## COMMUNITY SELF-EFFICACY OF CORONARY HEART DISEASE BASED ON CHARACTERISTIC RISK FACTORS

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### ABSTRACT

**Keywords:**
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*Coronary heart disease is one of the main causes of mortality rate in the world. This disease is affected by several risk factors. People who has high or moderate risk factors for coronary heart disease should have good preventive behavior, but this also requires a good level of self-efficacy as well, so that the expected behavior can be performed. This study aimed to determine the level of community self-efficacy of coronary heart disease based on characteristic risk factors. This research used a descriptive quantitative approach. Participant consisted of 70 people in Desa Limusgede, West Java, Indonesia acquired through a non-probability technique of purposive sampling. Self-efficacy was measured using a self-efficacy questionnaire (validity value in the range of 0.484 to 0.773 and reliability value 0.862) while risk factor data were determined by age, body mass index, blood pressure, smoking behavior, diabetes mellitus, and physical activity which were referenced by Jakarta Cardiovascular Score. Data were analyzed using median and frequency distribution. The results showed that median (minimum-maximum score) of self-efficacy is 26.00 (11-41), most of the respondent (62.86%) had high self-efficacy of coronary heart disease and more than a half respondent (47.14%) had moderate and high risk factors for cardiovascular disease. Further, almost half the respondent who had high self-efficacy also had moderate and high risk factors for cardiovascular disease. So, health professional must concern in activities to decrease the level of cardiovascular risk factors, such as health education, health promotion, and disease prevention.*

### ABSTRAK

**Kata Kunci:**
faktor risiko
penyakit jantung koroner
*self-efficacy*

Penyakit jantung koroner merupakan salah satu penyebab utama kematian di dunia. Penyakit ini disebabkan oleh beberapa faktor risiko. Orang yang memiliki risiko tinggi atau sedang terhadap penyakit jantung koroner, selain harus memiliki perilaku pencegahan yang baik, juga harus memiliki *self-efficacy* yang baik, sehingga tercapai perilaku yang diharapkan. Penelitian ini bertujuan untuk mengetahui *self-efficacy* komunitas mengenai penyakit jantung koroner berdasarkan karakteristik faktor risikonya. Penelitian ini menggunakan pendekatan deskriptif kuantitatif. Responden terdiri dari 70 orang penduduk Desa Limusgede, Jawa Barat, Indonesia yang diambil menggunakan teknik *purposive sampling*. Self-efficacy diukur dengan menggunakan instrumen *self-efficacy* (nilai validitas dalam rentang 0,484-0,773 dan nilai reliabilitas 0,862), faktor risiko penyakit kardiovaskular dilihat dari usia, indeks massa tubuh, tekanan darah, perilaku merokok,

diabetes mellitus, dan aktifitas fisik berdasarkan Skor Kardiovaskular Jakarta. Data dianalisis menggunakan median dan frekuensi distribusi. Hasil penelitian menunjukkan bahwa median (skor minimum-maksimum) *self-efficacy* adalah 26,00 (11-41), sebagian besar responden (62,86%) memiliki *self-efficacy* tinggi mengenai penyakit jantung koroner dan lebih dari setengah responden (47,14%) memiliki risiko sedang dan risiko tinggi terhadap penyakit kardiovaskular. Lebih lanjut, hampir separuh responden yang memiliki *self-efficacy* tinggi juga berisiko sedang dan tinggi terhadap penyakit kardiovaskular. Sehingga, tenaga kesehatan harus fokus pada upaya untuk menurunkan faktor risiko karidovaskular seperti pendidikan kesehatan, promosi kesehatan, dan pencegahan penyakit.

## BACKGROUND

Non Communicable Disease (NCD) causes 38 million deaths per year (68% of all deaths worldwide) in 2012. One of the biggest causes of death is cardiovascular disease with 17.5 million lives (46% of all NCD death). Of the 17.5 million deaths, 7.4 million were caused by coronary heart disease (World Health Organization [WHO], 2016). The prevalence of coronary heart disease in Indonesia based on a doctor's diagnosis is 0.5 percent and based on doctor's diagnosis or symptoms is 1.5 percent (Indonesian Ministry of Health, 2013). Coronary Heart Disease (CHD) is caused by plaque that accumulates in the coronary arteries (atherosclerosis). This plaque creates blockages or narrowing of the coronary arteries that reduces blood flow to the myocardium (Smeltzer et al, 2010).

The occurrence of this disease is influenced by several risk factors including modifiable risk factors (stress, alcohol consumption, physical inactivity, obesity diabetes mellitus, smoking, hypertension, hyperlipidemia, and high fat, cholesterol, and calorie diet) and non-modifiable risk factors (family history, gender, and age). The presence of these risk factors, can mean that the person is at risk of developing coronary heart disease (Indonesian Ministry of Health, 2011). To prevent the risk of developing coronary heart disease, people must adopt a healthy lifestyle. Important determinant of health behavior is self-efficacy (Sol, Graaf, Bijl, Goessens, & Visseren, 2006; Holloway and Watson, 2002). Self-efficacy is self-perception of how well a person can function in a given situation, self-efficacy relates to the belief that self has the ability to perform the expected action (Alwisol, 2009). Self-efficacy can be generated from specific behavior and predict specific behavior (Clark & Dodge, 1999).

A study shows that self-efficacy is important in behavioral change and motivation for behavioral change (Meland, Maeland, & Laerum, 1999). Level of self-efficacy is one of factors that impacting the positive effort to prevent risk factors for cardiovascular disease. This study aimed to determine the level of community self-efficacy of coronary heart disease based on characteristic risk factors.

## METHODS

This descriptive quantitative study was conducted with 70 people in Desa Limusgede, West Java, Indonesia. Participant acquired through a non-probability technique of purposive sampling with inclusion criteria of age 25-64 years.

The data were collected using questionnaire and measuring blood pressure and body mass index. Self-efficacy was measured using a self-efficacy questionnaire were developed by the researchers according to the research objectives. Questionnaire consisted of 11 items that asked about people confidence in performing some abilities related to coronary heart disease based on Bandura theory of self-efficacy (Bandura, 1997). This self-efficacy questionnaire has been tested with validity value in the range of 0.484 to 0.773 and reliability value 0.862. Risk factor data were determined by age, body mass index, blood pressure, smoking behavior, diabetes mellitus, and physical activity which were referenced by Jakarta Cardiovascular Score. This Jakarta Cardiovascular Score has sensitivity 77.9%, specificity 90.0%, positive predictive value 92,2%, and negative predictive value 72.8%. Interpretation of Jakarta Cardiovascular Score is low risk if the score is -7 to 1 (individual have a percentage of developing cardiovascular disease of <10%), moderate risk if the score is 2 to 4 (individual have a percentage of developing cardiovascular disease of 10-20%), and high risk if the score is >=5 (individual have a percentage of developing cardiovascular disease of >20%) (Kusmana, 2002).

Data study were analyzed using median and frequency distribution. The normality tests suggested that the data relating to self-efficacy was not normally distributed. This research seeks to enforce the ethical principles of research, including respect for autonomy, non-maleficence, justice, and confidentiality.

## RESULTS

### Respondent Characteristic

Characteristic of respondent seen from sex, age, blood pressure, body mass index, smoking behavior, diabetes mellitus, and physical activity. Generally, all respondent were women (100%), the most common age range was 45-49 years (18.57%), majority had normal blood pressure (58.57%), body mass index in the range 13.79-25.99 (64.29%), did not smoke (97.14%), did not have diabetes mellitus (100%), and did moderate physical activity (77.14%). Can be seen in Table 1 below.

### Risk of Cardiovascular Disease

Risk of cardiovascular disease which were referenced by Jakarta Cardiovascular Score, was found that more than a half respondent (47.14%) had moderate and high risk factors for cardiovascular disease. Can be seen in Table 2 below.

### Self-Efficacy

Self-efficacy of the respondent about coronary heart disease, was found that median (minimum-maximum score) of self-efficacy is 26.00 (11-41) and most of the respondent (62.86%) had high self-efficacy of coronary heart disease. Can be seen in Table 3 below.

Self-efficacy about coronary heart disease based on characteristics of respondent, was found that high self-efficacy in age range 35-39 years (83.33%), normal blood pressure (70.73%), body mass index in the range 13.79-25.99 (68.89%), did not smoke (64.71%), did not have diabetes mellitus (62.86%), and did moderate physical activity (70.37%). Can be seen in Table 4 below.

## DISCUSSION

### Risk of Coronary Heart Disease

Based on results, all respondent were women (100%), the most common age range was 45-49 years (18.57%), majority had normal blood pressure (58.57%), body mass index in the range 13.79-25.99 (64.29%), did not smoke (97.14%), did not have diabetes mellitus (100%), and did moderate physical activity (77.14%).

Risk of coronary heart disease in women before menopause is lower than men, this is because women are protected by the hormone estrogen which dilates blood vessels (Galbut & Davidson, 2005). The most common age range was 45-49 years. Incidence of atherosclerosis is affected by age by 42%, with

median age of incidence was 28 years (Utama, 2007 in Islamee, 2008). Morbidity and mortality of coronary heart disease increase at the age 30-44 years (Anwar, 2004 in Islamee, 2008).

Almost half of respondent had high-normal, grade 1 hypertension, grade 2 hypertension, and grade 3 hypertension. There is significant relationship between coronary heart disease and incidence of hypertension (Nababan, 2008). Increased blood pressure will increase pressure on the arterial wall and endothelial damage that will trigger atherosclerosis. Similarly, atherosclerotic changes will also cause an increase in blood pressure (Lipoeta, 2006).

Most of the respondent had normal body mass index. People who has optimal weight will decrease the incidence of coronary heart disease by 25% (Nestle, 1980 in Supriyono, 2008). Almost half of respondent overweight and obese. Risk of coronary heart disease increases in overweight people (Mawi, 2003). There is an increase in the number of patients with coronary heart disease who are obese than those who are not obese (Nababan, 2008).

A small percentage of respondents were smokers. In this study, all respondent were women. Women who smoke will experience earlier menopause compare with non-smokers (Supriyono, 2008). Risk of coronary heart disease double in smokers. This is due to the nicotine contained in cigarettes damaging the endothelial vessel walls through catecholamine removal and facilitate the occurrence of clots in the blood vessels which will ultimately increase heart rate and blood pressure. In cigarettes there is carbon monoxide (CO) which causes hemoglobin desaturation to decrease tissue oxygen supply including myocardium and accelerate the occurrence of atherosclerosis (Yanti, Suharyo, & Tony, 2008). There was a significant relationship of coronary heart disease with smoking (Nababan, 2008).

All respondent did not have diabetes mellitus. Diabetes mellitus is associated with the cardiovascular system, such as the occurrence of endothelial dysfunction and blood vessels disorders that increase the risk of developing coronary artery disease (Bauters, Lamblin, Fadden et al, 2003). There is an increased risk of cardiovascular disease (200%) in people with diabetes mellitus than those without diabetes mellitus (Liu, Sempos, & Donahue, 2005).

Almost all respondent did moderate physical activity. Physical activity increases HDL cholesterol levels, improves coronary collateral, improves lung function and oxygen consumption to myocardium, thus reducing the risk of coronary heart disease (Anwar 2004 in Islamee, 2008). There was a significant rela-

Table 1. Frequency distribution of respondents based on characteristics (n=70)

| Respondent Characteristic | | f | % |
|---|---|---|---|
| Sex | Men | 0 | 0 |
| | Women | 70 | 70 |
| Age (Year) | 25-34 | 10 | 14.29 |
| | 35-39 | 6 | 8.57 |
| | 40-44 | 12 | 17.14 |
| | 45-49 | 13 | 18.57 |
| | 50-54 | 9 | 12.86 |
| | 55-59 | 9 | 12.86 |
| | 60-64 | 11 | 15.71 |
| Blood Pressure | Normal | 41 | 58.57 |
| | High-Normal | 10 | 14.29 |
| | Grade 1 Hypertension | 14 | 20.00 |
| | Grade 2 Hypertension | 4 | 5.71 |
| | Grade 3 Hypertension | 1 | 1.43 |
| Body Mass Index | 13.79-25.99 | 45 | 64.29 |
| | 26.00-29.99 | 16 | 22.86 |
| | 30.00-35.58 | 9 | 12.86 |
| Smoking | Never | 68 | 97.14 |
| | Ex-smoker | 0 | 0 |
| | Yes | 2 | 2.86 |
| Diabetes Mellitus | Normal | 70 | 100 |
| | Yes | 0 | 0 |
| Physical Activity | None | 3 | 4.29 |
| | Low | 6 | 8.57 |
| | Moderate | 54 | 77.14 |
| | High | 7 | 10.00 |

Table 2. Risk of cardiovascular disease (n=70)

| Risk of Cardiovascular Disease | f | % |
|---|---|---|
| Low | 37 | 12.86 |
| Moderate | 24 | 34.29 |
| High | 9 | 52.86 |

Table 3. Self-efficacy respondent about coronary heart disease (n=70)

| Self-Efficacy | Median | Min-Max | f | % |
|---|---|---|---|---|
| Low | 26.00 | (11-41) | 26 | 37.14 |
| High | | | 44 | 62.86 |

tionship of coronary heart disease with physical activity (Nababan, 2008).

Almost half of respondent had moderate and high risk factors for cardiovascular disease. Individual with moderate risk factor for cardiovascular disease have a percentage of developing cardiovascular disease of 10-20%. Individual with high risk for cardiovascular disease have a percentage of developing car-

diovascular disease of >20% (Kusmana, 2002).

**Community Self-Efficacy of Coronary Heart Disease**

Self-efficacy is one's judgment about his ability to perform a particular behavior or achieve certain goals (Bandura in Ormrod, 2008). Self-efficacy results from interaction between personal factors, be-

Table 4. Self-Efficacy about Coronary Heart Disease based on Characteristic of Respondent

| Respondent Characteristic | | Self-Efficacy | |
|---|---|---|---|
| | | Low | High |
| | | f (%) | f (%) |
| Sex | Men | 0 (0) | 0 (0) |
| | Women | 26 (37.14) | 44 (62.86) |
| Age (Year) | 25-34 | 3 (30) | 7 (70) |
| | 35-39 | 1 (16.67) | 5 (83.33) |
| | 40-44 | 5 (41.67) | 7 (58.33) |
| | 45-49 | 5(38.46) | 8 (61.54) |
| | 50-54 | 4 (44.44) | 5 (55.56) |
| | 55-59 | 3 (33.33) | 6 (66.67) |
| | 60-64 | 5 (45.45) | 6 (54.55) |
| Blood Pressure | Normal | 12 (29.27) | 29 (70.73) |
| | High-Normal | 5 (50) | 5 (50) |
| | Grade 1 Hypertension | 8 (57.14) | 6 (42.86) |
| | Grade 2 Hypertension | 1 (25) | 3 (75) |
| | Grade 3 Hypertension | 0 (0) | 1 (100) |
| Body Mass Index | 13.79-25.99 | 14 (31.11) | 31 (68.89) |
| | 26.00-29.99 | 7 (43.75) | 9 (56.25) |
| | 30.00-35.58 | 5 (55.56) | 4 (44.44) |
| Smoking | Never | 24 (35.29) | 44 (64.71) |
| | Ex-smoker | 0 (0) | 0 (0) |
| | Yes | 2 (100) | 0 (0) |
| Diabetes Mellitus | Normal | 26 (37.14) | 44 (62.86) |
| | Yes | 0 (0) | 0 (0) |
| Physical Activity | None | 2 (66.67) | 1 (33.33) |
| | Low | 3 (50) | 3 (50) |
| | Moderate | 16 (29.63) | 38 (70.37) |
| | High | 5 (71.43) | 2 (28.57) |

havioral factors, and environmental factors thus forming behavior (Clark & Dodge, 1999). A strong belief in the ability to perform a behavior will increase likelihood of a person performing the behavior (Bandura in Ragin, 2011).

The higher the self-efficacy the higher the healthy behavior, otherwise the lower self-efficacy the lower the healthy behavior (Anggai, 2015; Rahmadian, 2011). Self-efficacy is significantly associated with risky behavior to health (Kim, 2011). In this study, most of the respondent has high self-efficacy of coronary heart disease. With high self-efficacy, expected respondents have positive behavior toward coronary heart disease. However, in this study, although the respondents had high self-efficacy, the risk of cardiovascular disease was still present in the moderate and high category. This indicates that there is still inadequate efforts in preventing coronary heart disease. This can be caused by the lack of knowledge of respondents about coronary heart disease. Health education by health professional is effective in improving public health behavior (Hidayah, 2017; Fahra, Widayati, Sutawardana, 2017). To increase knowledge about coronary heart disease, health education is needed to improve the prevention of cardiovascular risk behavior.

## CONCLUSION

Self-efficacy is important in behavioral change and motivation for behavioral change. This study identified that almost half the respondent who had high self-efficacy also had moderate and high risk factors for cardiovascular disease. So, health professional must concern in activities to decrease the level of cardiovascular risk factors, such as health education, health promotion, and disease prevention.

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