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Self-efficacy in increasing physical activity of coronary heart disease patients: a cross-sectional study

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ABSTRACT

Introduction: Patients with coronary heart disease who engage in low physical activity are at an increased risk of morbidity and mortality. Self-efficacy, a key determinant of physical activity adherence, may hinder or enable engagement in exercise, particularly in patients with low self-efficacy. This study aimed to determine the association of physical activity and self-efficacy in patients with coronary heart disease.

Methods: A cross-sectional study was conducted among outpatients of coronary heart disease at a cardiovascular center. A total of 238 coronary heart disease patients were included in the study using a purposive sampling technique. The self-efficacy was measured using the cardiac self-efficacy scales (CSE), and the physical activity was measured using the long form International Physical Activity Questionnaire (IPAQ). Data analysis used the Chi-square test, Spearman correlation test and multivariate linear regression.

Results: Self-efficacy was strongly positively correlated with physical activity in coronary heart disease patients ($r = 0.956$; $p = 0.001$). Domain-specific correlations included domestic ($r=0.419$, $p<0.001$), work ($r=0.383$, $p<0.001$), leisure time ($r=0.296$, $p<0.001$), and transport ($r=0.247$, $p<0.001$). Multiple linear regression analysis showed that employment status had the most significant negative impact on physical activity (B = -246.477), while age (B = 123. 889) and self-efficacy (B = 93.513) were positively associated with physical activity. These results indicate that higher self-efficacy and older age are linked to increased physical activity, whereas employment status is associated with decreased physical activity.

Conclusions: In this population, self-efficacy, remaining working status and age are important factors of physical activity in coronary heart disease patients.

Keywords: coronary heart disease, good health and well-being, physical activity, self-efficacy

Introduction

Coronary heart disease (CHD) is the world's biggest killer, responsible for 16% of the world's total deaths (World Health Organization, 2020). According to data from the American Heart Association (2022), approximately 19.1 million deaths were attributed to cardiovascular disease globally in 2020, and 244.1 million people in 2020 were living with ischemic heart disease. In Indonesia, the mortality rate of CHD is quite high, reaching 1.25 million in a population of 250 million (Kementrian Kesehatan Republik Indonesia, 2020). The prevalence of heart disease in Indonesia is 1.5%. The prevalence of heart disease in West Sumatra is higher than the national prevalence (1.6%) (Kementrian Kesehatan Republik Indonesia, 2018). CHD is a plaque build-up in the heart's arteries that could lead to a heart attack (American Heart Association, 2015). Patients with cardiovascular disorders have a high risk of morbidity and mortality because they tend to have a sedentary lifestyle. A previous study found that most CHD patients

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were less physically active (81.82%) (Setyaji, Prabandari and Gunawan, 2018). Another study found that there are still 6.2% of CHD patients who do not comply with regular physical activity (Al-Zaru et al., 2022). Frequent exercise can alleviate symptoms, boost myocardial perfusion, and enhance quality of life (Pool et al., 2019). A sedentary lifestyle raises blood cholesterol and causes visceral fat to accumulate; this is followed by a cellular and tissue-level innate and adaptive immune response that results in a chronic low-grade vascular inflammation, a critical regulatory mechanism in the pathophysiology of atherosclerosis (Alves et al., 2016). Patients who have an active lifestyle have a 50% lower risk of mortality than physical inactivity patients (Gonzalez-Jaramillo et al., 2022).

Physical activity is becoming an essential aspect in the secondary prevention of CHD to reduce the impact of the disease, slow its progress, and prevent recurrence, which can improve endothelial function and stop the progression of coronary stenosis, partly through anti-atherosclerotic effects on platelets and leukocytes (Alves et al., 2016; Winzer, Woitek and Linke, 2018). Regular physical activity can reduce the risk of morbidity and mortality of all risks of cardiovascular disease, including CHD (Francavilla et al., 2007; Merbawani, 2022).

Patients must have the self-assurance to modify their lifestyle in order to manage risk variables when engaging in physical exercise (Rippe, 2019). Self-efficacy, or the conviction that one can take action to accomplish particular objectives, is essential for altering one's own behavior. When comparing patients with high self-efficacy to respondents with low self-efficacy, the former group displayed better health behaviors; in particular, the former group appeared to be more disciplined in applying healthy behavior patterns, health checks, and physical activity (exercise) (Rokhayati and Rumahorbo, 2020). Self-efficacy and physical activity have been linked positively in the past; CHD patients who felt more confident in their abilities were more likely to engage in physical activity on a regular basis (Siow et al., 2018). A study suggested that self-efficacy was identified as a correlate of physical activity (Bauman et al., 2012). Increased physical activity is the primary aim of a rehabilitation program for coronary heart disease. Low levels of health self-efficacy may serve as a barrier to regular physical activity in CHD patients (Bachmann et al., 2015).

The treatment of CHD patients at the National Cardiovascular Center Harapan Kita, a cardiovascular center in Indonesia, has integrated physical activity as a component of the cardiac rehabilitation program (Pusat Jantung Nasional Harapan Kita, 2024). However, this approach is not yet prevalent in other hospitals in Indonesia. In West Sumatra, the treatment of CHD patients in cardiovascular centers is primarily focused on medical care, with less attention paid to the importance of physical activity. There is a lack of adequate follow-up, which is crucial for ensuring the optimal physical well-being of patients. Physical activity plays a vital role in restoring the functional capacity, fitness, and recovery of CHD patients (Alves et al., 2016; Winzer, Woitek and Linke, 2018).

Prior research indicates that individuals with CHD exhibit low levels of physical activity (Setyaji, Prabandari and Gunawan, 2018; Al-Zaru et al., 2022). Furthermore, self-efficacy plays a role in physical activity adherence applied by CHD patients (Bachmann et al., 2015; Siow et al., 2018). However, the correlation and strength of its effect on the physical activity of CHD patients has yet to be identified. For this reason, further analysis needs to be carried out related to the correlation of self-efficacy with physical activity of CHD patients. This study aimed to identify the correlation, direction, and strength of self-efficacy with physical activity in CHD patients.

Materials and Methods

Study design and setting

A cross-sectional study was conducted among the outpatients with CHD in the cardiovascular center of Dr.M.Djamil Hospital from May to July 2023. This hospital is a Type A hospital situated in the city of Padang in the Indonesian province of West Sumatra. This Cardiovascular Centre serves as the primary referral centre for cardiovascular care within the Central Sumatra region, encompassing the provinces of West Sumatra, Riau, Jambi and Bengkulu.

Samples, criteria and sampling technique

In total, 238 patients were recruited using purposive sampling technique. The inclusion criteria for this study were patients with medical diagnoses of ST-Elevation Myocardial Infarction (STEMI), Non-ST-Elevation Myocardial Infarction (NSTEMI), and Unstable Angina Pectoris (UAP) who were able to communicate effectively. Medical diagnoses were derived from the patient's medical records, which were accessed by medical records staff. The exclusion criteria included patients with comorbidities, respiratory problems, and those experiencing pain or shortness of breath. The sample size was determined using the Lemeshow formula (Enderlein, 1991), which is particularly useful

for calculating sample sizes in epidemiological studies. This formula considers the expected prevalence of CHD conditions (STEMI, NSTEMI, and UAP), the desired level of precision, and a 95% confidence level. Additionally, a power analysis was conducted to confirm that the sample size was sufficient to detect a statistically significant effect, targeting a power of 0.80. These statistical techniques were employed to recruit adequate participants, ensuring that the study findings are reliable and generalizable to the broader population of CHD patients.

Variables and measurements

The independent variable was self-efficacy, and the dependent variable was physical activity. The research instrument used Sullivan's Cardiac Self-Efficacy Scale (CSES) questionnaire to measure self-efficacy. This questionnaire has been found valid and reliable based on the internal consistency test results with Cronbach's alpha value of 0.95. The CSES questionnaire consists of three dimension: control symptoms, control illness and maintain functioning (Sullivan et al., 1998; Fors et al., 2015). The long form International Physical Activity Questionnaire (IPAQ) was used to measure physical activity, consisting of four domains including work domain, transport domain, domestic domain and leisure time domain. The validity and reliability test results on IPAQ were valid and reliable, with a significant Cronbach's alpha value of 0.625, which means it is reliable. The IPAQ consists of 27 questions covering respondents' activities over the past seven days. Physical activity scores were calculated using the IPAQ scoring protocol in metabolic equivalent (MET) minutes/week. The IPAQ was translated into Indonesian and underwent a validity and reliability test (Dharmansyah and Budiana, 2021).

Data collection

The research teams carried out data collection. The researcher informed each respondent of the purpose of the study and they provided informed consent. Respondents filled out a 10 -15-minute questionnaire and the researcher accompanied the respondents while they did so.

Statistical analysis

Univariate analysis is described based on the assessment results of each variable, and then the mean, standard deviation, minimum, and maximum are calculated. Meanwhile, the bivariate analysis used the Spearman correlation test to determine the correlation between self-efficacy and physical activity. The study used the Chi-square test to examine the relationship between respondent characteristics and physical activity. Multivariate linear regression was used to identify associated factors related to physical activity among CHD patients. Confidence intervals (CI) were set at 95%, with a p-value < 0.05 considered significant. All the analysis was done using SPSS 20.0 version.

Ethical consideration

Ethical consideration approval from the Health Research Ethics Committee of RSUP. Dr.M. Djamil Padang, number LB.02.02/5.7/357/2023. Each respondent was informed about the objective of the study, the methodology to be employed, the potential limitations, the potential risks, the potential benefits, the confidentiality of the data and their option to take part on a voluntary basis. All respondents provided informed consent to participate in this study. All data collected will be kept confidential and published anonymously. Ethics approval and consent to participate.

Results

Patients characteristics

In total, 238 patients were included in the study, and their characteristics are presented in Table 1. The vast majority were male (92%), elderly (70-79 years) (80.3%), and married (93.3%). The highest level of education was high school (41.2%), most were not working (83.6%), and the majority lived with a partner (94.1%). Most respondents suffered from CHD <5 years (87.4%), and the majority had undergone percutaneous coronary intervention (PCI) (92.9%). The average self-efficacy value of respondents is 47.24 (SD = 2.95) (Table 1).

Physical activity

Table 2 shows that the average physical activity value was 624.29 MET minute/week (SD= 365.66). The domestic domain has a high average value among other physical activity domains (228.09 MET minute/week) with a standard deviation of 216.39. Meanwhile, the work domain has the lowest average value, 84.54 MET minute/week (SD=206.12).

Associations of patients' characteristics and physical activity

In Table 3, almost all of the patients' characteristics below are related to physical activity from light to

Table 1. Demographic characteristics of CHD patients (n=238)

Characteristics	N	%	Mean	SD
Gender				
Male	219	92.0		
Female	19	8.0		
Age			63.10	6.371
Pre-elderly (60-69 years)	47	19.7		
Elderly (70-79 years)	191	80.3		
Marriage				
Married	222	93.3		
Unmarried	16	6.7		
Educational level				
Elementary school	32	13.4		
Junior high school	51	21.4		
Senior high school	98	41.2		
University	57	23.9		
Employment status				
Work	39	16.4		
No work	199	83.6		
Living with				
Spouse	224	94.1		
Child	14	5.9		
Duration of disease				
≤ 5 years	208	87.4		
> 5 years	30	12.6		
Percutaneous coronary intervention				
Yes	221	92.9		
Never	17	7.1		
Self-efficacy			47.24	2.95

moderate levels, where employment status is the most influential (p<0.001) then marriage (p=0.005), age (p=0.008), living with a partner (p=0.012) and educational level (p=0.037). In the employment status section, respondents who do not work do more low-level physical activity. In contrast, respondents who work do more moderate levels of physical activity, so employment status influences the respondents' level of physical activity.

Correlation of self-efficacy and physical activity

The results of further analysis showed a significant correlation of self-efficacy and physical activity in CHD patients with a positive relationship direction and powerful relationship strength where the value of r = 0.956. The direction of a positive relationship means that the more self-efficacy increases, the more physical activity of CHD patients at Dr. M. Djamil Hospital. For further analysis, the correlation of self-efficacy and each physical activity domain can be seen in Table 4. Our data showed that each domain had a corrected correlation with all physical activity domains, with a higher correlation between the domestic domain (r =0.419), work domain (r = 0.383), leisure time domain (r = 0.296), and transport domain (r = 0.247).

Table 3. The associations of respondent characteristics and physical activity of CHD patients (n=238)

Characteristic	Physical Activity		*p*-value
	Low n (%)	Moderate n (%)	
Gender			0.585
Male	118 (53.8)	101 (46.1)	
Female	9 (47.3)	10 (52.6)	
Age			0.008*
Pre-elderly	17 (36.1)	30 (63.8)	
Elderly	110 (57.5)	81 (42.4)	
Marriage			0.005*
Married	113 (50.9)	109 (49)	
Unmarried	14 (87.5)	2 (12.5)	
Educational level			0.037*
Elementary school	20 (62.5)	12 (37.5)	
Junior high school	30 (58.8)	21 (41.1)	
Senior high school	56 (57.1)	42 (42.8)	
University	21 (36.8)	36 (63.1)	
Employment status			<0.001*
Work	9 (23)	30 (76,9)	
No work	118 (59.2)	81 (40.7)	
Living with			0.012
Spouse	115 (51.3)	109 (48.6)	
Child	12 (85.7)	2 (14.2)	
Duration of disease			0.550
≤ 5 years	112 (53.8)	96 (46.1)	
> 5 years	15 (51.7)	14 (48.2)	
Percutaneous coronary intervention			0.639
Yes	117 (52,9)	104 (47)	
Never	10 (58.8)	7 (41.1)	

*statistically significant p < 0.05. The Chi-square test.

Associated factors related to physical activity in CHD patients

The results of the multivariate linear regression analysis in Table 5 show that maintaining working status had the most substantial influence on the physical activity of CHD patients (B = -246.477), followed by age (B = 123.889), and self-efficacy (B = 93.513). No working respondent has minus 246.477 METS of physical activity comparing with working people. Pre-elderly respondents have more than 123.889 METS physical

Table 2. Physical activity of CHD patients (n=238)

Variable	Mean	SD	Min	Max
Physical activity	624.29	365.66	80	2574
Work domain	84.54	206.12	0	2508
Transport domain	98.95	167.38	0	1080
Domestic domain	228.09	216.39	0	870
Leisure time domain	210.63	197.89	0	1089

Table 4. The correlation of physical activity domains and self-efficacy in CHD patients

Physical activity domain	Self-efficacy	
	r	*p-value*
Work domain	0.383	<0.001*
Transport domain	0.247	<0.001*
Domestic domain	0.419	<0.001*
Leisure time domain	0.296	<0.001*

*statistically significant p < 0.05. The Spearman correlation test.

activity than elderly. And people with self-efficacy have more than 93.513 METS physical activity than people with no self-efficacy about physical activity.

Discussions

This study aimed to identify the correlation of self-efficacy and physical activity among CHD patients. The study found a correlation of self-efficacy and physical activity in CHD patients with a positive relationship direction and a powerful relationship strength. This association demonstrates that CHD patients who have higher levels of self-efficacy also have higher levels of physical activity. According to earlier research, patients with CHD who have high levels of self-efficacy also have lower levels of physical activity (Mahmudiono et al., 2021; Han and Won, 2022; Ni Kadek, Puspawati and Lisnawati, 2023). Patients with CHD who had higher levels of self-efficacy also engaged in more physical activity (Tang et al., 2019). According to a different study, patients with CHD who have low health self-efficacy find it difficult to engage in regular physical activity (Bachmann et al., 2015). Nearly half of the participants in another study that examined physical activity in CHD patients engaged in low-intensity exercise (Merbawani, 2022).

The cardiovascular health benefits of a physically active lifestyle for CHD patients highlighted the need for strategies to increase physical activity in this population. Overall, self-efficacy plays a role in the physical activity levels of patients with CHD. The capacity of one's own beliefs to shape behavior or attitudes is referred to as self-efficacy (Fors et al., 2015). A person's health behavior in managing symptoms and adhering to a CHD treatment plan is positively impacted by their level of self-efficacy (Alamsyah, Dewi and Utomo, 2020). Individuals who possess a high level of self-efficacy will possess the confidence to control their behavior in order to enhance their health and maintain a healthy lifestyle (Lu et al., 2020). Self-efficacy in CHD patients can generate adaptive behavior such as physical activity, regular exercise, and compliance in the disease treatment process, namely efforts to reduce or control risk factors that are detrimental to health in CHD patients.

The correlation of physical activity domain and self-efficacy found that the domestic domain has sufficient correlation strength with self-efficacy compared to other domains. The domestic domain includes moderately active housework, childcare, and adult care (Cusatis and Garbarski, 2019). Age, marriage, education level, keeping working, and living arrangement can all have an impact on the low and moderate physical activity levels identified in this study. According to the study, physical activity and employment are significantly correlated (Kwak et al., 2016; Farradika et al., 2019). This significant relationship can be seen in this study, which found that occupation respondents were more out of work than working (83.6%) with low physical activity levels (59.2%). A study showed that participants who did not work had more sedentary time than participants in low-level occupations.

One biological element that has a substantial impact on physical activity is age (Carrasco et al., 2021). In age, respondents are more in the elderly age range (80.3%) with low levels of physical activity (57.5%), so that age also significantly affects physical activity. In line with the research of Mbambo, Tlou and Dlungwane (2019), age is a factor significantly related to physical activity. Adherence to physical activity in these patients was correlated with their educational attainment and frequency of follow-up visits (Acar et al., 2017). According to the survey, people with higher levels of education engage in greater physical activity than people with lower levels of education in Europe (Dhuli et al., 2022). People are more likely to follow a healthy lifestyle to prevent sickness if they have a greater degree of education (Rippe, 2019). Thus, most of the respondents in this study carried out physical activity

Table 5. The associated factors related to physical activity in CHD patients

Factors	Physical Activity				
	B	SE	Beta	t	*p-value*
Age	123.889	54.813	0.135	2.260	0.025*
Marriage	-51.694	46.175	-0.071	-1.120	0.264
Education level	-27.596	15.743	-0.073	-1.753	0.081
Employment status	-246.477	59.667	-0.250	-4.131	0.000*
Living with a partner	33.670	49.538	0.043	0.680	0.497
Self-efficacy	93.513	5.103	0.754	18.324	0.000*

statistically significant p < 0.05. The multivariate linear regression.

following the standards for implementing a healthy lifestyle. A study found that self-efficacy affects physical activity in patients with CHD, where physical activity was found to have a significant positive correlation (Han and Won, 2022). Self-efficacy becomes the most important factor for managing cardiovascular disease because improving patient outcomes depends on involvement in self-activity management, lifestyle modification, and risk factor control (Kargar, Khademian and Rambod, 2021).

The study has several strengths, including the findings which support the theory that self-efficacy plays an important role in the adherence of CHD patients to physical activity regimes. The instruments employed have been validated and demonstrated reliability in the context of heart health-related research. The study employed a range of statistical techniques, including the Chi-square test, the Spearman correlation test, and multivariate linear regression, which afforded a more comprehensive understanding of the relationship between variables. A limitation of this study is that the data were collected at a single point in time, which precludes the examination of changes over time. The use of purposive sampling may introduce bias, as the sample selected may not be fully representative of the general CHD patient population, which may affect the generalizability of the results. Despite the control of several variables, including employment status and age in this study, there are numerous additional factors that may influence physical activity that have not been assessed. Furthermore, the measurement of physical activity relies on respondents' reports, which are susceptible to recall bias or subjective interpretation.

Conclusion

Keeping working may be beneficial for physical activity in coronary heart disease status. Self-efficacy strongly correlates with increasing physical activity in coronary heart disease patients. Increasing self-efficacy in patients can increase physical activity in the four domains of physical activity in patients with coronary heart disease. Therefore, to increase the self-efficacy of CHD patients, nurses have an essential role as educators in providing health education and motivating CHD patients to implement regular physical activity to prevent disease recurrence.

Availability of data and material

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Conflict of Interest

No potential conflicts of interest.

References

Acar, B. *et al.* (2017) 'Parameters influencing the physical activity of patients with a history of coronary revascularization', *Revista Portuguesa de Cardiologia*, 36(10), pp. 721–728. doi: 10.1016/j.repc.2016.12.016.

Al-Zaru, I. M. *et al.* (2022) 'Depression and adherence to healthy lifestyle behaviors among patients with coronary artery diseases in Jordan', *Heliyon*, 8(7), p. e09752. doi: 10.1016/j.heliyon.2022.e09752.

Alamsyah, Q., Dewi, W. N. and Utomo, W. (2020) 'Faktor-faktor yang mempengaruhi self efficacy pasien penyakit jantung koroner setelah percutaneous coronary intervention', *Jurnal Ners Indonesia*, 11(1), p. 65. doi: 10.31258/jni.11.1.65-74.

Alves, A. J. *et al.* (2016) 'Physical activity in primary and secondary prevention of cardiovascular disease: Overview updated', *World Journal of Cardiology*, 8(10), p. 575. doi: 10.4330/wjc.v8.i10.575.

American Heart Association (2015) *Coronary Artery Disease - Coronary Heart Disease*, *American Heart Association*.

American Heart Association (2022) *2022 Heart Disease & Stroke Statistical Update Fact Sheet Global Burden of Disease*, *American Heart Association*.

Bachmann, J. M. *et al.* (2015) 'Health Self-efficacy is Associated With Increased Physical Activity in Patients With Coronary Heart Disease', *Circulation*, 132(suppl_3).

Bauman, A. E. *et al.* (2012) 'Correlates of physical activity: why are some people physically active and others not?', *The Lancet*, 380(9838), pp. 258–271. doi: 10.1016/S0140-6736(12)60735-1.

Carrasco, C. *et al.* (2021) 'Factors influencing physical activity: A cross-sectional study of the community-dwelling older adults in a Portuguese rural area', *International Journal of Older People Nursing*, 16(3). doi: 10.1111/opn.12371.

Cusatis, R. and Garbarski, D. (2019) 'Different domains of physical activity: The role of leisure, housework/care work, and paid work in socioeconomic differences in reported physical activity', *SSM - Population Health*, 7, p. 100387. doi: 10.1016/j.ssmph.2019.100387.

Dharmansyah, D. and Budiana, D. (2021) 'Indonesian Adaptation of The International Physical Activity Questionnaire (IPAQ): Psychometric Properties', *Jurnal Pendidikan Keperawatan Indonesia*, 7(2), pp. 159–163. doi: 10.17509/jpki.v7i2.39351.

Dhuli, K. *et al.* (2022) 'Physical activity for health', *Journal of Preventive Medicine and Hygiene*, 63(2 Suppl 3), pp. E150–E159. doi: 10.15167/2421-4248/jpmh2022.63.2S3.2756.

Enderlein, G. (1991) 'Book review', *Animal Behaviour*, 42(3), pp. 524–526. doi: 10.1016/s0003-3472(05)80062-4.

Farradika, Y. *et al.* (2019) 'Perilaku Aktivitas Fisik dan Determinannya pada Mahasiswa Fakultas Ilmu - Ilmu Kesehatan Universitas Muhammadiyah Prof. Dr. Hamka', *ARKESMAS (Arsip Kesehatan Masyarakat)*, 4(1), pp. 134–142. doi: 10.22236/arkesmas.v4i1.3548.

Fors, A. *et al.* (2015) 'The Cardiac Self-Efficacy Scale, a useful tool with potential to evaluate person-centred care', *European Journal of Cardiovascular Nursing*, 14(6), pp. 536–543. doi: 10.1177/1474515114548622.

Francavilla, G. *et al.* (2007) 'Esercizio fisico ed attivit?? sportiva in pazienti con e senza cardiopatia ischemica', *Monaldi Archives for Chest Disease - Cardiac Series*, 68(2), pp. 87–95.

Gonzalez-Jaramillo, N. *et al.* (2022) 'Systematic Review of Physical Activity Trajectories and Mortality in Patients With Coronary Artery Disease', *Journal of the American College of Cardiology*, 79(17), pp. 1690–1700. doi: 10.1016/j.jacc.2022.02.036.

Han, N. S. and Won, M. H. (2022) 'Association between social support and physical activity in patients with coronary artery disease: Multiple mediating roles of self-efficacy and autonomous motivation', *Healthcare (Switzerland)*, 10(3). doi: 10.3390/healthcare10030425.

Kargar, L., Khademian, Z. and Rambod, M. (2021) 'Association between perception of caring behaviors and self-efficacy in patients with cardiovascular disease at coronary care units: A cross-sectional study', *Acute and Critical Care*, 36(2), pp. 118–125. doi: 10.4266/ACC.2020.00752.

Kementrian Kesehatan Republik Indonesia (2018) *Riset Kesehatan Dasar 2018. Laporan Riskesdas 2018 Nasional*, *Badan Penelitian dan Pengembangan Kesehatan Kementrian RI tahun 2018*.

Kementrian Kesehatan Republik Indonesia (2020) *Tanda & Gejala Penyakit Jantung Koroner (PJK)*, *Kementrian Kesehatan Republik Indonesia*.

Kwak, L. *et al.* (2016) 'Examining differences in physical activity levels by employment status and/or job activity level: Gender-specific comparisons between the United States and Sweden', *Journal of Science and Medicine in Sport*, 19(6), pp. 482–487. doi: 10.1016/j.jsams.2015.05.008.

Lu, M. *et al.* (2020) 'Relationship between adherence to secondary prevention and health literacy, self-efficacy and disease knowledge among patients with coronary artery disease in China', *European Journal of Cardiovascular Nursing*, 19(3), pp. 230–237. doi: 10.1177/1474515119880059.

Mahmudiono, T. *et al.* (2021) 'Self-efficacy in physical activity and glycemic control among older adults with diabetes in Jagir Subdistrict, Surabaya, Indonesia', *Heliyon*, 7(7), p. e07578. doi: 10.1016/j.heliyon.2021.e07578.

Mbambo, S., Tlou, B. and Dlungwane, T. (2019) 'Factors associated with physical activity amongst patients with hypertension in two community health centres in uMgungundlovu health district , KwaZulu-Natal , 2018 Factors associated with physical activity amongst patients with hypertension in two commun', *South African Family Practice*, 61(6), pp. 234–238. doi: 10.1080/20786190.2019.1664085.

Merbawani, R. (2022) 'Physical Activity on Coronary Heart Disease Patients', *Jsret*, 1(1), pp. 25–33. doi: 10.29082/jsret.v1i1.5.

Ni Kadek, D. P. M., Puspawati, N. L. P. D. and Lisnawati, K. (2023) 'Hubungan efikasi diri dengan aktivitas fisik pada pasien penyakit jantung koroner', *Journal Nursing Research Publication Media (NURSEPEDIA)*, 2(1), pp. 29–38. doi: 10.55887/nrpm.v2i1.26.

Pool, L. R. *et al.* (2019) 'Association of cardiovascular health through early adulthood and health-related quality of life in middle age: The Coronary Artery Risk Development in Young Adults (CARDIA) Study', *Preventive Medicine*, 126(April). doi: 10.1016/j.ypmed.2019.105772.

Pusat Jantung Nasional Harapan Kita (2024) *Rehabilitasi Medis*, *Kemenkes RSJPD Harapan Kita*.

Rippe, J. M. (2019) *Lifestyle Medicine, Third Edition*. 3rd edn. Boca Raton: CRC Press.

Rokhayati, A. and Rumahorbo, H. (2020) 'Gambaran efikasi diri dalam pengelolaan faktor risiko dan pemeliharaan fungsi kesehatan pasien penyakit jantung koroner', *Juriskes.Com*, 12(2), pp. 285–296. doi: 10.34011/juriskesbdg.v12i2.1797.

Setyaji, D. Y., Prabandari, Y. S. and Gunawan, I. M. A. (2018) 'Aktivitas fisik dengan penyakit jantung koroner di Indonesia', *Jurnal Gizi Klinik Indonesia*, 14(3), p. 115. doi: 10.22146/ijcn.26502.

Siow, E. *et al.* (2018) 'Do Depressive Symptoms Moderate the Effects of Exercise Self-efficacy on Physical Activity Among Patients With Coronary Heart Disease?', *Journal of Cardiovascular Nursing*, 33(4), pp. E26–E34. doi: 10.1097/JCN.0000000000000491.

Sullivan, M. D. *et al.* (1998) 'Self-efficacy and self-reported functional status in coronary heart disease', *Psychosomatic Medicine*, 60(4), pp. 473–478. doi: 10.1097/00006842-199807000-00014.

Tang, M. Y. *et al.* (2019) 'Behavior change techniques associated with changes in postintervention and maintained changes in self-efficacy for physical activity: A systematic review with meta-analysis', *Annals of Behavioral Medicine*, 53(9), pp. 801–815. doi: 10.1093/abm/kay090.

Winzer, E. B., Woitek, F. and Linke, A. (2018) 'Physical activity in the prevention and treatment of coronary artery disease', *Journal of the American Heart Association*, 7(4), pp. 1–15. doi: 10.1161/JAHA.117.007725.

World Health Organization (2020) *The top 10 causes of death*, *World Health Organization*.

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