[3]   WHO. Novel Coronavirus (2019-nCoV) Situation Report. 20 January 2020

[4]   WHO. Coronavirus disease (COVID-19) outbreak. Accessed: March 15, 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019

[5]   WHO. Coronavirus disease 2019 (COVID-19) Situation Report – 93. Accessed: April 23, 2020. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200422-sitrep-93-COVID19. pdf?sfvrsn=35cf80d7_4

[6]   Kementrian Kesehatan RI. Pedoman Pencegahan dan Pengendalian Coronavirus Disease (COVID-19). Kemetrian Kesehatan RI. 2020

[7]   Gugus Tugas Percepatan Penanganan COVID-19 di Indonesia. Pedoman Penanganan Cepat Medis dan Kesehatan Masyarakat COVID-19 di Indonesia. Gugus Tugas Percepatan Penanganan COVID-19 di Indonesia 2020.

[8]   Vaidya A, Aryal UR, Krettek A. Cardiovascular health knowledge, attitude and practice/behaviour in an urbanizing community of Nepal: a population-based cross-sectional study from Jhaukhel-Duwakot Health Demographic Surveillance Site. BMJ Open. 2013;3:1-11

[9]   Gerc V, Masic I, Salihefendic N, Zildzic M. Cardiovascular disease (CVDs) in covid-19 pandemic era. Mater Sociomed. 2020;32(2):158-64.

[10]   Dzaye O, Adelhoefer S, Boakye E, Blaha MJ. Cardiovascular-related health behaviors and lifestyle during the COVID-19 pandemic: An infodemiology study. American J of Pre cardio. 2021;5:1-6.

[11]   Hassen HY, Bowyer M, Gibson L, Abrams S, Bastiaens H. Level of cardiovascular disease knowledge, risk perception and intention towards healthy lifestyle and socioeconomic disparities among adults in vulnerable communities of Belgium and England. BMC Pub Health. 2022;22:1-9.

[12]   Bernal-Jimenez MA, et al. Design and validation of a scale of knowledge of cardiovascular risk factors and lifestyle after coronary event. J Clin Med. 2022;11:1-13.

[13]   Vallabhajosyula S, Friedman PA, Bell MR. Cardiovascular health in the COVID-19 era: a call for action and education. Mayo Clin proc. 2020;95(8):1584-88.