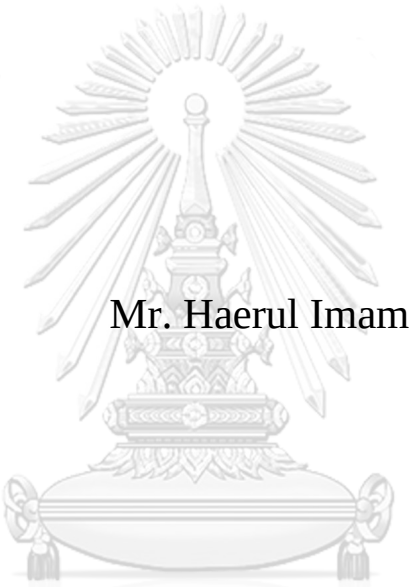
FACTORS RELATED TO HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ACUTE CORONARY SYNDROME IN WEST JAVA, INDONESIA

Mr. Haerul Imam



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ปัจจัยที่มีความสัมพันธ์กับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยที่มีภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันในจังหวัดชวาตะวันตก สาธารณรัฐอินโดนีเซีย

นายฮารูน อิหม่าม

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรมหาบัณฑิต
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Thesis Title	FACTORS RELATED TO HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ACUTE CORONARY SYNDROME IN WEST JAVA, INDONESIA
By	Mr. Haerul Imam
Field of Study	Nursing Science
Thesis Advisor	Assistant Professor CHANOKPORN JITPANYA, Ph.D.

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ฮารูน อิหม่าม : ปัจจัยที่มีความสัมพันธ์กับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยที่มีภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันในจังหวัดชวาตะวันตก สาธารณรัฐอินโดนีเซีย. (FACTORS RELATED TO HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ACUTE CORONARY SYNDROME IN WEST JAVA, INDONESIA) อ.ที่ปรึกษาหลัก : ผศ. ดร.ชนกพร จิตปัญญา

การวิจัยเชิงบรรยายในครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างอายุ สมรรถนะแห่งตน ภาวะการทำหน้าที่ อาการปวด อาการหายใจลำบาก การสนับสนุนทางสังคม และคุณภาพชีวิตด้านสุขภาพของผู้ป่วยที่มีภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลัน ในจังหวัดชวาตะวันตก สาธารณรัฐอินนีเซีย กลุ่มตัวอย่างคือ ผู้ป่วยมีภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลัน หรือมีประวัติภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลัน จำนวน 186 คน ที่มารับบริการในแผนกผู้ป่วยนอก คลินิกโรคหัวใจและหลอดเลือด โรงพยาบาลรัฐบาล ประเภทเอ ในจังหวัดชวาตะวันตก สาธารณรัฐอินนีเซีย เครื่องมือวิจัยที่ใช้ในการเก็บข้อมูลได้แก่ แบบบันทึกข้อมูลส่วนบุคคล แบบประเมินสมรรถนะแห่งตน แบบประเมินการรับรู้ภาวะเจ็บหน้าอก แบบประเมินอาการแน่นอกของโรส แบบประเมินอาการหายใจลำบากของโรส แบบประเมินการสนับสนุนทางสังคม และแบบประเมินคุณภาพชีวิตด้านสุขภาพ ที่ผ่านการตรวจสอบความตรงตามเนื้อหาโดยผู้ทรงคุณวุฒิ และหาความเที่ยงจากแบบประเมินได้เท่ากับ 0.67 สำหรับแบบประเมินการสนับสนุนทางสังคม และ 0.91 สำหรับแบบประเมินคุณภาพชีวิตด้านสุขภาพ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงบรรยายและค่าสัมประสิทธิ์สหสัมพันธ์ของสเปียร์แมน

ผลการวิจัยพบว่า

1. ค่าเฉลี่ยคุณภาพชีวิตด้านสุขภาพของผู้ป่วยกลุ่มอาการกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันเท่ากับ 4.98 (SD = 0.98)

2. สมรรถนะแห่งตน ภาวะการทำหน้าที่ อาการปวด และการสนับสนุนทางสังคมมีความสัมพันธ์ทางบวกกับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยกลุ่มอาการกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันอย่างมีนัยสำคัญทางสถิติที่ระดับ <0.01 (r = 0.299, 0.601, 0.296) ตามลำดับ และ r = 0.186 (p<0.05)

3. อาการหายใจลำบากมีความสัมพันธ์ทางลบกับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยกลุ่มอาการกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันอย่างมีนัยสำคัญทางสถิติที่ระดับ <0.01 (r = -0.438)

4. อายุไม่มีความสัมพันธ์กับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยกลุ่มอาการกล้ามเนื้อหัวใจขาดเลือดเฉียบพลัน (r = 0.081, p = 0.270)

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2563 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

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Haerul Imam : FACTORS RELATED TO HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ACUTE CORONARY SYNDROME IN WEST JAVA, INDONESIA. Advisor: Asst. Prof. CHANOKPORN JITPANYA, Ph.D.

This descriptive study aimed to examine the relationship between age, self-efficacy, functional status, pain, dyspnea, social support, and health-related quality of life in patients with acute coronary syndrome in west java, Indonesia. The participants were 186 patients who has acute coronary syndrome or history of acute coronary syndrome visited cardiovascular outpatient clinic in the main national public hospital type A in west java province, Indonesia. The instruments used for data collection were Demographic Questionnaire, General Self-efficacy Scale, Seattle Angina Questionnaire, Rose Questionnaire for Angina, Rose Dyspnea Questionnaire, ENRICH Social Support, and MacNew Health Related Quality of life. These instruments were tested for their content validity by a panel of experts. Internal consistency reliability for each questionnaire tested by Cronbach's alpha were 0.67 for ESSI and 0.91 for MacNew health-related quality of life. Data were analyzed using descriptive statistic and Spearman-rank correlation.

The study findings revealed that:

1. The mean score of health-related quality of life in patients with acute coronary syndrome was 4.98 (SD = 0.98).

2. Self-efficacy, functional status, pain, and social support were positively significant correlated to health-related quality of life in patients with acute coronary syndrome ($r = 0.299$, $r=0.601$, $r=0.296$, $p<0.01$) and ($r=0.186$, $p<0.05$) respectively.

3. Dyspnea was negatively significant correlated to health-related quality of life in patients with acute coronary syndrome ($r = -0.438$, $p<0.01$).

4. Age was not correlated to health-related quality of life in patients with acute coronary syndrome ($r = 0.081$, $p = 0.270$).

Field of Study:	Nursing Science	Student's Signature .....
Academic Year:	2020	Advisor's Signature .....

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CHAPTER I
INTRODUCTION

This chapter contains the background and significant study, theoretical framework, research questions, hypothesis, the scope of the study, operational definitions, and expected benefits. This chapter describes the data and problems related to phenomena and theory-based as well in Indonesia. It leads question on this study and be explained on variables that will be examined.

1.1 Background and Significance of the Study

Sample Registration System (SRS) surveyed in 2015-2016 in Indonesia showed that cardiovascular disease is a leading cause of adult age level mortality. The report also showed that ischemic disease was the second largest of mortality and increased within those years (Usman et al., 2018). It has been supported by a previous report by WHO that ischemic heart disease had been growing number from 2000-2012 that was the second rank after stroke which has a stagnant number at the same period years (WHO, 2015). Detailly, Based on Riset Kesehatan Dasar (RISKESDAS) reported a prevalence of CHD based on doctor-diagnosed at around 0.5 % at 883447 persons while based on doctor-diagnosed/symptoms at 1.5 % 2650340 persons. In terms of doctor diagnosed, west java is the highest one at 0.5 % or 160812 patients from the total of CHD patients, but east java has the highest data based on symptoms at 1.5 % or 144279 patients older than 25 years old mostly, around 95%. The total number of them has a four-time more significant number of patients than heart failure in doctor diagnosed. West java is the largest Indonesian population, almost a fifth of Indonesia's population (BPS, 2014). Furthermore, some region is included in a Jakarta Acute Coronary System (JAC) to increase cardiac care services and reduce mortality in this disease. Still, the number of cases is lower than at west java, around 53000 patients.

West Java is the largest population in Indonesia. The number population could represent a fifth of all of the Indonesian inhabitants at around 48.6 Million people. Moreover, west java is the highest growth rate. Geographically, this province adjacent to Jakarta and Banten Province. It takes two hours from the capital city.

Some of the regions are included in *Jabodetabek*, the official and administrative definition of the urban area or megacity surrounding the Indonesian capital city included Jakarta Acute Coronary System (JAC), intending to increase cardiac care services and reduces mortality in this disease. Hence, one of the complete hospital and national reference hospitals is placed at the capital city of this province, namely Hasan Sadikin General Hospital.

In terms of CHD, mortality resulted from coronary artery disease (CAD), which is comprised of an acute coronary syndrome. Notable events related to myocardial infarction and angina events or coronary events in CHD were around 60 % of cardiovascular events (Lerner & Kannel, 1986; Sanchis-Gomar, Perez-Quilis, Leischik, & Lucia, 2016). A study reported that most of the patients with myocardial infarction could survive after coronary events (Wei et al., 2008), so it seems to leads term-survival of acute myocardial infarction (AMI) was raising based on the global report (Moran et al., 2014). Nevertheless, in the Indonesian population, the number of information on survival myocardial infarction is limited. Still, the number of CAD patients that encompass ACS has been shown to represent the AMI population.

American Heart Association (AHA) explained that ACS refers to a wide range of conditions following acute myocardial ischemia and/or infarction due to a sudden reduction in coronary blood flow. Amsterdam et al. (2014), On this clinical practice guide (CPG), furthermore, further explained that unstable angina (UA), non-ST-elevation myocardial infarction (NSTEMI), and ST-elevation myocardial infarction (STEMI) are ACS. In contrast, NSTEMI and STEMI are included in myocardial infarction (MI) (Thygesen et al., 2012). Related to ischemic, the term of building up of plaque happened from teenager and could obstruct the vessel that leads ischemic on heart after several years even decade is called CAD (AHA, 2018). Then, prior its history leads to yields arteriosclerosis that could be the effect on myocardial such infarction.

After cardiac events and getting a discharge, the acute coronary syndrome affects many aspects of a patient's life, including physical, psychological, emotional, and social (Aljabery, Saifan, AbuRuz, Masa'Deh, & Hayeah, 2017). Mental-

emotionally, depressive symptoms, and anxiety appear to adversely affect in-hospital and long-term cardiac outcomes of post-ACS patients, independent of traditional risk factors (Huffman, Celano, & Januzzi, 2010). AMI leads to negative change prolongedly in a person's well-being. After the cardiac event in AMI, patients are vulnerable to get recurrent physical problems and psychological issues. Factors that included physical problems such as pain, fatigue, dyspnea, and difficulty in many kinds of activities could affect the psychological problem that transforms from high psychological well-being to low psychological well-being and high psychological distress (Drory, Kravetz, & Hirschberger, 2002). In their studies showed a first AMI seems to have more psychological distress than psychological well-being. It seems that newly diagnosed CHD experienced cardiac event or heart attack called AMI has important changes in their health-related quality of life (HRQOL) (Pragodpol & Ryan, 2013).

The study showed that many developing countries have a low mean of HRQOL. It is supported by Aljabery et al. (2017) as nurses in Jordan that tried to assess the quality of life that yields the patients' quality of life mean score for all domains was low. This study used the MacNew instrument in Arabic version with 27 questions: the items and scales are scored from 1 (low HRQOL) to 7 (high HRQOL). Then, the physical domain was the most affected, followed by the emotional and the social part. At the same time, Höfer, Turk-Adawi, and Oldridge (2016) reported mean MacNew Global HRQOL in the whole group was low. This study also has a lower score than other countries such as Canada, United States, Switzerland, Austria, Brazil, and Turkey. While in further research, the mean score of the EQ-5D index was 0.79±0.32 that showed a low score on the quality of life of coronary disease patient which is high score is 1 (Kahyaoğlu Süt & Ünsar, 2011). For instance, in Austria, the CAD patients treated by reperfusion after myocardial infarction, the patient could show changes in higher score HRQOL in a month (Höfer, Doering, Rumpold, Oldridge, & Benzer, 2006), also in Germany, they have a higher score of HRQOL (Schweikert et al., 2009).

There is some effect low of HRQOL. The previous study showed that quality of life score associated with an inability to return to work, revascularization treatment, anxiolytics consume, hypnotics inhalers, angina drugs, and chest pain frequency; more than once a week dyspnea score more than 2 (Brown et al., 1999). The low score of HRQOL can affect the recovery process, decreases compliance with treatments, decreases capacity to perform daily living activities, increases hospital readmission rate, and puts the patient at risk for complications and death. Thus, some studies showed that poor HRQOL was related to increased hospital readmission (Rodriguez & Mahaffey, 2016) and mortality (Otero-Rodriguez et al., 2010; Rodriguez & Mahaffey, 2016).

Torrance (1987) defined health-related quality of life (HRQOL) as the quality of life is an all-inclusive concept incorporating all factors that impact upon an individual's life that HRQOL includes only factors that are part of their health (Karimi & Brazier, 2016). Based on the literature review, health-related quality of life (HRQOL) is a subjective measure of overall well-being, reflecting how patients perceive disease and its symptoms by evaluating their health, treatment, and prospects for the future (De Smedt et al., 2013). Health status and viewed as a continuum of increasingly complex patient outcomes: biological/physiological factors, symptoms, functioning, general health perceptions, and overall wellbeing or quality of life (Wilson & Cleary, 1995). Hence, individual perceptions are related and affect health, such as social, biological/physiological, and emotional/psychological factors. Measuring HRQOL after discharge can begin in a month after discharge that has been shown in the previous study (Höfer et al., 2006).

The dimension in which moderate or severe problems were most frequently stated was pain/discomfort. Rančić, Petrović, Apostolović, Kocić, and Ilić (2013) showed the patients with AMI got a severe problem in the most frequent answer on the question about mobility, self-care, daily activities, pain/discomfort, and anxiety or depression after one month after AMI modest.

Patients with myocardial infarction had some factors related to HRQOL as outcome such as age (Beck, Joseph, Belisle, & Pilote, 2001), sex (Dueñas, Ramirez,

Arana, & Failde, 2011; Pettersen, Reikvam, Rollag, & Stavem, 2008), education, non-cardiac co-morbidities (Rumsfeld et al., 2001), diet (Cole, Smith, Hart, & Cupples, 2010), depression (Pettersen et al., 2008; Rumsfeld et al., 2001), anxiety (Höfer et al., 2006), and baseline HRQOL scores (Hawkes et al., 2013).

Besides, there is a study that shows an association of decreasing physical health with increasing age (Y. Jiang & Hesser, 2006). A contrary, positive relationship has happened in term of self-efficacy (Brink, Alsen, Herlitz, Kjellgren, & Cliffordson, 2012) , functional status (Wu, Lennie, Frazier, & Moser, 2016), and dyspnea (Pocock, Henderson, Clayton, Lyman, & Chamberlain, 2000). Whereas pain has been tested three times, it showed a strong relationship between pain and HRQOL (Kiessling & Henriksson, 2007). Previous research showed no significant relationship between sex (Jankowska-Polanska, Uchmanowicz, Dudek, & Loboz-Grudzien, 2016), marital status, income (Thiruvisaakachelvy et al., 2019), and quality of life.

Based on the finding result, only two published studies explain patients of ACS in Indonesia. Those conducted about the acute myocardial system in Jakarta (Dharma et al., 2016) and characteristic, treatment, and in-hospital outcome in developing country (Dharma et al., 2012). Furthermore, a decade ago, one study compared intervention of primary coronary for STEMI between Indonesia and the Netherland (Juwana et al., 2009). Regarding sociodemographic data, the result showed majority of men dominated over women and older than 50 years old. Hopefully, they are able to explore any quality of life, but it is no data. But suppose we are talking about un-publish data generally. In that case, we can only find in a national publication, and is almost all of the study talking only about the quality of life generally. For instance, in the comparison studies, they showed data that QOL of ACS among Indonesia's patients. We found two research at RS PKU Muhammadiyah Yogyakarta that revealed that almost half of respondents have a poor quality of life in psychological and sexual aspects (Deiwi, 2015; Fitari, 2015). Nonetheless, it is talking about QOL as a generic topic and using its instrument; at least, it can help find any problem related to a health outcome.

Furthermore, one study explores factors related to QOL in ACS patients in Hasan Sadikin Hospital. This study results show revascularization, rehabilitation, anxiety, depression, and spiritual-wellbeing have a strong association with QOL (Nuraeni, Mirwanti, Anna, Prawesti, & Emaliyawati, 2016). On the other side, Santoso, Sujianto, and Susilawati (2017) reported that more than half of the respondents have low quality of life. Hence, it needs special further research about HRQOL. Factors related to HRQOL were biological and physical factors, symptoms, functioning, social support (Wilson & Cleary,1995). Previously, studies found that general self-efficacy was positively related to HRQOL (Brink et al., 2012). In term of HRQOL, there are many researchers who try to define about it.

Based on those previous studies, patient with ACS have problem with their quality of life. It has been seen some studies showed that patient with coronary heart disease had low HRQOL that there are factors related to HRQOL both physically or psychologically such as pain, dyspnea, functional status, and self-efficacy, also social support. Those could lead high or low HRQOL in patients with acute coronary syndrome. Those are factors to explored to know which is good for their life to prevent any side effects of low HRQOL such as slow recovery process, decreases compliance with treatments, decreases capacity to perform activities of daily living, increases the rate of hospital readmission, and puts the patient at risk for complications and death.

Regarding to this problem, nurse could be control and monitoring the factor related to HRQOL in ACS patients after discharge. It is important to reduce any suffers, readmission, recurrent or some complications. Some factor could be modified by nurse such as psychological factors, symptoms, and physical activity. It can be happened at the controlling department of outpatients. Additionally, nurse especially community nurse could do education health and do some intervention during rehabilitation or home care such as community based collaborative peer advisor/advanced practice nurse and post-discharge transitional program.

For instance, discharge program and secondary prevention after hospitalization from ACS should be applied. The discharge program should be

ensured that they accept copy of their discharge summary and could be an advice and encouragement to attend cardiac rehabilitation, changes of cardiac risk and lifestyle program, and drugs therapy. There is priority for them from the plenty discharge information to emphasize with they had history of an acute MI, result of any investigations, and how they manage their condition. Also, to discuss the condition with their family is possible so they can help patients to modify their lifestyle. Patients could be suggested to see urgent medical center if they had pain. To be more concern, cardiac rehabilitation is consisted of a physical activity, travel and health advice, psychological and social support, advice on sexual activity and support with lifestyle changes (Jarvish & Saman, 2017).

It seems that QOL is common outcome to explore, but it needs further study especially related of health aspect in term of HRQOL in patients with ACS in Indonesia. Generally, in western and Asian countries have conducted many researches that could enhance intervention in ACS patients especially outpatients. Lack of knowledge about HRQOL and factors related to HRQOL on ACS patients could detain nurses to provide tangible nursing care program. The important thing, to reduce low of HRQOL such as pain and dyspnea as physical function that can lead many problems such as psychological and social that causes readmission and recurrent, it needs to investigate further about HRQOL based on WCM of HRQOL. Despite to take all of factors in WCM, this study took characteristics individual (age and self-efficacy), symptom status (pain, dyspnea), functional status, and characteristic environment (social support). It seems that biological functional, left ejection ventricular failure, is included on heart failure determinant whereas general health perception has no clear definition and is defined as general health perception in which it will overlap with HRQOL definition. Therefore, this research is expected to be able to help nurses or health care providers of cardiac department to create and modify program related to factors associated with ACS patients.

1.2 Research Question

What is the level of health-related quality of life in patients with acute coronary syndrome?

What is the relationship between age, self-efficacy, functional status, pain, dyspnea, social support, and Health-Related Quality of Life?

1.3 Theoretical Framework

Wilson and Cleary model (WCM) will be used as a theoretical framework in this study. This theory has been the most used in 14 studies in HRQOL (Bakas et al., 2012). It is the most common than others such as revision model by Ferrans and WHO model. Meanwhile, Wilson and Cleary's HRQOL Conceptual model have been cited in more than 300 published papers (Hofer et al., 2005)(Hofer et al., 2005). Some parts of this model have been broadly applied to various populations, including patients with cancer, Parkinson's disease, heart disease, HIV/AIDS and normal populations (Cosby, Holzemer, Henry, & Portillo, 2000; W. Jiang et al., 2004). In addition, this study also is used in cardiac patients as a conceptual framework. Mark D. Sullivan, Kempen, Van Sonderen, and Ormel (2000) found that the relationship between biological variables and general health perceptions was mediated by symptoms and physical functioning in patients with coronary heart disease. Also, they reported direct relationships between biological variables and physical functioning, between symptoms and general health perceptions, and between biological variables and general health perceptions.

This model has been based on the biopsychosocial function. In the conceptualization, they used physical functioning, social functioning, role functioning, mental health and general health perceptions. Additionally, the input others important thing such as vitality, pain, and cognitive. Also, it is included biological and physiological function, tissue diagnosed, and patient reported symptoms (Wilson & Cleary, 1995).

In accordance with Wilson and Cleary (1995), there are five kinds of domain as outcome that should be namely biological function, symptoms, functional status, general health perceptions, and overall of quality of life. Firstly, they stated biological function are originally including biological and physiological variables in which it is described as concerning on the function of cells, organs, and organ systems.

Biological function would be assessed by way a such indicator as laboratory tests, physical assessment, and medical diagnoses. Secondly, symptoms were symptom status included physical, emotional, and cognitive symptoms perceived by a patient. Functional status as the third domain, is composed of physical, psychological, social, and role function. Next general health perceptions as a fourth, is which regard to a subjective rating that includes all of the health concepts that precede it. Fifth, overall quality of life, is outlined as subjective well-being, which means how happy or satisfied someone is with life as a whole (Ferrans, Zerwic, Wilbur, & Larson, 2005; Wilson & Cleary, 1995).

Ferrans et al. (2005) has been revised the model to help defining of scope of quality of life by making clear some terms. Those refers to all of life, and not physical health status. For instance, terms physical domain can include pathophysiological changes, symptoms, functional deficits, or perceived health status. On this revision model, authors explained about theoretical background of individual and environmental characteristics, revision of model, and suggestion for implementing in nursing and health care.

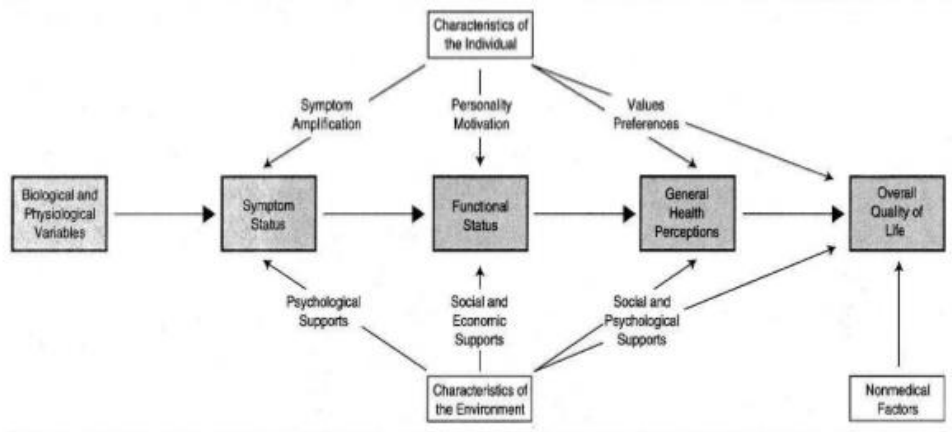

Figure 1 Wilson and Cleary Model of Health-Related Quality of Life (Wilson & Cleary, 1995)

1.4 Hypothesis and Rationale

From the literature review, there are some variables that have been chosen by researchers regarding to factor related to HRQOL such as age, self-efficacy, functional status, social support, pain, and dyspnea. These variables have been reported as having a significant relationship with HRQOL. Meanwhile, other

variables such as ethnicity, sex, marital status, and educational level will not choose as independent variables because these variables have showed non-significant correlation to health-related quality of life. But some factors such as sex (patients with PCI treatments) (Jankowska-Polanska et al., 2016), marital status, income (Thiruvisaakachelvy et al., 2019) BMI, education level, and morbidity disease are not included because of low or no significant relationship. In the Myanmar study, age, sex, depression, and social support becomes predictors factors of HRQOL (Hlaing, Sriyuktasuth, & Wattanakitkrileart, 2018). Moreover, non-medical factors such gender, income, and education are not directly related to HRQOL based on WCM theory and revised one. While BMI and morbidity are not mention as characteristics individual on WCM revised version. But those has been included on descriptive data of characteristics patients.

Despite to take all of factors in WCM, this study took characteristics individual (age and self-efficacy), symptom status (pain, dyspnea), functional status, and characteristic environment (social support). It seems that biological functional, left ejection ventricular failure, is included on heart failure determinant whereas general health perception has no clear definition and is defined as general health perception in which it will overlap with HRQOL definition. The explanation of each variable will be outlined following.

(1) *Age* is the duration, or the measure of time of the existence of a person ("Farlex Partner Medical Dictionary," 2012). The process is combined with inflammatory process and progression of atheroma with the formation and expansion of necrotic core, fibrous cap, matrix accumulation and various degree of plaque instability yields atherosclerotic CAD that lead imbalance of oxygen demand on ACS patients (Dai, Busby-Whitehead, & Alexander, 2016). On this condition, it can affect physically on these patients. It seems to be clear that there was positive association between age and physical dominant of HRQOL, in which an increasing of age increased the poor physical health (Y. Jiang & Hesser, 2006). Similarly, the trend is going to be older patients had lower physical health of HRQOL, while younger people had lower mental health (Hawkes et al., 2013).

(2) *Self-efficacy* is defined as participants' confidence in their ability to take care of their health (Bandura, 1977). Some researchers have conceptualized a general self-efficacy as the global confidence in one's coping ability across a wide range of demanding or novel situations (Scholz, Gutiérrez Doña, Sud, & Schwarzer, 2002). General self-efficacy measured four months after MI was positively related to physical and mental HRQOL two years after MI (Brink et al., 2012). Besides, other studies have found similar relationships between self-efficacy and quality of life in persons dealing with cardiac illness (S. N. Boersma, Maes, Joekes, & Dusseldorp, 2006; Joekes, Van Elderen, & Schreurs, 2007). A study reported that low self-efficacy at baseline was explained by poorer cardiac function (Sarkar, Ali, & Whooley, 2009).

(3) *Functional status* is the ability to perform activities of daily living, has four discrete dimensions: functional capacity, functional performance, functional reserve, and functional capacity utilization. Actually, using of functional status is interchangeably such as health status, quality of life, physical functioning, activities of daily living (ADL), level of impairment, and disability (Coyne & Allen, 1998). Patients who had better functional status had better HRQOL (Wu et al., 2016).

(4) *Social Support* could be support from family, spouse, and society that could promote to eliminate psychological problem among chronic patients such cardiac disease. Despite the patients get the social support, they will face a lot of limitation and many changes in their life such as the threat of family life changes, marital strain, financial worries, and fewer job opportunities instead (R. Wang et al., 2008). Studies conducted in Western countries and Hong Kong have shown that patients perceived social support has an independent significant effect on HRQOL of patients with CHD. In addition, two significant predictors such as co-morbidity of heart failure and perceived social support were identified for poor mental health accounted for 12.4% of the variance. The mean scores of the Chinese Mandarin Version of Medical Outcomes- Social Support Survey (CM:MOS-SSS) in their study were lower than that of the Hong Kong patients, with the exception of the tangible support scale (W. Wang, Lau, Chow, Thompson, & He, 2014).

(5) *Pain* is most frequently starting in the retrosternal area and can radiate to either or both arms, the neck, or the jaw. Pain may also occur in these areas independent of chest pain. pain which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance (Coven et al., 2016). On the measuring of HRQOL by 3 global health assessment of HRQOL in three time point, there is significant correlation between chest pain and HRQOL. Similarly, general health perception as a domain of HRQOL has associated with chest pain. In contrast, cognitive and social function is no relationship between those (Kiessling & Henriksson, 2007).

(6) *Dyspnea* is breathlessness or shortness of breath; labored or difficult breathing. It can be sign from the various disorders and indicated as inadequate ventilation or insufficient ("Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition," 2003). So, increasing of oxygen demand lead to exertional of chest and dyspnea (Coven et al., 2016). Regarding this mechanism, it can lead patients to minimize of their movement to avoid dyspnea. Previous study on the patients with Post MI showed that dyspnea is common and strongly associated with impaired quality of life, more frequent rehospitalization, and reduced survival. So, higher dyspnea scores remained strongly associated with worse quality of life in term of cross-sectional and longitudinal study (Arnold, Spertus, Jones, Xiao, & Cohen, 2009). Besides, it has been clear that increasing dyspnea severity was strongly associated with worse scores on the physical functioning, vitality, and general health status (Pocock et al., 2000)

Hypothesis**:** age, self-efficacy, functional status, pain, dyspnea, and social support are related to health-related quality of life in west java, Indonesia

1.5 Scope of the study

This study will examine Health-Related Quality of life and identify relationship between age, self-efficacy, functional status, pain, dyspnea, and social status in patients with ACS. Data will be collected on the 186 patients who diagnosed

or having history of ACS are 25 – 60 years old in Hasan Sadikin General Hospital, outpatient of CAD who has history angina, NSTEMI, and STEMI, be able to speak, read, and write in Bahasa Indonesia, at least 1 month after discharge from hospital, treated by medication and revascularization, good hemodynamic and consciousness, and willing to be participant in this study.

1.6 Operational Definitions

Age is the duration, or the measure of time of the existence of a patient with acute coronary syndrome. It is included on the demographic data that will be on the general information form.

Self-Efficacy refers to belief's in one's capabilities to organize and execute the couses of action required to produce given attainments (Bandura, 1977). It means that patient with ACS belief to be able to control challenging environmental demands by taking adaptive action. General self-efficacy scale will be applied to measure self-efficacy on this study (Scholz et al., 2002).

Functional status refer to ability to perform tasks in multiple domains such as physical function, social function, role function, and psychological function (Wilson & Cleary, 1995). In term of patients with ACS, it could be ability of patients to perform tasks in multiple domains such as physical function, role function, and psychological function. Seattle angina questionnaire as generic instrument could be used for assessing of functional status in this study (Chan, Jones, Arnold, & Spertus, 2014).

Pain which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance (Coven et al., 2016). Rose questionnaire for angina is instrument for measuring pain in this study (Rose & Blackburn, 1968)

Dyspnea refers to the sensation of difficult or uncomfortable breathing on patients with ACS that can be exertional dyspnea in which it resolves with pain or rest

(Coven et al., 2016). Rose dyspnea questionnaire will used as assessment tools in this study (Rose & Blackburn, 1968)

Social Support has been defined that it could be support which get from family, spouse, and society of patients with acute coronary syndrome could promote to eliminate psychological problem associated with acute coronary syndrome's patients. ENRICH social support inventory is usually applied to investigate the social support in this study (Vaglio et al., 2004)

Health related-quality of life refers to health status and viewed as a continuum of increasingly complex patient outcomes: biological/physiological factors, symptoms, functioning, general health perceptions and overall wellbeing or quality of life in patients with acute coronary syndrome. MacNew heart disease health-related quality of life will be used in this study to measure health-related quality of life (Höfer, Lim, Guyatt, & Oldridge, 2004)

1.7 Expected Benefits

1. The result of study will be used to support of develop knowledge about health-related quality of life (HRQOL) especially in patients with Acute Coronary Syndrome (ACS) in Indonesia
2. This study will find the result of the factor related of HRQOL in patients with ACS in which can help nurses or other health care provider to make synergic and integrative strategy to give tangible intervention and prevention individually or in a group in the future.
3. Nurses could develop future research related HRQOL in cardiac patients or others Chronic illness generally.

CHAPTER II
LITERATURE REVIEW

In this chapter, it will outline literature review about health-related quality of life in patients with acute coronary syndrome. The reviews including the topics:

2.1 Acute Coronary Syndrome

- 2.1.1 Definition
- 2.1.2 Etiology
- 2.1.3 Pathophysiology
- 2.1.4 Diagnosis
- 2.1.5 Management and Treatment
- 2.1.6 Nursing Role in Acute Coronary Syndrome
- 2.1.7 Health Care Reference System in Indonesia

2.2 Quality of Life and Health-Related Quality of Life

- 2.2.1 Definition
- 2.2.2 Measurement Health-Related Quality of Life
- 2.2.3 Related Research Reviews and Conceptual Framework
- 2.2.4 Health-Related Quality of Life in Acute Coronary Syndrome
- 2.2.5 Wilson and Cleary Model of Health-Related Quality of Life
- 2.2.6 Factor-Related to Health-Related Quality of Life in Patients with Acute Coronary Syndrome

2.1 Acute Coronary Syndrome

2.1.1 Definition

The term of acute coronary syndrome (O'Gara et al.), acute myocardial infarction (AMI), cardiovascular diseases (CVD) even coronary heart disease (Iny et al.) disease is interchangeable related to heart diseases even though there is some distinction among those (Sanchis-Gomar et al., 2016). American Heart Association (AHA) explained ACS refers to wide range of conditions in accordance acute myocardial ischemia and/or infarction that are normally due to a sudden reduction in coronary blood flow. Amsterdam et al. (2014), On this clinical practice guide (CPG),

furthermore, they further explained that unstable angina (UA), non-ST-elevation myocardial infarction (NSTEMI) and ST-elevation myocardial infarction (STEMI) are ACS, whereas NSTEMI and STEMI are included in myocardial infarction (MI) (Thygesen et al., 2012). Related to ischemic, the term of building up of plaque that is happened from teenager and could obstruct the vessel which lead ischemic on heart after several years even decade is called CAD (AHA, 2018). Then, prior its history leads to yields arteriosclerosis that could be effect on myocardial such infarction. However, CHD includes in diagnoses of angina pectoris and MI whilst CAD only related to pathologic process affecting atherosclerosis (G. Cervellin & Lippi, 2014). Hence, all that terms are related to ischemic process that have general term to include all of those called ischemic heart disease (IHC) (IOM, 2010).

Continuing about clinical presentation, some cases have some atypical complains. Most of patients will complain about left chest pain, *if present, is described as pressure, tightness, or heaviness. It may radiate to the neck, jaw, shoulders, back, or one or both arms. The pain may also be described as indigestion or heartburn with associated nausea and/or vomiting. Additional symptoms in the absence of pain may include shortness of breath, weakness, dizziness, lightheadedness, or loss of consciousness* (Committee, 1994). This statement is common symptoms that in contra with atypical one which present with only neck, jaw, ear, arm, or epigastric discomfort instead of presence of chest pain. In addition, women frequently experience uncommon coronary issues in atypical ways such as palpitation, pain: which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, then exertional dyspnea, diaphoresis, nausea, and increasing of intolerance activity as well (Coven et al., 2016).

Contrary the journal talking about the clinical of ACS, it argue that this disease is consisted from Unstable Angina (UA) to MI (Gianfranco Cervellin & Rastelli, 2016). Furthermore, other study mention chest pain to be symptoms of ACS who refer to be Emergency Department (ED) patient (Goodacre et al., 2005). They were further giving more characteristics that many EPs include white man, older than

60 years, with multiple risk factors, complaining for left-sided chest pressure radiating to the arm with some combination of associated dyspnea, nausea, lightheadedness, or diaphoresis. In the US, the aforementioned features, however, possess distinguish such African-American patients on ED tend to younger and female than white people (Goodacre et al., 2005).

2.1.2 Etiology

Acute coronary syndrome (O'Gara et al.) is caused predominately by atherosclerosis (Coven et al., 2016). Acute coronary syndromes are triggered by fissuring or rupture of an atheromatous plaque in the coronary arterial wall (Timmis, 2015). Then, Coven et al. (2016) explained most of cases of ACS occurred from disruption of a previously non-severe lesion (an atherosclerotic lesion that was previously hemodynamically insignificant yet vulnerable to rupture).

This obstruction elevate demand that can lead to be ACS in the presence of a high-grade fixed coronary obstruction, due to increased myocardial oxygen and nutrition requirements, such as those resulting from exertion, emotional stress, or physiologic stress (e.g. from dehydration, blood loss, hypotension, infection, thyrotoxicosis, or surgery).

Another etiology is syndrome consisting of chest pain, ischemic ST-segment and T-wave changes, elevated levels of biomarkers of myocyte injury, and transient left ventricular apical ballooning (takotsubo syndrome) has been shown to occur in the absence of clinical CAD, after emotional or physical stress. Even though it still needs more explored to be understood but it is believed linked to a surge of catechol stress hormones and/or high sensitivity to those hormones (Coven et al., 2016). In addition, baseline blood glucose levels become risk factor of major advance cardiac event (Gardner et al., 2015). They mentioned other significant predictors of MACE included male sex, older age, family history, hypertension, dyslipidemia, ischemic findings on ECG, and positive troponin tests.

2.1.3 Pathophysiology

Regarding to Kumar and Cannon (2009), there are two process of pathophysiology that they wrote at their journal namely initiation of atherosclerosis

(role of the endothelium) and progression of atherosclerotic plaque (role of inflammation, stability of plaques and tendency for rupture, and plaque disruption, thrombosis, and ACS). Initially, atherosclerosis is the ongoing process of plaque formation that involves primarily the intima of large-medium-sized arteries; the condition progresses relentlessly throughout a person's lifetime, before finally manifesting itself as an acute ischemic event. Because of it, dysfunctional endothelium is happened which is characterized by decreased bioavailability of nitric oxide and by excessive production of endothelin 1, which impairs vascular hemostasis; increased expression of adhesion molecules (e.g. selectins, vascular cell adhesion molecules, and intercellular adhesion molecules); and increased thrombogenicity of blood through the secretion of several locally active substances (Corti, Fuster, Badimon, Hutter, & Fayad, 2001; Kinlay, Libby, & Ganz, 2001; Kumar & Cannon, 2009).

Secondly, on the role inflammation, it is beginning of endothelium damage in which inflammatory cells such monocytes migrate into sub-endothelium where change to be macrophages. From this changes, the ratio numbers between smooth muscle cells and macrophages plays an important role in plaque vulnerability and the propensity for rupture. There are plaques varies in term of atherosclerotic stability. Thus, the characteristics of them are a large lipid core, thin fibrous caps, a high density of macrophages and T lymphocytes (Moreno et al., 1994; van der Wal, Becker, van der Loos, & Das, 1994), a relative paucity of smooth muscle cells (Davies, Richardson, Woolf, Katz, & Mann, 1993), locally increased expression of matrix metalloproteinases that degrade collagen (Herman et al., 2001; Sukhova et al., 1999) eccentric outward remodeling (Schoenhagen et al., 2000; von Birgelen et al., 2001) and increases in plaque neovascularity and intraplaque hemorrhage (Badimon & Vilahur, 2014; Kumar & Cannon, 2009).

During in this process, inflammation will determinant vulnerability of plaque (Lendon, Davies, Born, & Richardson, 1991; Moreno et al., 1994) that is undergoing enlargement and thinning of its cap by increasing macrophages. It leads to be more vulnerable and going to rupture. Interaction among inflammation cells, the

endothelium, and the thrombogenicity of the blood in the pathogenesis of ACS is complex (Naghavi et al., 2003) . To control the thrombus formation degree and determining of the plaque rupture will yields ACS (Chen, Chester, Crook, & Kaski, 1996; Luscher, Tanner, & Noll, 1996). The subendothelial matrix exposed to blood stream circulation after endothelial erosion, then it leads adhesion of platelets followed activation and aggregation to form thrombus in the end subsequently. Actually, there are two kinds of thrombus such as a platelet rich clot (referred to as a *white clot*) and a fibrin-rich clot (referred to as a *red clot*). Red clots occasionally cover up white clots that can cause total occlusion. Some study lines support the central role of thrombosis in the pathogenesis of ACS ("Early effects of tissue-type plasminogen activator added to conventional therapy on the culprit coronary lesion in patients presenting with ischemic cardiac pain at rest. Results of the Thrombolysis in Myocardial Ischemia (TIMI IIIA) Trial," 1993; Mizuno et al., 1992; E. Sullivan, Kearney, Isner, Topol, & Losorda, 1994)

The majority of patients with ST elevation MI have ST depression in reciprocal leads. This finding appears to be associated with an increased hazard of adverse long-term outcome, at least in some series. Impaired myocardial micro perfusion has been shown to be a major predictor of adverse outcome in patients undergoing reperfusion Therapy. Numerous groups have demonstrated a poor short- and long-term outcome in patients that have persistent ST elevation despite successful restoration of TIMI (thrombolysis in myocardial infarction) grade 3 flow in the infarct related artery by mechanical or pharmacological means.

In term of NSTEMI, one-month mortality showed a gradient with the lowest incidence in those with only T wave changes (1.7%), intermediate in those with ST elevation (5.1%) or only depression (5.1%), and worst in those with both elevation and depression (6.6%). Further similar trends in six-month mortality were observed with the mortality rate being 3.4% in those with T wave changes, 6.8% in those with ST elevation, 8.9% in those with ST depression, and 9.1% in those with both ST depression and elevation. These mortality associations remained significant after

adjusting for elevated creatine kinase (CK) MB and for other variables that were predictors of 30 day mortality (Gurm & Topol, 2005)

2.1.4 Diagnosis of ACS

The symptoms of UA/NSTEMI and STEMI are similar, and differentiating the two requires medical evaluation and 12-lead electrocardiography (ECG) (Kumar & Cannon, 2009). Many researchers divided explanation of diagnosis into history, clinical presentation, differential diagnosis, electrocardiogram, cardiac biomarkers, and imaging. Smith, Negrelli, Manek, Hawes, and Viera (2015) explained that the 5 most important history-related factors that help identify ischemia due to CAD, ranked in order of importance, are the nature of the anginal symptoms a history of CAD, male sex, older age, and the number of traditional risk factors present.

Physical examination findings that indicate a large area of ischemia and high risk include diaphoresis; pale, cool skin; sinus tachycardia; a third or fourth heart sound; basilar rales; and hypotension. Thygesen et al. (2012) said that diagnosis of myocardial infarction can be established when at least there is one of typical rise or biochemical markers of myocardial necrosis such as Ischemic symptoms, Development of pathologic Q waves on electrocardiogram (ECG), Significant ST-Segment-T wave (ST-T) changes or new left bundle branch block (LBBB), Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality, and introcoronary thrombus identified by angiography or autopsy.

Based on the new recommendation revision of diagnosis of AMI and offered guidance for testing of cardiac markers, there are two major changes. Firstly, the crucial changes in the diagnosis of myocardial ischemic injury recommended the replacement of cardiac enzymes with cardiac troponins in the WHO's "two out of three" criteria. The second major change was combining stable angina, unstable angina (UA), non-Q wave MI (NQWMI), ST-elevation MI (STEMI) and Q-wave MI (QWMI) on a continuum. These diagnoses were now representatives of the same ischemic process, collectively called the Acute Coronary Syndromes (O'Gara et al.) (Bodor, 2016). In line with Amsterdam regarding the biomarkers, AHA explained most patients with ST elevation develop QWMI, and a few develop NQMI. Those

without ST elevation have either UA or NSTEMI, a distinction based on cardiac biomarkers. Most patients presenting with NSTEMI develop NQMI; a few may develop QWMI. The spectrum of clinical presentations including UA, NSTEMI, and STEMI is referred to as ACS (Amsterdam et al., 2014).

Other workup will be used ECG and laboratory test that reveal about changes in changes in the PR segment, the QRS complex, and the ST-segment whereas another finding such biochemical markers. Assessing 12-lead ECG in 10 minutes when the patients arrive at ED with chest discomfort or other symptoms suggestive of ACS is recommended by the ACC/AHA by professional of physician emergency. It has been proven by findings on ECG associated with UA include ST-segment depression, transient ST-segment elevation, T-wave inversion, or some combination of these factors is present in 30% to 50% of patients (Kumar & Cannon, 2009). While another one will show increasing of cardiac biomarkers, notably cardiac troponin (I or T), or the MB fraction of creatine kinase (CKMB), signify myocardial injury leading to necrosis of myocardial cells as representation of myocardial damage (Smith et al., 2015). A full lipid test should be tested within 24 hours of the onset and selected patient should take test of thyroid function to assess secondary causes (Kumar & Cannon, 2009).

2.1.5 Management and treatment

It is essential to evaluate patients with suspected ACS immediately to prevent potentially fatal clinical consequences and relieve ongoing ischemia. As a strength recommendation (A), risk stratification should be assessed earlier that is included a patient's demographics and medical history, physical examination, ECG, and cardiac biomarkers measurements. Other tools that can be used is Thrombosis in Myocardial Infarction (TIMI) risk score that is scoring system for UA and NSTEMI that contain seven variable son hospital admission. This instrument has been validated as a reliable predictor of subsequent ischemic events (Smith et al., 2015).

The ACC/AHA released about the ACS management in 2 different guidelines separately between NSTEMI/UA and STEMI in different years. The guideline of STEMI had been released at 2013 whereas other is at the next year. Both

of them outline about the goal and focus of the treatment. It has been clear that those are have different clinical presentation mainly in ST wave of ECG. To relief and prevent of MI and death is the goal of NSTEMI treatment (Amsterdam et al., 2014) whilst management of STEMI is focused on initial treatment, preventing of delay, mode transportation, community preparedness, patient education, reperfusion therapy (O'Gara et al., 2013)

It has been clear that reducing the ischemia and impeding of mortality on NSTEMI management guideline. Predominately, stabilized patients are admitted to an intermediate care unit. Patients is performed electrocardiographic rhythm monitoring continuously and observation for recurrent ischemia where bed or chair rest is recommended for patients. Moreover, patients with NSTE-ACS should be treated with antianginal, antiplatelet, and anticoagulant therapy. Hence, patients are managed with either an early invasive strategy or an ischemia-guided strategy (Amsterdam et al., 2014). In another side, Smith et al. (2015) stated scheme of the treatment after performing early risk stratification. Result of assessment will determine whether patients need aspirin or consider to be treated by acute anti-ischemic and analgesic therapy where aspirin administration will lead to decide choices between early invasive strategy or an initial conservative strategy, then, can help determine the pharmacologic therapies as well.

Nonetheless, it is similar for initial treatment of STEMI that taking aspirin (Luepker et al., 2000) and nitroglycerin for chest pain response. Trained of emergency medical stuff could give patients who possible has STEMI symptoms to chew non–enteric-coated aspirin (162 to 325 mg) unless contraindicated, while personnel are en route. If patients are prescribed nitroglycerin, they should consume 1 dose promptly. It can be referred to call 911, if symptoms are worsening 5 minutes after 1 dose (O'Gara et al., 2013).

On another studies, The National Institute for Health and Clinical Excellence (NICE) add more as recommendation to reduce chest pain by using intravenous opioids in sufficient dosage. Then, an oral dose of aspirin 300 mg as their recommendation, when the treatment independently decrease 30 days mortality in

ACS, further enhancing the benefits of reperfusion treatment. Hence, the best recommendation treatment is based on the result of ECG about the regional ST elevation (Excellence, 2013; Timmis, 2015).

From that explanation about NSTE-ACS/NSTEMI and STEMI treatment, it tends to medical treatment for ACS patients and reperfusion therapy. There are some medications such as antiplatelets agents, anticoagulant, beta blockers, angiotensin-converting enzyme inhibitors, angiotensin receptors blockers, and addition option treatments as pharmacological therapy. Opening of occlusion in artery should be tackled immediately by percutaneous coronary intervention (PCI) (Amsterdam et al., 2014; O'Gara et al., 2013; Switaj, Christensen, & Brewer, 2017)

Decreasing of perfusion in artery leads patient to be lack of oxygen and emerge pain and dyspnea. The goal is cardiac pump effectiveness and demonstrate of good circulation on cardiac tissue by ECG monitoring. Monitor peripheral pulses and do not elevate legs above the level of the heart. Concomitant this intervention, medical treatment still is performed during hospitalization.

2.1.6 Nursing Role and Practice in ACS Patients

Regarding nurse's role, HRQOL is one of the most important aspect in nursing outcome (King, 2006; Padilla & Grant, 1985). Related to CVDs patients, nurses and advanced practice nurses have taken on key roles in managing single and multiple risk factors, including hypertension, smoking, lipids, and diabetes; the sequelae of chronic conditions, such as coronary artery disease and heart failure, through specialized clinics; and programs in primary care, worksites, and cardiac rehabilitation for more than 4 decades (Hayman, Berra, Fletcher, Miller, & Himmelfarb, 2017). Then back then at 2011, Berra et al had find on their trial that some intervention could be applied on some outcomes such as optimized management of dyslipidemia to improve measure of dyslipidemia and 5 E program on hypertension to see blood pressure, BMI and weight reduction as outcome (Berra, Miller, & Jennings, 2011).

Discharge program and secondary prevention after hospitalization from ACS should be applied. The discharge program should be ensured that they accept copy of

their discharge summary and could be an advice and encouragement to attend cardiac rehabilitation, changes of cardiac risk and lifestyle program, and drugs therapy. There is priority for them from the plenty discharge information to emphasize with they had history of an acute MI, result of any investigations, and how they manage their condition. Also, to discuss the condition with their family is possible so they can help patients to modify their lifestyle. Patients could be suggested to see urgent medical center if they had pain. To be more concerned, cardiac rehabilitation is consisted of a physical activity, travel and health advice, psychological and social support, advice on sexual activity and support with lifestyle changes (Jarvish & Saman, 2017).

Some studies could give some program intervention related to patients ACS after discharge, such as community-based collaborative peer advisor/advanced practice nurse and post-discharge transitional program. Community programs were conducted in patients after discharge in the specific period, such as 6 weeks, 3, 6, and 12 months after hospitalization, in which patients were divided into 4 groups. Patients will receive any interventions, such as home visits and telephone interviews during the interview. There are significant relationships between programs, especially in coronary artery bypass graft surgery with the readmission (Carroll, Rankin, & Cooper, 2007). Whereas Zhao gave intervention in term of pre-discharge assessment, structured home visits and telephone follow-ups within four weeks after discharge. The program intervention contained diet, health related life style, medication, and exercise has significant relationship between control and intervention groups in certain times (Zhao & Wong, 2009). It has been clear that nurse could give intervention to the patient related to HRQOL such as controlling of factors related HRQOL or consulting after discharge.

2.2 Quality of Life and Health-Related Quality of Life

2.2.1 Definition

On the definition of QOL, WHO said 'an individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' as the its definition ("The World Health Organization Quality of Life assessment (WHOQOL): position

paper from the World Health Organization," 1995). This subjective definition is interpreted a patient's perspective about their condition caused by diseases. In another definition, it tends to general objectively defined as 'an overall general well-being that comprises objective descriptors and subjective evaluations of physical, material, social, and emotional well-being together with the extent of personal development and purposeful activity, all weighted by a personal set of values' (Felce & Perry, 1995).

To understand QOL, Meeberg had written to explain before the nursing experts. It has been clear that QOL contains 2 words' quality' and 'life' because it could be defined by dictionary at the time. Previously, quality originated from Latin words' *qual*' defined "of what kind" while dictionaries explain it with some meaning such as 'fineness, merit, excellence' *(The Dictionary of Canadian English 1967)*, 'degree of excellence' *(Webster's 1986)*, 'a typical and essential feature or characteristic' *(Random House 1980)* and others. Whereas 'life' is *Third International Dictionary* {19S6) revealed some meaning namely 'animate being the quality that distinguishes a vital and functioning being from a dead body or purely chemical being', 'the course of existence the sequence of physical and mental experience that make up the existence of an individual' and etc.

To differ from another term, QOL has attribute or characteristics to identify such as (1) a feeling of satisfaction with one's life general, (2) the merited capacity to evaluate one's own life as satisfactory or otherwise, (Writing Group et al.) an acceptable state of physical, mental, social and emotional health as determined by the individual referred to, and (4) an objective assessment by another that the person's living conditions are adequate and not life-threatening. From this point of view, QOL has subjective and objective characteristic because it explored their perception about their life satisfaction and their life would be measured by others. They tried to give detail explanation about QOL by exploring antecedents and consequences. Being life non-animate and consciousness are their statements prior QOL and Satisfaction, happy, feeling of well-being will be gotten later (Meeberg, 1993).

There are many opinions about definition of health-related quality of life (HRQOL) that could be based on the researcher's perspectives and diseases. A the

first, Torrance (1987) defined health-related quality of life (HRQOL) as quality of life is in all-inclusive concept incorporating all factors that impact upon an individual's life that HRQOL includes only factors that are part of their health (Karimi & Brazier, 2016). Then, based on literature review, health-related quality of life (HRQOL) is a subjective measure of overall well-being, reflecting how a disease and its symptoms are perceived by patients through an evaluation of their health, treatment, and prospects for the future (De Smedt et al., 2013) . It seems narrower version defined as "those aspects of self-perceived well-being that are related to or affected by the presence of disease or treatment" (Ebrahim, 1995). On this literature review, most of their definition concern about individual perception about health that contain at least two domains such as physical and mental or emotional. For instance, patient's health statement perceived as impacting on their functioning and therefore, it reflects the patient's physical, social and emotional health (Yeng, Gallagher, & Elliott, 2016).

Karimi and Brazier (2016) conclude there are four concern on HRQOL's definition such as person function and his/her wellbeing perceptions, multi-concept contents, aspects of QOL that affect to health, and value of health. Health concern on HRQOL's definition lead to be clearly distinguish between HRQOL and QOL. To distinct with Health-Related quality of life, health aspect that be focused (Calvert, Freemantle, & Cleland, 2005) than QOL whereas HRQOL and QOL term in this research will be used interchangeably (Ferrans et al., 2005; Wilson & Cleary, 1995). All in all, health status and viewed as a continuum of increasingly complex patient outcomes: biological/physiological factors, symptoms, functioning, general health perceptions and overall wellbeing or quality of life (Wilson & Cleary, 1995).

2.2.2 Measurement of health-related quality of life

The prominent one in term of development and evaluation of care is investigation of the nature and extent to which an intervention or treatment impacts on a patient's diseases and on their quality of life. There are two instruments to measure HRQOL such as generic and disease specific instrument (M. Dempster & Donnelly, 2000).

2.2.2.1 Generic Instrument

Generic measures provision a wide assessment of the health status of an individual and allow comparisons of HRQOL between groups of patients with different conditions (De Smedt et al., 2013; M. Dempster & Donnelly, 2000). Similarly, Coons, Rao, Keininger, and Hays (2000) focused on the statement in disease applicable, medical intervention specifically, even though it mentioned in general population. For instance, there are many generic instruments such as EuroQol instrument (EQ-5D), 36-item short form health survey (SF-36), 12-item short-form health survey (SF-12), 15 Dimensions instrument (15D), Health Utility Index (HUI), and the Quality of Well-Being scale (QWB) (De Smedt et al., 2013), Nottingham Health Profile (NHP), the Sickness Impact Profile (SIP), and the Dartmouth Primary care Cooperative Information Project (COOP) Charts (Coons et al., 2000). In the De Smedt et al. (2013) studies about generic instrument, some previous studies were debatable about value of generic HRQOL measurement and extent to which diverse instrument are comparable in the information they provide (McDonough & Tosteson, 2007; Richardson, Iezzi, Khan, Chen, & Maxwell, 2016; Richardson, Khan, Iezzi, & Maxwell, 2015). Thus, Smedt and colleagues stated that because of some instruments did not integrate all of relevant HRQOL dimensions for special groups, it led to alleviate the sensitivity of the instrument for grabbing small changes between and within patients. Hence, the most generic instruments used is SF-36.

The well-known instruments that used in term of generic instrument, the 36-item short form health survey (SF-36) was developed by developed by the Boston Health Research Institute in the United States.

The SF-36 questionnaire provisions a brief method that is predominately used to check the health status of members of the general population aged 14 years or over (Ware & Sherbourne, 1992). One of benefit from this instrument is show the quantitative indications of an individual's health status directly (Zhang, Qu, Lun, Guo, & Liu, 2012). Moreover, this instrument included in one of an international quality evaluation project in 1991 (Brazier, 1993). Hence, evaluation of SF-36's Validity and reliability has been undergone in a several of specific population world-wide (Brazier, 1993; Corcoran & Durham, 2000).

2.2.2.2 Disease Specific Instrument

Specific instrument refers to specific or targeted HRQOL measures designed to be relevant to a particular condition or state (e.g. a particular illness) (Coons et al., 2000).Previous study stated specific instruments more responsive than generic tools in studies in which both types of instruments were applied to the same patients (Wiebe, Guyatt, Weaver, Matijevic, & Sidwell, 2003). For example, there are a number of disease specific instruments such as Seattle Angina Questionnaire (SAQ), Quality of Life after Myocardial, Infarction questionnaire / MacNew questionnaire, Minnesota, Living with Heart Failure questionnaire, Myocardial Infarction Dimensional Assessment Scale (MIDAS), and Cardiovascular Limitations and Symptoms Profile (CLASP).

It seems that this study tent to select MacNew than CLASP. Considering widely implementation of measurement, MacNew has been translated to may contries and region especially ASEAN. Particularly, it has been investigated in Malaysia regarding to their aim to translated in Malaysia (Lee et al., 2016). Looking generally in Asian countries, this instrument has been explored and applied in Chinese broadly than CLASP. MacNew has been used for exploring IHD specifically for Angina, MI and HF whereas CLASP only identified among CHD patients generally in Hongkong (Luan, Hu, & Li, 2018).In 2013, when the instrument of CLASP was only translated to Chinese, MacNew has been translated to many languages (Rumsfeld et al., 2013). So, because of continuing development and implementation, MacNew was used in this study.

Besides, MIDAS has weak responsiveness in term of cultural differences. It made MIDAS did not perform to measure this issue. Contrary, MacNew had validity, reliability and responsiveness in disease-specific of CHD particularly (Thompson, Oldridge, Yu, & Yu, 2009). Also, in recent studies, it performed small number in some items less than 3 and subscale problem in term of cultural variation in perceiving disease management.

MacNew Heart Disease HRQOL questionnaire (MacNew) is one of the disease specific instrument for cardiac heart disease that have been modified from

modification of the Quality of Life after Myocardial Infarction (QLMI) Questionnaire in which it was originally developed nearly 20 years ago for patients who had survived an acute myocardial infraction (MI) and who were referred for subsequent cardiac rehabilitation (Höfer et al., 2004; Oldridge et al., 1991).

The self-administered MacNew Heart Disease HRQOL questionnaire (MacNew), with a view to explore "your heart problem", is a modification of the interviewer-administered QLMI questionnaire which was validated originally in English-speaking patients with MI (Höfer et al., 2004)There are 38 language versions of the MacNew with validation studies in patients with MI in 13 languages (n > 4,000), in patients with angina in 12 languages (n > 1,800), and in patients with heart failure in 11 languages (n > 550); all translated and validated versions of MacNew can be accessed at MacNew.org (Hofer et al., 2012).

The MacNew is designed to assess patient's feelings about how IHD affects daily functioning and contains 27 items with a global HRQOL score and physical limitation (13-item) and emotional (14-item), and social function (13-item) subscales with a 2-week timeframe, with 12 items falling into more than one domain. Examples of the subscale items include the following: "How often during the last 2 weeks have you experienced chest pain while doing your day-to-day activities?" (physical function); "How often during the last 2 weeks have you felt worthless or inadequate" (emotional function), and "How often during the past 2 weeks have you felt unable to socialize because of your heart problem?" (social function). The MacNew items and subscales are scored from 1 (low HRQOL) to 7 (high HRQOL) and has been described in detail elsewhere (Alphin et al., 2015; Höfer et al., 2004).

It has been clear that patients with ACS possess many problems that could be biological, psychological and social that could be assessed comprehensively by this instrument. This instrument is one of good example to show a colorable interaction between psychologist and cardiologist in creating a feasible cognitive instrument that could be applied immediately and effectively to investigate the psychological problems of patients with CHD. This questionnaire has been successfully applied, especially in the area of cardiac rehabilitation, to assess the psychological aspects

underlying the psychophysical recovery phase following percutaneous or surgical revascularization in patients with CHD (Vecchis & Ariano, 2016). As the items on the instruments such as angina/chest pain, shortness of breath, fatigue, dizziness, and aching legs could be example of biological aspects.

MacNew questionnaire has been tested by many researchers to be proved that it can be used widely. Reliability was demonstrated by using internal consistency and the intraclass correlation coefficients for the three domains in the Dutch, English, Farsi, German, and Spanish versions of the MacNew. With internal consistency and intraclass correlation coefficients =>0.73, reliability is high. Validity of the MacNew was examined with factor analysis and three core underlying factors, physical, emotional, and social, were identified, explaining 63.0 – 66.5% of the observed variance and replicated in the translations with psychometric data.

Previous study show that MacNew has been reported by 11 studies which provide psychometric data. The MacNew has been successfully administered, to our knowledge, in at least 12 clinical and/or experimental studies to more than 5,200 patients with heart disease (Höfer et al., 2004). M. Dempster and Donnelly (2000) reported there are increasing of correlations between the MacNew scales and relevant scales on the SF-36 in term of grouping items grouping when compared to the grouping of items suggested by Valenti, Lim, Heller, and Knapp (1996). As a result, the MacNew questionnaire is a reliable and valid method of assessing changes in health-related quality of life among IHD population (Martin Dempster, Donnelly, & O'Loughlin, 2004). Moreover, in another study who conducted in a total of 118 patients yields high Cronbach's a (from 0.89to 0.94) were observed from all component scores In the MacNew scales. Physical component scores from the SF-12 and from the MacNew were highly correlated (r=0.74; P< 0.001), as were the mental component score from the SF12 and the emotional component score from the MacNew (r=0.68; P< 0.001) (Sansgiry, Chien, Jayawant, & Raju, 2008).

Whereas in Scandinavian countries, Alphin et al. (2015) showed that MacNew has been validated and reliability tested in each language version of the MacNew satisfied reliability criteria with Cronbach's α values for the total group data

(0.90–0.94) as well as the diagnostic group data (0.91–0.96). The test–retest correlations exceeded the criteria for group comparison ($r \geq 0.70$) in Danish and Norwegian patients. To sump ap, the MacNew can be recommended as a specific instrument for assessing and evaluating HRQOL in world generally especially Danish, Norwegian, and Swedish patients with angina, MI, and heart failure (Alphin et al., 2015; Martin Dempster et al., 2004) .

2.3 Related Research Reviews and Conceptual Framework

2.3.1 Health-Related Quality of life in Acute Coronary Syndrome

Exploring about factor related HRQOL, most of journals yields that sociodemographic become major factors related of HRQOL on ACS such as age, gender, BMI, and marital status and some talking about mental status such depression and anxiety while self-care was not significant. But one of systematic review said there some factor related HRQOL based on the revised of Wilson and Cleary that is divided two group characteristics of individual and environment.

Whereas in the Asian countries, the result showed majority of the population are men and older than 60 or elderly whereas women the most suffer that can be viewed by the score of HRQOL (Henriksson et al., 2014; Mollon & Bhattacharjee, 2017; Rančić et al., 2013; Tegn et al., 2018; Webster, Thompson, Larkin, Mayou, & Martin, 2017). Even though, on those studies reported that average total sample of the patients is under 55 age years old. In addition, most of them suffer with symptom of pain or discomfort while many comorbidities give more burden of patients such as diabetes mellitus and prior cardiac event or other cardiac disease. On some longitudinal studies, the HRQOL increased and mental domain or depression decreased(Le, Dorstyn, Mpfou, Prior, & Tully, 2018; Webster et al., 2017).

Refer to many effects from these issues, studies have been beginning to assess HRQOL to see ACS health conditions. Study showed that many developing countries have a low mean MacNew HRQOL. It is supported by Aljabery et al. (2017) as nurses in Jordan that tried to assess quality of life that yields the patients' quality of life mean score for all domains was low (4.06 ± 1.16). The physical domain was the most affected (3.87 ± 1.28), followed by the emotional (4.21 ± 1.18) and

lastly is the social domain (4.26 ± 1.25) while Höfer et al. (2016) reported mean MacNew Global HRQOL in the total group was 5.04 (±1.1). Also on other studies, mean score of the EQ-5D index was 0.79±0.32 that showed low score on quality of life of coronary disease patient (Kahyaoğlu Süt & Ünsar, 2011).

Whereas in the European countries, some of studies used EQ-5D and SF-36 to measure HRQOL. For instance, in Germany, they used EQ-5D and EQ VAS to measure health status in HRQOL in which more than half respondents had minor problems in at least one dimension that 8.1% rated the problems in at least one dimension as severe such pain/discomfort is dominantly happened in this study (Schweikert et al., 2009). The dimension in which moderate or severe problems were most frequently stated was pain/discomfort. Other study by Rančić et al. (2013) showed the patients with AMI got severe problem in most frequent answer on question about mobility, self-care, daily activities, pain/discomfort, and anxiety or depression after one month after AMI modest. Thus, some studies had showed that that poor HRQOL was related to increased hospital readmission (Rodriguez & Mahaffey, 2016) and mortality (Otero-Rodriguez et al., 2010; Rodriguez & Mahaffey, 2016).

There are some prevalence and incidence data in several countries whereas mortality data is used as description of awful impact from disease by number quantitatively. While the biggest number of causes of non-communicable disease (NCD) deaths was cardiovascular diseases (CVD) in 2016 (17.9 million deaths, or 44% of all NCD deaths), ACS data used surrogate data that Ischemic Heart Disease (IHC) data because its data is limited and not available (Vedanthan, Seligman, & Fuster, 2014). American Heart Association (AHA) on their update of Heart Disease and Stroke Statistics in 2016 has recently reported that 15.5 million persons who are more than 20 years of age in the USA have CHD, while women and men patients reported increases prevalence and it has been estimated that approximately every 42 seconds, an American will suffer for an MI (Writing Group et al., 2016).

Data from the National Health and Nutrition Examination Survey (NHANES) for the period 2003 to 2006 reported, furthermore, an estimated 17.6

million Americans age 20 or older have CHD, with an overall prevalence of 7.9 percent (9.1 percent in men and 7 percent in women). The overall prevalence of MI is 3.6 percent (4.7 percent in men and 2.6 percent in women). For annual incidence, MI was estimated at 935,000, which includes 610,000 new and 325,000 recurrent infarctions. The overall prevalence of angina pectoris is 4.6 percent, with age-adjusted prevalence higher in women than men. It seems that CHD accounts for more than half of all cardiovascular events in men and women under age 75 (IOM, 2010).

However, in Asia-Pacific region that have inhabitant around 4.5 billion, ACS lead the cause of death and disability in this region with in-hospital mortality especially exceeding 5%. So, generally ACS is now a leading cause of mortality in the Asia-Pacific region, accounting for around half of the global burden. Whereas *Sample Registration* System (SRS) survey on 2014 in Indonesia showed Coronary Heart Disease (CHD) is main cause mortality on all age level after stroke around 12.9 %. Based on Riset Kesehatan Dasar (RISKESDAS) reported prevalence of CHD at around 0.5 % (883.447) while based on doctor diagnosed/symptoms at 1.5 % (2.650.340) which is the highest one is west java around 0.5 % (160.812) for doctor diagnosed and east java for diagnosed doctor or symptoms as well at 2013. It has been clear that there is not available data about ACS in Indonesia nationally thereby there are some specific data about number of UA, NSTEMI, and STEMI without comparing the number with other diseases. While the biggest and most populous city is Jakarta, it also has driven death by coronary heart disease (Dharma et al., 2012; Kusmana, 2002).

2.3.2 Wilson and Cleary Model of Health-Related Quality of Life

In accordance with Wilson and Cleary (1995), there are five kinds of domain as outcome that should be measured in HRQOL in which it has been revised by Ferrans and friends (2005) namely biological function, symptoms, functional status, general health perceptions, and overall of quality of life. Firstly, they stated biological function are originally including biological and physiological variables in which it is described as concerning on the function of cells, organs, and organ systems. Biological function would be assessed by way a such indicator as laboratory

tests, physical assessment, and medical diagnoses. Secondly, symptoms were symptom status included physical, emotional, and cognitive symptoms perceived by a patient. Functional status as the third domain, is composed of physical, psychological, social, and role function. Next general health perceptions as a fourth, is which regard to a subjective rating that includes all of the health concepts that precede it. Fifth, overall quality of life, is outlined as subjective well-being, which means how happy or satisfied someone is with life as a whole (Ferrans et al., 2005; Wilson & Cleary, 1995).

There are a lot of term on quality of life such as QOL and HRQOL, but they used interchangeably and this study will use HRQOL to avoid ambiguous. Furthermore, WCM revision that is developed by Ferrans et al. (2005) still keep remain it.

On the revisional model, the WCM model focus is influenced by the ecological model of McLeroy and colleagues (McLeroy) that concern not only in individual but multiple layers of individual and environment in HRQOL. It is composed, however, by demographic, developmental, psychological, and biological factors as individual characteristics and social or physical as characteristics of environment. To complement of Wilson and Cleary model, they add an arrow to biological function from both of characteristics and deleted the label of arrows. Another one is revised about non-medical factors is included in both of characteristics because it is able to influence every variable(Ferrans et al., 2005).

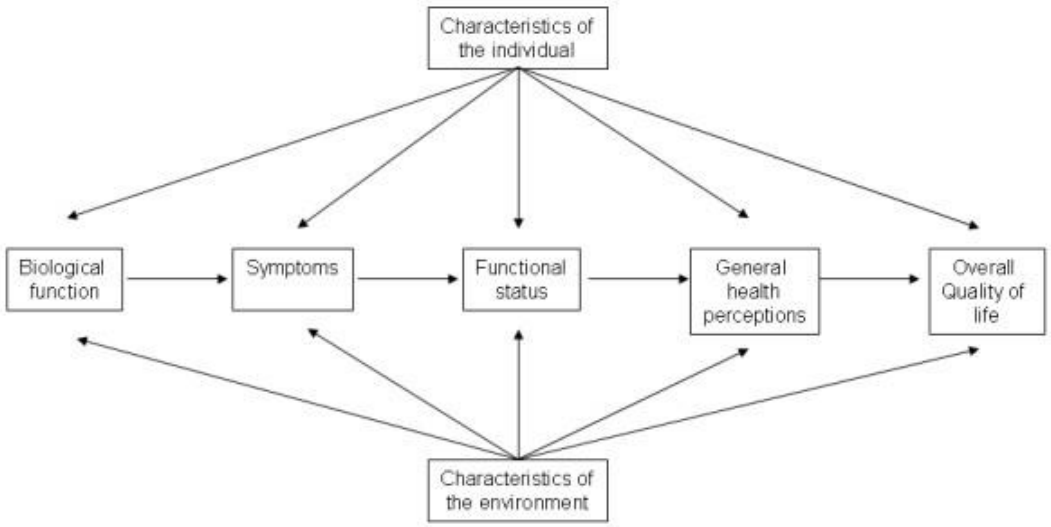

Figure 2 ***Revised Wilson and Cleary Model for Health-Related Quality of life (Ferrans et al., 2005)***

There are 5 others variables that are not modified namely biological and physiological factors, symptoms, functioning, and general health perceptions, and overall quality of life that is used interchangeably between old Wilson and Cleary model and revision one.

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In accordance Bakas et al. (2012), the recommendation model used are ferrans and colleagues model, even though, the most model that is used are WCM. Explaining further about environment characteristics makes revision model have bright future to be applied in HRQOL studies. WCM has been used for many studies regarding to HIV, ESRD, oral disease and heart diseases. In another side, Ferrans and colleagues have been used for brain injury and post-partum (Bakas et al., 2012). Considering of the record of the old model, it seems that the new revision model of WCM could be applied in cardiac disease.

2.3.3 Factor Related to Health-Related Quality of Life in Acute Coronary Syndrome

Wilson and Cleary Model for health-related quality of life (WCM) will be applied in this study. In this model, they explained about distinction of conceptually measures of HRQOL and causal association among each item. Thus, there are five variables such as biological and physiological factors, symptoms, functioning, and general health perceptions, and overall quality of life. In revision model of WCM by Ferrans et al. (2005), there is explanation of two variables that include in the model such as characteristics of individual and characteristics of environmental. Biological status such left ventricular ejection fraction is not selected because it usually was measured among in-patients and is hard to measure in outpatient of ACS (Miller et al., 2012) whereas general health in the European QOL 5 dimension and short form survey 36 (SF-36). Whereas Wilson and Cleary (1995) did not mention clearly about characteristics of individual and environment but it would have been outlined by Ferrans et al. (2005) as two others factors.

2.3.3.1 Characteristics of Individual

1. Demographic Factors

It seems to be clear that demographic data is necessary to be gathered with a view to get any general data of patients. But some factors such as sex (patients with PCI treatments) (Jankowska-Polanska et al., 2016), marital status, income (Thiruvisaakachelvy et al., 2019) BMI, education level, and morbidity disease are not included because of low or no significant relationship (Jankowska-Polanska et al., 2016). In the Myanmar study, age, sex, depression, and social support becomes predictors factors of HRQOL (Hlaing, Sriyuktasuth, & Wattanakitkrileart, 2018).

Moreover, non-medical factors such gender, income, and education are not directly related to HRQOL based on WCM theory and revised one. While BMI and morbidity are not mention as characteristics individual on WCM revised version. Those factors are included in the conceptual framework because some study showed some significant relationship. But those has been included on descriptive data of characteristics patients. Even though age is the independent variable that will use to be independent variable, some general data will be explained.

aAge

Definition: Age refers to the duration, or the measure of time of the existence of a person ("Farlex Partner Medical Dictionary," 2012).

Relationship to HRQOL: Aging mechanism combined with inflammatory process and progression of atheroma with the formation and expansion of necrotic core, fibrous cap, matrix accumulation and various degree of plaque instability yields atherosclerotic CAD. This process leads to STEMI and NSTE-ACS in which this patient characteristics is imbalance between oxygen demand and supply (Dai et al., 2016). Thus, older adults have more classifications with more multi vessel and left main disease. Contrary, while older patients had lower physical health of HRQOL, younger people had lower at mental health (Hawkes et al., 2013). Also, older people could predict lower HRQOL in patients with ACS (Jankowska-Polanska et al., 2016). Contrary, another research in similar region and ethnic showed that there is no significant between age and quality of life as well as its subscale (Thiruvisaakachelvy et al., 2019). Hence, it needs more explore on whole HRQOL aspects among patients with ACS.

b Sex

It has been known that women with cardiovascular diseases are older and have higher comorbid diseases. It is happened because X. Wang, Magkos, and Mittendorfer (2011) said distinctions in plasma lipid concentrations and lipoprotein particle concentrations, subclass distributions, and sizes likely account for at least part of the cardioprotective effect of female sex (Freedman et al., 2004; Magkos, Mohammed, & Mittendorfer, 2008) whereas it is differences among older women especially post-menopause syndrome. Consequently, some general studies

about HRQOL show women had worse than men and especially in physical functioning and mental health dimension, several authors have shown that women with coronary disease report significantly poorer than men (Dueñas et al., 2011). Conversely females has higher average growth rate of the QoL score in the period from the sixth month to 36th month than in males whereas there is no significant differently between sexes among patients with PCI treatments (Jankowska-Polanska et al., 2016).

c. Morbidity Disease

Interestingly, despite a high percentage of this sample having major coronary risk factors, including a family history of CHD, hypercholesterolemia, hypertension, diabetes, obesity, and tobacco smoking, participants reported having a better HRQOL as measured using generic (SF-12v2) and disease-specific (MIDAS) instruments, when compared with studies conducted in the United Kingdom, Europe, and China using the same instruments (Thompson et al., 2002; Wang et al., 2014; Yu, Thompson, Yu, & Oldridge, 2009).

d. Body Mass Index

People with a higher body mass index had lower level of quality of life. However, a significant association was not observed between the quality of life and body mass index. This finding is consistent with results of Martin's study. However, in a study, the score of quality of life obtained through EuroQOL-5D instruments, significantly decreased only in those who had a high BMI (Darvishpour, Javadi-Pashaki, Salari, Sadeghi, & Taleshan-Nejad, 2017).

2, Psychological Factors

a. Self-Efficacy

Definition: Originally, Self-efficacy is defined as participants' confidence in their ability to take care of their health (Bandura, 1977). It is a psychological construct based on social–cognitive theory, which describes the interaction between behavioral, personal, and environmental factors in health and chronic disease (Lorig & Holman, 2003). Indeed, the construct of self-efficacy has extended far beyond the psychological arena, and has been demonstrated to affect

health behaviors and chronic disease management in many chronic disease's settings (Sarkar et al., 2009).

Relationship to HRQOL: Increased self-efficacy and self-management behavior are associated with adequate medication use (Brus, van de Laar, Taal, Rasker, & Wiegman, 1999), pain management (Lorig et al., 2001), and exercise in various patient groups(Farrell, Wicks, & Martin, 2004; Keller, Fleury, Gregor-Holt, & Thompson, 1999). In patients with cardiovascular diseases, self-efficacy was found to have a beneficial effect on exercise and diet, but not on smoking (Clark & Dodge, 1999). In line with Clark and Dogde, improvements in self-efficacy were associated with better self-management of physical activity and food behavior (Sol, van der Graaf, van Petersen, & Visseren, 2011).

It perhaps that measuring of self-efficacy shows a patient report and estimate of cardiac function such reflection of patients' confidence of their own functional abilities accurately. Moreover, there is study who conduct researchers aimed to observe association appears to be related to differences in baseline cardiac function. Furthermore, some research showed that build on the growing body of evidence linking self-efficacy with physical health (Clark & Dodge, 1999; Lorig & Holman, 2003; Lorig et al., 2001; Sarkar et al., 2009).Thus, a patient' own reported self-efficacy may add additional insight beyond the standard data in the ambulatory setting about their risk for hospitalization, and even mortality (Sarkar et al., 2009). General self-efficacy measured four months after MI was positively related to HRQOL after two years (Brink et al., 2012). Hence, this study presented a quick, potentially useful assessment of cardiac function for ambulatory CHD patients.

Measurement: There are two kinds of measurement that be able to assess self-efficacy such as general and specific instruments (Brink et al., 2012). Despite this study investigate self-efficacy by specific measurement (M. D. Sullivan, LaCroix, Russo, & Katon, 1998), it will use general one instead due to it can represent of the self-efficacy concept on this patient. The objectives GSE is to deal effectively with a variety of stressful situations at wide and stable sense of personal competence broad and stable sense of personal competence to deal effectively with a variety of stressful

situations such as dealing efficiently with unexpected events, handling unforeseen situations, and finding solutions to problems (Scholz et al., 2002). General self-efficacy contain 10 items that measure general attribute (Schwarzer & Jerusalem, 1995). Internal consistencies had been showed at some studies between alpha = .75 and .94 On the original one of GSE is developed by Schwarzer and Jerusalem (1995), it has been took a samples from 23 nations, Cronbach's alphas ranged from .76 to .90, with the majority in the high .80s.

2.3.3.2 Biological Function

Biological and physiological variable refers to the status of cells, organs, and organ systems. On the theory of WCM, they provided examples such as diagnoses of diseases, laboratory disease, and measures of physical function. in the ACS disease, the diagnosis will be CHD or CAD after discharge because the treatment of revascularization makes the normal rhythms of the cardiac electricity. Whereas biomarkers of ACS will subside in one or two weeks that means it is able to lead ambiguous result. Additionally, the sign seems imbalance hemodynamics. Lastly, result of physical examination will show main clinical manifestation that have been included in the symptoms variable. Nonetheless, left ventricular ejection fraction (LVEF) was used to determine the level of biological/ physiological function in heart failure. LVEF affected symptom status of heart failure patients. Hence, this factor will not be used in this study.

2.3.3.3 Symptom Status

Symptom in Acute Coronary Syndrome is included a palpitations, pain which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance (Coven et al., 2016).

1 Pain

Definition: Pain is most frequently starting in the retrosternal area and can radiate to either or both arms, the neck, or the jaw. Pain may also occur in these areas independent of chest pain which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck,

shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance (Coven et al., 2016). Additionally, chest pain is the most complain that was associated with concordant disease (Handrinos, Braitberg, & Mosley, 2014).

Relationship to HRQOL: On the measuring of HRQOL by 3 global health assessment of HRQOL in three time point, there is significant correlation between chest pain and HRQOL. Similarly, general health perception as a domain of HRQOL has associated with chest pain in contra with cognitive and social function that there is no relationship between those (Kiessling & Henriksson, 2007). Meanwhile, Kiebzak, Pierson, Campbell, and Cook (2002) said increasing score of quality of life parallel with reducing pain on the patients after revascularization by coronary artery bypass graft surgery. Several independent factor could predict pain such age, body mass index, occupation, ACS diagnosis, self-management behaviors, sleep quality, and smoking (Supanam, Liangchawengwong, & Piyayotai, 2020). Physiologically, pain will come up on patient with acute coronary syndrome as main manifestation clinic and will getting worse if the ACS has bad prognoses (Amsterdam et al., 2014; Coven et al., 2016; Kumar & Cannon, 2009). To tackle this problem, nurse could prevent it by providing program to inform patient and educate patient after discharge from the hospital. Encouraging them to understand the pain killer and searching nearly medical resources when pain recure (Jarvish & Saman, 2017). It has been clear because revascularization could increase oxygen to the cardiac tissue.

*Measuremen*t: To measure of angina, Rose (1962) has been started to develop questionnaire to detect angina pectoris and myocardial infarction for epidemiological field-survey. Even though there was high gold standard for angina, but Rose Angina Questionnaire (RAQ) has been high specificity (80 -95%) but variable sensitivity (19 - 83%). Nowadays, it has been modified in various subsequent studies. For instance, by altering the number of questions, specifying a time-period, or through translation to another language. Fischbacher, Bhopal, Unwin, White, and Alberti (2001) et al undertook a study of UK residents and translated the

RAQ into Hindi, Punjabi, Urdu, and Bengali. Other researchers have translated into Arabic, Thai, Bahasa Malay, and Farsi (Rahman et al., 2013).

2 Dyspnea

Definition: Dyspnea is another one of the most common unexplained new-onset. It refers to the sensation of difficult or uncomfortable breathing on patients with ACS that can be exertional dyspnea in which it resolves with pain or rest. Increasing of oxygen demand leads to exertional of chest and dyspnea (Coven et al., 2016). Regarding this mechanism, it can affect to lead patients to minimize of their movement to avoid dyspnea. It is undoubtable because almost two decade report that dyspnea had emerged on both patient with or without angiography procedure (Pilote et al., 2002) while the recent studies, similarly, reported that short of breathless was most common than pain (Barnett, Prior, Kadam, & Jordan, 2017). Then, they stated that dyspnea was becoming one of indicators outcome for outcomes resulting in CVD patients. Besides, it is associated to low psychological health. Even though, those studies were not specific disease about ACS and HRQOL but most of those cases sample are myocardial infarctions. Thus, one of previous study on the patients with Post MI showed dyspnea is common and strongly associated with impaired quality of life, more frequent rehospitalization, and reduced survival. So, higher dyspnea scores remained strongly associated with worse quality of life in term of cross-sectional and longitudinal study (Arnold, Spertus, Jones, Xiao, & Cohen, 2009).

Relationship to HRQOL: In the second Randomized Intervention Treatment of Angina (RITA-2) trial, it has been clear that increasing dyspnea severity was strongly associated with worse scores on the physical functioning, vitality, and general health scales of the SF-36, independent of Canadian Cardiovascular Society angina grade (Pocock, Henderson, Clayton, Lyman, & Chamberlain, 2000). It seems that others study showed dyspnea will decrease after revascularization (Qintar et al., 2017) which is oxygenation on the heart tissue has been solved. It will be different result related to health-related quality of life if the patient has treatment after cardiac event.

Measurement: Related to measure of dyspnea, rose dyspnea scale has been applied in limitation studies of patients with coronary artery disease and has sensitivity in this population (Rose & Blackburn, 1968). its psychometric properties have not been formally explored in the post-MI population. Test of sensitivity to detect clinical differences cross-sectionally was investigated by identifying 5 groups at 1 month that would be expected to differ in terms of dyspnea severity (Arnold et al., 2009) .

2.3.3.4 Functional Status

Definition: Functional status refer to ability to perform tasks in multiple domains such as physical function, social function, role function, and psychological function (Wilson & Cleary, 1995). Additionally, it can refer to individual's actual performance of activities and tasks associated with their current life roles. Limitations in functional status are said to occur when there is a discipline between individual performance and average age expectable role performance. Emphasis is on BADL, IADL, and advanced activities of daily living (e.g., working, travelling, engaging in hobbies, or participating in social and religious groups). Furthermore, measurement of functional status assumes functional ability. In order words, the activities of interest (Richmond, Tang, Tulman, Fawcett, & McCorkle, 2004).

Relationship to HRQOL: Actually, using of functional status is interchangeably such as health status, quality of life, physical functioning, activities of daily living (Bakas et al., 2012), level of impairment, and disability (Coyne & Allen, 1998). There is limitation evidence to use this this term on ACS patients. Thus, they explain that patient who depleting their energy expenditure to avoid symptoms because they have undergone life to avoid their symptoms by limited their movement activity. Regarding to avoiding to symptoms, it can be related to increase their quality of life. It line with its research, functional status is a predictor factor for cardiac event-free survival because the that research showed cardiac event-free survival who has poorer quality of life had poorer functional status (Wu et al., 2016). Another previous study show that myocardial infarction had similar condition on both quality of life and

functional status (Pilote et al., 2002). Also, patients with acute myocardial infarction were experiencing a decline in both quality of life and functionality (Andrade, Menezes, Silva, Cordeiro, & Guimaraez, 2018). Hence, the evidence about relationship between functional status and HRQOL is limited in patient with ACS, but there are some studies showed that both has same condition in same time.

Measurement: Instrument on functional status in cardiac disease could be assessed objectively and subjectively. Objectives measurement is rated by external observer and subjective is vice versa. Interestingly, self-report is be able to apply in cardiac disease such as Duke Activity Scale Index (DASI), the Specific Activity Scale (SAS), the Beth Israel/UCLA Functional Status Questionnaire (FSQ), and the Seattle Angina Questionnaire (SAQ) (Coyne & Allen, 1998). SAQ prefer to use due to represent of functional concept.

2.3.3.5 General Health Perceptions

General health perception is defined general health perception had been defined as a patient's global self-assessed health. Wilson and Cleary itself did not explained detailly about definition general health perception. They stated this is subjective measurement about health-related various factors. For instance, SF-36 health survey as instrument for assessing the health perception of patients. Whereas it is able to overlap with overall HRQOL variable because it investigates quality of life. Even though some studies had been conducted related this variable. As one of dimension in HRQOL, it has been proven to get effect in three months after ACS (Failde & Soto, 2006). Another study has same result that the majority of MI survivors rated their general health as lower compared to controls. In addition, survivors were approximately 2.7 times more likely to report fair/poor perceived general health compared to controls (Mollon & Bhattacharjee, 2017). So, conceptually, general health perception excludes in the independent variable.

2.3.3.6 Characteristics of Environment

Social Support

Definition: Social support has been defined that it could be support which get from family, spouse, and society of patients with acute coronary

syndrome could promote to eliminate psychological problem associated with cardiac disease. For instance, they will face a lot of limitation and many changes in their life such as the threat of family life changes, marital strain, financial worries, and fewer job opportunities (R. Wang et al., 2008).

Relationship to HRQOL: Studies conducted in Western countries and Hong Kong have shown that patients perceived social support has an independent significant effect on HRQOL of patients with CHD. In addition, two significant predictors, accounting for 12.4% of the variance, were identified for poor mental health: co-morbidity of heart failure and perceived social support. The mean scores of the CM:MOS-SSS in our study were lower than that of the Hong Kong patients, with the exception of the tangible support scale (W. Wang et al., 2014). Previous study stated after 4 month discharge, social support make patients to be unfocused and quite threatened (Khayyam-Nekouei, Neshatdoost, Yousefy, Sadeghi, & Manshaee, 2013). To support this report, this research showed that social support has strong interaction with disease specific quality of life in which lowest social support had lower quality of life (Leifheit-Limson et al., 2010).

Measurement: Instrument for social support is ENRICH Social Support Instrument (ESSI). The ESSI is a seven-item measure, used in recent clinical trials, that assesses the four defining attributes of social support: emotional, instrumental, informational, and appraisal. One of the reasons of this instrument come up is lack of the support from social in ischemic heart disease associated with morbidity and mortality in patients with ischemic heart disease (Vaglio et al., 2004).

All in all, patients with acute coronary syndrome composed angina pectoris, ST-elevation myocardial infarction, and non-ST-elevation myocardial infarction have problem in term of physical, psychological and social. It seems that based on the evidence on Asian countries, they have low health related quality of life. Based on the literature review and Wilson and Cleary model show some factors related HRQOL are age, self-efficacy, functional status, pain, dyspnea, and social support.

2.4 The conceptual framework in this study

This is conceptual framework in this study. the aim of this study to investigate the relationship between age, self-efficacy, pain, dyspnea, functional status, social support and health-related quality of life.

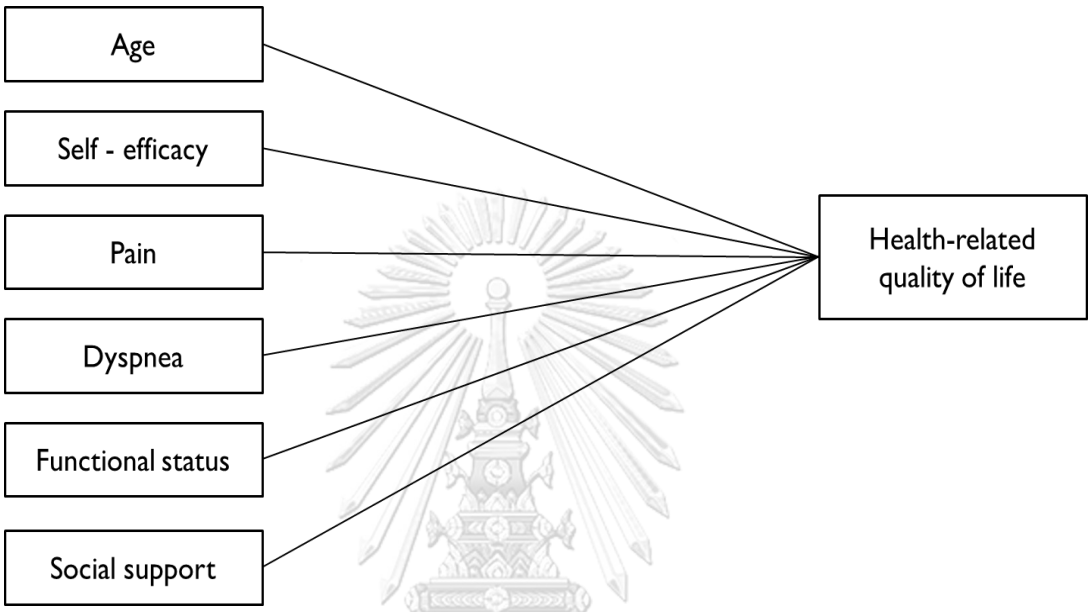

Figure 3 ***Research Conceptual Framework of Factor Related to Health-Related Quality of Life at Patients with Acute Coronary Syndrome***

CHAPTER III
METHODOLOGY

On this chapter, it will show method used in this study. Correlational cross-sectional study was used to be design to explore health-related quality of life in patient with acute coronary syndrome in outpatient policlinic of cardiac department in Hasan Sadikin General Hospital as its setting. There are five six instruments such rose questionnaire for angina, rose dyspnea for angina, general self-efficacy scale, seattle angina for questionnaire, ENRICH social support, and MacNew Health-related quality of life. This study has been validity and reliability tested and translated into Bahasa Indonesia. Institutional review board conducted in the Hasan Sadikin General Hospital before collecting data. Then, data was analyzed by descriptive statistic and spearmen's rank correlation.

3.1 Research design

A correlational design was used to investigate the relationship between age, dyspnea, pain, self-efficacy, functional status, social support and health related quality of life in this study.

Cross-sectional study design was applied to collect the data. This study design is applied to identify the changes of variable naturally in one or some variables related to other variables (Grove, Burns, & Gray, 2013; Sousa, Driessnack, & Mendes, 2007). Fortunately, this study variables were not modified and happened in naturalistic settings with any interventions.

However, this correlational cross-sectional study has given feasibility to explore about relationship in natural setting in time without manipulation. Especially, this is good to explore the phenomena as hypothesis for non-experimental research.

3.2 Setting

West Java is the most populous province in Indonesia. It is placed in the west of java island. The natural land area is more than 35.000 square kilometers with population of 48.8 million (BPS, 2014, 2018). Hasan Sadikin General Hospital (RSHS) is one of A type category in west java which has Cardiac Center Unit.

Hassan Sadikin General Hospital is one of national reference hospital placed at Bandung City, West Java. This hospital called RSHS is a government hospital and

one of largest hospital at West Java. RSHS is Type A hospital that has 1048 bed and 14 wards/unit with high quality of staff. Last number of patients with ACS in this population form November to April is around 1000 and each month the number of diseases in the outpatient department can reach 300 patients. Moreover, this is hospital that has some special unit such CICU or Cardiac Intensive Care Unit. Geographically, this hospital is placed at the middle of province called Bandung city so it is feasible to be access for everybody around the province.

3.3 Population and sample

Population: The population is patients who diagnosed Acute Coronary Syndrome (ACS) and controlled at Hassan Sadikin General Hospital.

Sample: The sample is patients who were diagnosed with Acute Coronary Syndrome (ACS) contained Unstable Angina and Acute Myocardial Infarction (STEMI and NSTEMI) and getting control in Hasan Sadikin General Hospital as mentioned above. Additionally, respondents who reported a history of a coronary event, revascularization procedure, or who described a history of angina pectoris were identified as having coronary artery disease (Spertus, McDonell, Woodman, & Fihn, 2000). The participants will be selected based on the inclusion criteria as follows: as 25< age < 60 years old, outpatient of CAD who has history angina, NSTEMI, and STEMI, be able to speak, read, and write in Bahasa Indonesia, at least 1 month after discharge from hospital, treated by medication and revascularization, good hemodynamic and consciousness, and willing to be participant in this study.

Sample size: Calculating of sample size was calculated by power analyzes. The component required to estimate it are the significant level (α), the power of the statistical test (1-β), and the effect size (ES) (Cohen, 1992). Especially, the sample size in this study will be calculated at alpha of .05 and a power of .08. The effect size used from the study of Hlaing et al. (2018) which examined the relationship between several factors and AMI patient's. Findings reported that there was significantly relationship between sex and health related-quality of life (r=0.211) (Hlaing et al., 2018). Thus, the effect size of 0.211 has been used. The number of subjects in this study was calculated based on the formula: $n = C/(ES)^2$, in which C is the constant

which was calculated based on the level of alpha and power (1- β) by the following table, ES is the effect size. Besides, in overcome the missing data, 10% of subjects of sample size had been added. Therefore, the total sample size in this study is 186 cases.

Table 1 The Constant C related to error type I and Type II

α =	**β = .20 (Power = .80)**	**β = .10 (Power = .90)**	**β = .05 (Power = .95)**
.10	6.15	8.53	10.79
.05	7.85	10.51	13.00
.01	13.33	16.74	19.84

Sample technique: On this study, Purposive sampling was used on this study. Researchers identified and selected participants that appropriate with inclusion criteria at the time in deliberated way (Grove et al., 2013). Subjects on this study has been available in the specific department such Cardiac Policlinic Department. Patients with various cardiovascular disease hystories will come to visit on this department. Even though, majority patients had acute coronary syndrome history, it seems there are others cases related to cardiac diseases such as rheumatic heart disease, arrhythmia, and others unstable hemodynamic condition. It seemed to be hard to apply probability sampling. Moreover, the schedule patients were unpredictable and the number of patients who visit is limited during pandemic. So, it was impossible to conduct random sampling on this patient.

3.4 Research instruments

There are some instruments used in this research. Firstly, General Information Question included demographic and disease-specific characteristics. Secondly, self-efficacy will be assessed by the General Self-Efficacy Scale. Next, the others variable will use the ENRICH Social Support Inventory for social support, the Rose Questionnaire for angina to assess of angina symptoms, the Rose Dyspnea Scale for dyspnea, Seattle Angina Questionnaire for functional status, the McNew Heart Disease Health-related Quality of Life. These instruments will be described below.

1. The demographic characteristics and disease-specific characteristics

The demographic characteristics and disease-specific used personal information question form for exploring any information. Based on Allahverdipour, Asgharijafarabadi, Heshmati, and Hashemiparast (2013), there are some items that should be compiled such as The demographic characteristics and disease-specific characteristics included age, gender, marital status, literacy level, body mass index, tobacco use, having medical insurance, history of diabetic mellitus, and co-morbidity with psychiatric disorder (Krethong, Jirapaet, Jitpanya, & Sloan, 2008). Nonetheless, another study about heart diseases, they included religion, income, and duration of disease. Despite this study use specific comorbidity, it will assess comorbidity generally instead.

2. General Self-Efficacy Scale

Self-efficacy was measured by General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). This instrument was developed to measure self-efficacy generally. It is a 10-item questionnaire concerning self-confidence in, e.g., dealing efficiently with unexpected events, handling unforeseen situations, and finding solutions to problems. Each question was answered using a 4-point scale with scores from not at all true =1 to exactly true = 4 (range 10-40). The Cronbach's alpha coefficient in the present sample from 23 countries, is ranged from .76 to .90, with the majority in the high .80s. Moreover, there is no dimension in this measurement.

3. Seattle Angina Questionnaire (SAQ)

The SAQ is selected to monitor disease-specific functional status. This 19-item questionnaire is valid, reliable, and responsive. It quantifies physical limitation caused by coronary artery disease, anginal stability over the preceding month, frequency angina symptoms, satisfaction with treatment, and patients' perceptions of how their coronary disease limits the quality of their lives. Scores range from 0 to 100, with higher scores indicating better health states. A clinically significant change is between 5 and 8 points (Chan et al., 2014; Spertus et al., 2000; Spertus et al., 1995)

4. ENRICH Social Support Inventory (ESSI)

For social support, in this research will use ENRICH Social Support Inventory (ESSI). This intrument is suitable for cardiac population that has been

validated and reliable tested by many studies (Bucholz et al., 2014; "Enhancing Recovery in Coronary Heart Disease Patients (ENRICHD): Study design and methods," 2000; Lett et al., 2007, 2009; Mitchell et al., 2003; Vaglio et al., 2004). The ESSI full version is contained 7-item self-report survey that assesses 4 domains of social support: emotional, instrumental, informational, and appraisal. The remaining 5 items (1, 2, 3, 5, and 6) were summed to create a total score ranging from 5 to 25, with higher scores indicating greater perceived social support. This 5-item scale has been previously validated and is highly correlated with the full-length 7-item scale. It has also been used in previous studies of patients with coronary artery disease (CAD)(Bucholz et al., 2014).

5. The Rose Questionnaire for Angina (RQA)

Chest pain were assessed by RQA. Originally, this instrument is contained seven questions to define about angina pectoris and indicated possible myocardial infarction by response to a single question (Rose, 1962). If Yes to Question 1 and 2, 3 or 4, ‘stops or slow down’ for question 5, ‘relieved’ for question 6, ‘10 min or less’ for question 7, ‘sternum’ or ‘left anterior chest and left arm’ for question 8 diagnosed as ‘incident case of angina pectoris’(Rahman et al., 2013). RAQ has been translated to many languages such Hindi, Punjabi, Urdu, and Bengali (Fischbacher et al., 2001).

6. The Rose Dyspnea Scale (RDS)

The RDS is a 4-item questionnaire with a 1-month recall period that assesses patients’ level of dyspnea with common activities. For each patient, the highest limitation associated with dyspnea was designated as the RDS score, such that RDS scores range from 0 to 4, with 0 indicating no dyspnea and 4 indicating dyspnea with ordinary activities of washing and dressing (similar to the New York Heart Association class scoring for heart failure). The RDS has been validated in patients with CAD and shown to be associated with quality of life, rehospitalization, and long-term survival in patients with CAD (Arnold et al., 2009). Dyspnea improvement was defined as a ≥1point decrease in RDS from baseline to 1 month (Qintar et al., 2017)

7. The McNew Heart Disease Health-related Quality of Life

Quality of life were measured by The MacNew heart disease health-related quality of life (MacNew). To measure quality of life on patient with heart diseases usually will use Macnew that consists of 27 items divided on three major domains (physical, emotional, and social). The participants report to assess their response on a Likert scale from 1 to 7 for each item. The global score for the instrument ranges from 7 to 189. After that the mean of the global score was calculated ending with a minimum score of one, indicating low QoL and maximum score of seven, interpreted as high QoL. For the physical domain the score was calculated by the mean score of the 13 items representing the domain. The emotional domain was calculated by the mean score of the 14 items representing the domain. The social domain was calculated by the mean of the 13 items representing the domain. It is necessary to note that there are some items included in more than one domain. The emotional domain items is composed by items of number 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 18,and 23 whereas physical represent by items of 9, 14, 16, 17, 19, 20, 21, 24, 25, and 26. In additional, social domain is composed two such as items of number 11, 22, and 26 (Valenti et al., 1996). It has been clear that item 26 on the two subscales. Item 27 were not included on original version, but it changed included on social dimension that psychological and physiological (Hofer et al., 2012). In update study, Korean MacNew has been tested and determined the subscale. The emotional subscale was included 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 18 and 23; the physical subscale included 1, 6, 9, 12, 14, 16, 17, 19, 20, 21, 24, 25, and 26; the social subscale included 2, 11, 12, 13, 15, 17, and 20-26. This instrument tested used original items which is excluded items (Kang, Gholizadeh, Inglis, & Han, 2019). This Korean version has strong internal consistency on global scale, with Cronbach's alpha coefficient of .93 followed by coefficient of emotional, physical, and social indicated by .92, .88, and .91, respectively. Hence, this study preferred to use Korean version subscale. MacNew provides a normative reference data which recently updated and published to help authors to interrupting their study result (Aljabery et al., 2017; Höfer et al., 2016). On those studies, they only calculate mean Global Score (5.04±1.1) and compare to each dimension score. The result from other countries will be compared

with this mean score as well. However, mean score was used to describe stage of HRQOL on these patients. Then, on each dimension, on this study, it will compare to look lower or higher over the global score in this study.

3.5 Instrument translation process

Regarding to measurement used in this study, SAQ has been translated in Indonesia. Nonetheless, there is no further information about translation process, validity and reliability test. Associated with others instruments, some instruments were translated in some Asia languages such India, Korea, Myanmar, Malay, Thailand, Arabian and China.

The process of translation of instruments used in this study will be Back-Translation technique. The RQA, RDS, SAQ, ESSI, and MAcNew will be translated from English version to the Bahasa Indonesia by two bilingual translators who were good both in English and Bahasa Indonesia. During the translation process, the focus of the experts is on cross-cultural and conceptual, rather than on linguistic/literal equivalence. The translation process is described as follow:

1) One translator translated the English version of instruments to the Bahasa Indonesia;
2) The expert compared the Indonesia translated instrument and the English version of instruments in order to get the better version of Bahasa Indonesia;
3) The other translator would be asked to translate the Bahasa Indonesia version of the instruments back into English version;
4) The experts compared the original English version of the instruments with the English translated version of the instruments. The final versions of Bahasa Indonesia instrument had been produced. The translation process was repeated until reaching the maximum equivalent between the two versions. Then the final Bahasa Indonesia version instruments will be tested for validity and reliability.

3.6 Instrument validity and reliability

For the validity testing, the Content Validity Index (CVI) at the item level (I-CVI) and the scale level (S-CVI) were performed by asking five experts in Adult Nursing especially internal disease-specific in Indonesia. The experts will rate their agreements on the translated version of the instruments. The degree of validity of the contents of the research instruments by using four point-Likert scale 1 (not relevant), 2 (somewhat relevant), 3 (quite relevant), 4 (highly relevant). Then, for each item, the I-CVI will be computed as the number of experts giving the rating of either 3 or 4 divided by the total number of experts. Similarly, the way to calculate the S-CVI is to average the I-CVIs by summing them and diving by the number of items. The acceptable level of I-CVI is suggested as at least .78 (LYNN, 1986), while many researchers have indicated that an S-CVI of .80 or higher is acceptable (Davis, 1992; Polit & Beck, 2004). The researcher will review the items as suggested and revised until the acceptable minimum score of CVI is achieved. This result found I-CVI and S-CVI on Rose Questionnaire for Angina (0.95;0.95), Rose Dyspnea Scale (0.92;0.82), Enrichd Social Support Instrument (ESSI) (1.0;1.0), and MAcNew Health-related quality of life (1.0;1.0)

The reliability testing of the instruments performed in patients with the similar characteristic and meet inclusion criteria of this study. Patients had been asked by the nurse to get their permission to invite the researcher to meet with them and collect data for research purposes. Also, they had been informed about their right to decide whether or not they want to participate in this pilot study. All of the information related to the clients in confidential. The data from the pilot study had been analyzed to identify the levels of Cronbach's alpha for the instruments. According to Grove et al. (2013), the acceptable level of Cronbach's alpha for newly developed psychological instruments is of 0.7 and is of 0.8 for well-developed instruments. On this study, the result was Cronbach's alpha (0.67) for ESSI and 0.91 for MacNew health-related quality of life. In term of subscale Cronbach's alpha score was emotional at .84, physical at .87, and social at .89.

3.7 Protection of human subjects

This proposal had been submitted for ethical approval of the Institutional Review Broad (IRB) from Padjadjaran University and Hasan Sadikin General Hospital (RSHS). To get allowance form the authorities, researcher was sending permission letter to Ministry of Research, Technology and Higher Education of Indonesia. Then, every hospital required to review of IRB for ethical approval. Usually, presentation of research proposal had been presented at hospital in that process. After grating allowance from authorities of the hospitals, the process of data collection was begun. All participant informed clearly about their rights, the study details as well as the data collecting procedures by the researcher. Participants were voluntary in the study. They could refuse to answer any questions and withdrawal from the study at any time without any penalty. The inform consent form was completed prior to data collection. The participant's anonymity and confidentiality would be respected. The study used code numbers on the data sheets and password on the data file in the computer for protection.

3.8 Data collection

The process of data collection in this study will be as follow:

1) The data collection carried out by the researcher. Before data collection, researcher send the ethical approval of the Institutional Review Broad (IRB) and permission letter Hasan Sadikin General Hospital

2) The researcher will send the letter requesting permission to collect data from the Faculty of Nursing, Chulalongkorn University to the Director of Hospitals where have been chosen for collecting data;

3) Researcher did a meeting with the directors and head nurse of the department where data will be collected to explain the research procedures, and ask for the cooperation;

4) The researcher contacted the staff nurses in the department where the data will be gathered to explain the information of study and establish the working relationship to help the research procedures;

5) Next, the researcher asked the staff nurses to help to be research assistance and to identify the patients with ACS diagnoses or having a history of ACS. Then, the researcher and/or nurse will approach these patients to introduce himself and ask for willingness to participate in the study. After that, the patients who meet the inclusion criteria will be identified and recruited for this study. The researcher or assistance will explain all steps involved in the procedure and also human rights protection for the patients. Researcher will give the participants to read the participant's information sheet and give them a chance to ask questions to clarify their doubts;

6) Researchers and assistant researchers will clarify about their history of angina or pain after checked their medical record to ensure that they were included in inclusion criteria in each day. Patient quota has been limited around 50 patients generally.

7) Next, the research gave the participants with all the questionnaires. Researchers will stand by them to help and accompany them.

8) After the questionnaire completion, the researcher examined if any incomplete of data. Participants will be asked to complete any missing data. After checking, the researcher will verbally thank the participants and will terminate the data collection.

3.9 Data analysis

After collecting, data had been transferred directly to the computer. Then the data has been analyzed by using the Statistical Package for the Social Sciences, version 22.0 (SPSS 22.0). The level of significance of the study will be set at $\alpha = .01$. Frequency distribution and percentage in term of descriptive statistics will be used to calculate the demographic characteristics and Health-Related Quality of Life of patients. Kolmogorov-Simonov analysis yields that distribution was not normal. This study used mean and standard deviation in terms of descriptive statistics had used median to calculate the overall scores and scores for each item of the cardiac self-efficacy questionnaire, Seattle angina questionnaire, ENRICH social support inventory, rose questionnaire for angina, and rose dyspnea scale. Spearman Rank correlations used to examine the relationship between age, self-efficacy, functional status, social support, chest pain, dyspnea, and HRQOL of patients with ACS. The magnitude of correlation was considered when $r = .10–.29$, medium when $r = .30–.49$, and strong when $r = .50–1.0$ (Kang et al., 2019; Pallant, 2001)

CHAPTER IV

RESULTS

This correlational study aimed to health-related quality of life and to explore the relationship between age, self-efficacy, functional status, pain, dyspnea, and social status and health-related quality of life in patients with acute coronary syndrome in West Java, Indonesia. The results were presented below.

4.1 Demographic characteristics of the participants

4.2 Description of the dependent variable and independent variables

4.3 The relationship between the independent variables and health-related quality of life

4.1 Demographic characteristics of the participants

The target population in this study was patient with acute coronary syndrome. They were recruited during control at cardiovascular department of outpatient ward in Hasan Sadikin Hospital, West Java Province at around 186 patients. The most of them are late adult (25-59) at around 68.3 % with mean ($\bar{x}$) 55.69 (SD=10.15). Almost of them were married at 162 patients (87.1 %)

Men are dominated on this study over the women. They were male at around 122 patients (65.6 %) whereas women are only almost half of them around 64 patients (34.4 %). Almost half of the patients has normal weight (44.6 %) whilst few numbers of patients are obesity class 1, obesity class 2 and underweight at around 10.8%, 2.2%, and 3.2 %, respectively. Less than half of them (32.8%) were graduated from school following by secondary school higher education (30.1%), primary school (22.6%), and secondary school (11.3%). Even though there is still no education among them but the number is a little (3.2%).

Regarding to occupation, almost fourth of them are house wife (22%) in which it is women domination especially. Among others, government officers and entrepreneur (16.7%), employee (14.5%), labor (9.1%), and others (8.6%). Nonetheless, they still have no job at around 7.5% when only almost 2% of them are student (2.2%), worker (1.6%), and farmer (1.1%). As consequence, there is big gap income among them that is more than a fourth of them a lower income (39.2%) and

higher income (33.9%). Among which high income patients (16.1%) and lower income patients (10.8%).

For the smoking activity and diabetes mellitus disease history, most of them are not smoker and having diabetes mellitus disease. Looking deeply about duration of disease, they are dispreading in several time from 1 to more than 72 month which is 7-12 month as the biggest number of their duration (33.3%) following by 13-36 month (22.6%), more than 72 month (14.5%), 1-3 month (11.8%), 4-6 month (11.3%) and 37-72 month (6.5%), respectively.

Table 2 Demographic characteristics of participants (n=186)

Demographic characteristics	**Frequency**	**Percent**
Age (years old)		
(min-max=28-85 years old,		
$\bar{x}$=55.69, SD=10.15)		
25-44	22	11.8
45-59	105	56.5
60-74	50	26.9
75-90	9	4.8
Gender		
Male	122	65.6
Female	64	34.4
Demographic characteristics	**Frequency**	**Percent**
Body Mass Index (BMI)		
Underweight	6	3.2
Normal Weight	83	44.6
Overweight	72	38.7
Obesity Class 1	20	10.8
Obesity Class 2	4	2.2
Extreme Obesity	1	.5
Marital status		
Single	6	3.2
Married	162	87.1

Divorced/Widowed	18	9.7
Education levels		
Non-Education	6	3.2
Primary school	42	22.6
Secondary school	21	11.3
High school	61	32.8
Diploma	18	9.7
College/University	38	20.4
Occupation		
Employee	27	14.5
Government Officer	31	16.7
Entrepreneur/Own Businessmen	31	16.7
Student	4	2.2
Worker	3	1.6
Labour	17	9.1
Farmer	2	1.1
House Wife	41	22.0
Unemployed	14	7.5
Others	16	8.6
Income (million Rupiahs/month)		
Low Income	73	39.2
Middle Income	20	10.8
High Income	30	16.1
Very High Income	63	33.9
Active Smoking		
Smoking	39	21
No Smoking	147	79

Table 2 *Demographic* characteristics of participants (n=186) (continue)

Demographic characteristics	**Frequency**	**Percent**
Employee	27	14.5
Government Officer	31	16.7
Entrepreneur/Own Businessmen	31	16.7
Student	4	2.2
Worker	3	1.6
Labour	17	9.1
Farmer	2	1.1
House Wife	41	22.0
Unemployed	14	7.5
Others	16	8.6
Diabetes Mellitus		
Yes	39	21
No	147	79
Income		
Low Income	73	39.3
Middle Income	20	10.8
High Income	30	16.1
Very High Income	63	33.9
Demographic characteristics	**Frequency**	**Percent**
Duration of Disease		
1 - 3	22	11.8
4 - 6	21	11.3
7 - 12	62	33.3
13 - 36	42	22.6
37 - 72	12	6.5
> 72	27	14.5

4.2 Description of the dependent variable and independent variables

4.2.1 **Description of dependent variables**

On this study, health-related quality of life is dependent variable. This variable refers to definition by Wilson and Cleary which is health status and viewed as a continuum of increasingly complex patient outcomes: biological/physiological factors, symptoms, functioning, general health perceptions and overall wellbeing or quality of life. To assess it, MacNew HRQOL was applied to investigate HRQOL last 2 weeks into 27 questions on this target population that include emotional, physical, and social support dimension. The exploration of HRQOL description include value, frequency, percentage, median, mean, and standard deviation would be on this table.

Table 3 Distribution Mean, and Standard Deviation MacNew Health-Related Quality of Life and Subscale Score

Health-Related Quality of Life (HRQOL)	**Total**	**Mean**	**SD**
Global Score	186	4.98	.91
Emotional	186	4.56	.77
Physical	186	5.08	1
Social	186	5.31	1

The table 3 showed that more than half of the patient has a high quality of life. It has been clear that this table provides the results of mean and SD global score such as ($\bar{x}$=4.97; SD=0.92), emotional ($\bar{x}$=4.56; SD=0.89), physical ($\bar{x}$=5.08; SD=1), and social ($\bar{x}$=5.31; SD=1). It seems that social support is the highest score is 5.31, moderate in physical at 5.08 and the lower one in emotional at 4.56. As a global score, it is higher than emotional at 4.98.

4.2.2 **Description of independent variables**

4.2.2.1 **Self-Efficacy**

Self-efficacy, included in psychological factors, is defined confidence of patients related to their ability to manage their health. By ten questions on general health self-efficacy, it can be used to assess self-efficacy on ACS patients with Likert's scale 1-4. It has been shown that more than half patients (53.8%) with ACS have high self-efficacy around 100 patients whilst 86 patients have low self-efficacy (46.2%). It has been clearly that self-efficacy has median score (Me=3.3), mean ($\bar{x}$=3.23) and SD (0.64).

Table 4 Distribution, Frequency, Median, Mean, and Standard Deviation Self-Efficacy

Self-efficacy	Frequency	Percentage (%)	Median	Mean	SD
High	100	53.8	3.3	3.23	0.64
Low	86	46.2			
Total	186	100			

4.2.2.2 Functional Status

Functional status was defined as an individual's ability to perform activities and tasks in their life roles. To explore functional status can be assumed as identifying functional capacity. Exploring about patient's capacity, seattle angina questionnaire (SAQ) had been used in which it has composed five dimensions with Likert's scale 1-6. Among which physical limitations, angina stability scale, angina frequency scale. Treatment satisfaction scale, and perception disease scale.

Table 5 outlines functional capacity including all dimensions with a result 98 patients or more than half patients with ACS (52.7%) has a high functional ability followed by physical limitation who had been by 100 patients (53.8%), angina stability scale who had been by 102 patients (54.8%), angina frequency scale who had been by 100 patients (53.8%) and perceptions disease who had been by 111 patients (59.7%). Surprisingly, a lot of patients with ACS satisfied with the treatment by

represent 117 patients (62.9%) as the biggest number among sub-variables. Considering the score of SAQ, this figure presents sub variables have mean scores started from SAQ ($\bar{x}$=3.92; Me=4.00; SD=.61), physical limitation ($\bar{x}$=4.06 ;Me=4.06; SD=.99), angina stability scale $\bar{x}$=3.85 ;Me=4.00; SD=1.44), angina frequency scale ($\bar{x}$=4.95 ;Me=5.00; SD=1.44), treatment satisfaction scale ($\bar{x}$=4.19 ;Me=4.51; SD=1.40), and perception disease ($\bar{x}$=2.67 ;Me=2.67; SD=.83).

Table 5 Distribution, Frequency, Median, Mean, and Standard Deviation Functional Status

Seattle Angina Questionnaire	**Frequency**	**Percentage (%)**	**Median**	**Mean**	**SD**
High	98	52.7	4.00	3.92	.69
Low	88	47.3			
Total	186	100			
Physical Limitation					
High	100	53.8	4.22	4.06	.99
Low	86	46.2			
Angina Stability Scale					
High	102	54.8	4.00	3.85	1.44
Low	84	45.2			
Angina Frequency Scale					
High	100	53.8	5.00	4.59	1.40
Low	86	46.2			
Treatment Satisfaction					
High	117	62.9	4.50	4.19	5.90
Low	69	37.1			
Perception of Disease					
	111	59.7	2.67	2.70	.83
	75	40.3			

4.2.2.3 Pain

Pain or chest pain is describing as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance. Absolutely, this is main symptom that patient has angina. This study used rose angina questionnaire to explore pain in patient with ACS in which the results indicate angina histories on the last a year. Patients will answer by yes/no coded by 1 and 2 respectively.

Table 6 Distribution, Frequency, Median, Mean, and Standard Deviation Pain

Pain More Than 30 Minutes	**Frequency**	**Percentage (%)**	**Median**	**Mean**	**SD**
Yes	75	40.3	2.00	1.60	.49
No	111	59.7			
Total	186	100			
Pain					
Yes	140	75.3	1.00	1.25	0.43
No	46	24.7			

As can be seen on the table 7, many patients answer 2, on the part pain more than 30 minutes called mean score and average score is 1.60 with SD 0.49. Besides, another part has participants who answered pain which means that mean score is 1, mean score is 1.25 and SD 0.43.

Therefore, majority the participants (75.3%) are having pain around 140 participants whereas less than half participants (40.3%) experienced pain more than 30 minutes at 75 patients. Agreed on this contrary data, it was happened on the 111 participants without pain dominating on the long pain when others 46 participants are become opposite one (24.7%).

4.2.2.4 Dyspnea

Dyspnea is another one of the most common unexplained new-onset. It refers to the sensation of difficult or uncomfortable breathing on patients with ACS that can be exertional dyspnea in which it resolves with pain or rest. Increasing of oxygen demand leads to exertional of chest and dyspnea

Another the most common symptom on this target population is dyspnea that could be refers to uncomfortable breathing or exertional dyspnea. Rose dyspnea questionnaire used to identify this manifestation. Patient will answer choose the number score (0-4) that indicate how worst their dyspnea.

Table 7 Distribution, Frequency, Median, Mean, and Standard Deviation Dyspnea

Dyspnea	**Frequency (%)**	**Possible score**	**Median**	**Mean**	**SD**
No Dyspnea	52	28.0	1	1.31	1.31
Dyspnea only when hurrying or walking up a hill	89	47.8			
Dyspnea when walking with people of similar age on level ground	5	2.7			
Dyspnea when walking at own pace on the level ground	16	8.6			
Dyspnea when washing or dressing	24	12.9			
Overall	***186***	***100***			

Table 7 show us that majority participants (47.8%) underwent dyspnea during walking up a hill or in hurry around 89 participants followed by 52 normal breathing patients (28%). Particularly, the smallest number patient (2.7%) had been having dyspnea during walking with similar age on regular ground. What is interesting data is that there are two group patients who had difficulty of breathing among which 16 patient who get dyspnea during walking on the ground level alone in their own pace (8.6%) and 24 patients who get breathing during washing or dressing (12.9%). All in

all, a lot of patients having light dyspnea to no dyspnea supported the mean score (1.31), median score (1), and SD score (1.31).

4.2.2.5 Social support

Social support defines as support from spouse, family and community. On this opportunity, the assessment used ENRICH social support (ESSI) questionnaire to investigate support for patient. Patient will answer 7 questions on the ESSI by choosing the score from 1 to 4 to express their feeling how much he accepts the support from surrounding them.

Table 8 Distribution, Frequency, Median, Mean, and Standard Deviation Social Support

Social Support	**Frequency**	**Percentage (%)**	**Median**	**Mean**	**SD**
High	99	53.2	4.00	39.6	0.61
Low	87	46.8			
Total	186	100			

As shown on the table 8, many of patients (53.2%) with ACS feel plenty support from around them. Unfortunately, almost half patients (46.8%) still lack of support from their support system. Regarding to mean score, many patients choose the highest score (4) with mean score 3.96 and SD score 0.61.

4.3 The relationship between independent variables and health-related quality of life

Spearmen rank correlation was used in this study to investigate the relationship between age, pain, dyspnea, functional status, self-efficacy, social support, and health-related quality of life in patient with acute coronary syndrome in West Java, Indonesia. The strength of the relationship was based on the following criteria: $r<0.3$ = low relationship, $0.3>r<0.5$ = moderate relationship, and $r>0.5$ = high relationship (Burn & Grove, 2009). The result of the correlational analysis is presented in this table.

Table 9 Correlation coefficients of independence variables and dependence variable

Variables	HRQOL		Emotional Subscale		Physical Subscale		Social Subscale	
	Correlation coefficients	p-value	Correlation coefficients	p-value	Correlation coefficients	p-value	Correlation coefficients	p-value
Age	.081	.270	.123	.095	.058	.438	.093	.205
Pain	.296	.000	.237	.000	.314	.000	.265	.000
Dyspnea	-.438	.000	-.367	.000	-.445	.000	-.455	.000
Functional Status	.601	.000	.488	.000	.605	.000	.586	.000
Self-Efficacy	.299	.000	.349	.000	.287	.000	.286	.000
Social Support	.180	0.05	.234	.000	.170	0.05	.184	0.05

From table 9 above we can see that almost all factors have significant relationship between pain (r=0.296, p<0.01), Dyspnea (r=-0.438, p<0.01), functional status (r=0.601, p<0.01), self-efficacy (r=0.299, p<0.01) and social support (r=0.180, p=0.05). What surprising is that no significant correlation between age, and total global score (r=.081, *p*-value=.270), as well as all of subscale starting from emotional (r=.123, *p*-value=.095), physical (r=.058, *p*-value=.438), and social (r=.093, *p*-value=.205).

Regarding to strength association among variables, only functional status that had strong relationship in almost subscale such as physical (r=.605), social (r=.586) except emotional dimension (r=.488). Interestingly, dyspnea has moderate is only one who has negative and moderate significant associated with total global score and all dimension as follow at r=-.438, r=-.367, r=-.445, r=-.455, respectively. Contrary, social dimension has positive and low correlation with total global score and all dimensions as follow (r=.180, *p*-value=0.05), (r=.234, *p*-value=.000), (r=.170, *p*-value=0.05), and (r=.184 , *p*-value=0.05). Whereas, self-efficacy and pain only has medium one in emotional subscale at r=.349 and in physical r=.314. The crucial one among this factors that age has no significant relationship.

CHAPTER V
DISCUSSION

The purpose of this study is to describe health-related quality of life in patients with acute coronary syndrome in West Java Indonesia and investigate relationships among age, self-efficacy, pain, dyspnea, social support and health-related quality of life among patients with acute coronary syndrome in West Java Indonesia. Wilson and Cleary Model for health-related quality of life (WCM) (1995) composed five kinds of domain as outcome that has been revised by Ferrans and friends (2005) used to conceptual framework in this study.

Participants are patients who diagnosed Acute Coronary Syndrome (ACS) and controlled at Hassan Sadikin General Hospital around 186 patients. The participants will be selected based on the inclusion criteria as follows: as 25< age < 60 years old, outpatient of CAD who has history angina, NSTEMI, and STEMI, be able to speak, read, and write in Bahasa Indonesia, at least 1 month after discharge from hospital, treated by medication and revascularization, good hemodynamic and consciousness, and willing to be participant in this study

In this study, age, self-efficacy, pain, dyspnea, functional status, social support are factors related to health-related quality of life. Instruments used in this study are general instrument, Rose dyspnea scale, Rose questionnaire for Angina, Seattle Angina Questionnaire (SAQ) Indonesian Version (Nuraeni et al., 2016), General Self-Efficacy Scale (GSES) Indonesia version (Schwarzer & Jerusalem, 1995), ENRICH Self-Efficacy Scale(ESSI) (Bucholz et al., 2014), and MacNew Health related quality of life (Höfer et al., 2016). Translation back and Validity test were used for Rose angina questionnaire, Rose dyspnea Scale, GSES, ESSI, and MAcNew Health related quality of life. Reliabilty test score for ESSI (0.67) and MacNew (0.91).

A total participant of 186 analyzed by using the Statistical Package for the Social Sciences, version 22.0 (SPSS 22.0). Descriptive and spearman-rank correlation was used to analyses with level of significance of the study will be set at $\alpha = .05$.

The finding showed most of participants are late adult (25-59) at around 68.3 % with mean ($\bar{x}$) 55.69 (SD=10.15). Almost of them were married at 162 patients (87.1 %). Men are dominated on this study over the women. They were male at

around 122 patients (65.6 %) whereas women are only almost half of them around 64 patients (34.4 %). Almost half of the patients had normal weight (44.6 %) and less than half of them (32.8%) were graduated from school following by secondary school higher education (30.1%). Regarding to occupation, almost fourth of them are house wife (22%) in which it is women domination especially. Among others, government officers and entrepreneur (16.7%) and employee (14.5%). For the smoking activity and diabetes mellitus disease history, most of them are not smoker and having diabetes mellitus disease while they had been having ACS in duration time 7-12 month.

Talking about overall of HRQOL value, it has been clear that this table provides the results of mean and SD global score such as ($\bar{x}$=4.97; SD=0.92), emotional ($\bar{x}$=4.56; SD=0.89), physical ($\bar{x}$=5.08; SD=1), and social ($\bar{x}$=5.31; SD=1). It seems that social support is the highest score is 5.31, moderate in physical at 5.08 and the lower one in emotional at 4.56. As a global score, it is higher than emotional at 4.98. Functional status including all dimensions with a result 98 patients or more than half patients with ACS (52.7%) has a high functional status followed by physical limitation who had been by 100 patients (53.8%). Majority the participants (75.3%) are having pain around 140 participants whereas less than half participants (40.3%) experienced pain more than 30 minutes at 75 patients. Majority participants (47.8%) underwent dyspnea during walking up a hill or in hurry around 89 participants followed by 52 normal breathing patients (28%). Many of patients (53.2%) with ACS feel plenty support from around them. Unfortunately, almost half patients (46.8%) still lack of support from their support system.

Almost all factors have significant relationship between pain (r=0.296, p<0.01), Dyspnea (r=-0.438, p<0.01), functional status (r=0.601, p<0.01), self-efficacy (r=0.299, p<0.01) and social support (r=0.180, p=0.05). What surprising is that no significant correlation between age, and total global score (r=.081, *p*-value=.270), as well as all of subscale starting from emotional (r=.123, *p*-value=.095), physical (r=.058, *p*-value=.438), and social (r=.093, *p*-value=.205).

5.1 Discussion

5.1.1 **Description of independent variables**

5.1.1.1 Age

In this study, it has been clear that target population are patient with acute coronary syndrome in the age more than 25 years old. It might be cause of no relationship between age and HRQOL, all subscales as well. The majority of participant are age group 45-59 at around 56% or 105 participants when only small half of this group (26.9%) or 50 participants are on the group 60-74 years old. As we can see from the data, prevalence of patients with ACS is on adult group. It is no doubt that Kumar and Cannon (2009) stated age become one of 5 most histories-related ischemic on ACS (Morise, Haddad, & Beckner, 1997) and high risk sub clinical group (E. Boersma et al., 2000).

A possible explanation for this might be that aging mechanism combined with inflammatory process and progression of atheroma with the formation and expansion of necrotic core, fibrous cap, matrix accumulation and various degree of plaque instability yields atherosclerotic CAD (Dai et al., 2016). While majority patients with ACS (60%) who got admission in hospital are patients ≥ 65 years, this study results showed most of outpatient with angina histories are less than 65 years old. (Dai et al., 2016). It seems possible that these results are due to others traditional factors such as hypertension, hypercholesterolemia, cigarette smoking, diabetes, and family history of premature CAD (Jayes, Beshansky, D'Agostino, & Selker, 1992). More broadly, research is needed to explore about factor related young adults with ACS in Indonesia especially.

5.1.1.2 Self-Efficacy

Originally, Self-efficacy is defined as participants' confidence in their ability to take care of their health (Bandura, 1977). It is a psychological construct based on social–cognitive theory, which describes the interaction between behavioral, personal, and environmental factors in health and chronic disease (Lorig & Holman, 2003). Indeed, the construct of self-efficacy has extended far beyond the

psychological arena, and has been demonstrated to affect health behaviors and chronic disease management in many chronic disease's settings (Sarkar et al., 2009).

It seems that patient with ACS in this study have believe to manage their illness specific outcomes. It can be seen from the many patients (53.8%) or 100 participants had high score self-efficacy. Sarkar et al. (2009) said self-efficacy is one of indicators of heart function impairment. From this explanation, this data could illustrate heart function in this population because a lot of patients had high score of self-efficacies. Even so recent study showed treating cardiac patients by involving actively patient to tackle their problems with a result increasing self-efficacy (Fors, Taft, Ulin, & Ekman, 2015). It is possible that involvement patient to find solution could influence self-efficacy on their self. To sum up, contribution of patient directly to manage their problem could increase self-efficacy which is describing heart function impairment in a good way.

5.1.1.3 Functional Status

On the question SAQ that refers to functional status, this study found that more than half (52.7%) or 98 participants has high functional status. It showed many patients with ACS could perform their activity by using their capacity thus they were not limited by their condition.

To be more specific, a lot of patient (53.8%) has high physical limitation that means there is no physical obstacle on them to do their life roles in activity daily living. It could be happened because some of them (62.9%) satisfied with the treatment of ACS. It is adequate to describe that their treatment result makes them perform physical activities without any worries. In opposite results, almost half patients have low physical limitation (47.3%) and satisfaction of treatment (37.1) with means would be not avoided that their capacity could be affected by angina. Also, another study indicated that patient with cardiac disease has poor functional status (Wu et al., 2016).

In this study, there is no assessment about complication disease, so patient possibility had advanced condition of cardiac disease such heart failure that lead patient in bad functional status. Contrary, this patient has better condition related to disease prognosis. Hence, only few patients who has poor condition on their

physical limitation and their satisfaction on this treatment. It could be proved by angina stability ($\bar{x}$=3.85; SD=1.44) and frequency ($\bar{x}$=4.59; SD=1.40) that majority of them (45.2% and 46.2%) have good score on this dimension. These are supporting by some studies that showed the presence angina that indicate myocardial angina would lead patient into worsening heart failure even without infarction (Badar et al., 2014; John Kjekshus et al., 2007). Also, on the earlier study showed patient with ACS had positive and independent for doing their activities assessed by Katz index. Functional status measured by Gold Standards Framework Prognostic Indicator (GSF) is predicting needs than prognostic. This research was completed assessment by Katz index (Mastandrea et al., 2018).

5.1.1.4 Pain

Experiencing pain in the last a year has occurred in a third-fourth patient (75.3%) with mean score 1.60 (SD=0.49). Pain that is the most frequently starting in the retrosternal area and can radiate to either or both arms, the neck, or the jaw became most common complain Pain may also occur in these areas independent of chest pain which is usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm, exertional dyspnea, diaphoresis from sympathetic discharge, nausea from vagal stimulation, and decreased exercise tolerance (Coven et al., 2016).

Additionally, chest pain is the most complain that was correlated to a concordant diagnosis of ACS (Handrinos et al., 2014). More explanation, the patient who has pain in emergency department and discharge to another facility tend to be diagnosed by ACS correctly. Regarding to duration of pain, pain more than 30 minutes could be related to delay of seeking health care (DeVon, Hogan, Ochs, & Shapiro, 2010; Dracup et al., 1997). It can be happened on less than half patients (40.3%) when pain affected by ischemic are not be able treated quickly.

5.1.1.5 Dyspnea

This common variable, dyspnea, is common manifestation on ACS patient. In the current study, dyspnea emerged on major patients (72%) with ACS whereas 52 participants (28%) were not having it. This result is consistent with data

obtained in Australia and New Zealand that showed at least 25% patient with ACS experience dyspnea as main symptom (Pelter et al., 2012). Increasing dyspnea could be seen during hospitalization or development of heart failure, lung infection, adverse reaction to beta-blockers, recurrent ischemia, anemia or other potential complications.

Taking look detailly on this study, dyspnea came up during activity that this possible correlated with adverse bad prognosis their heart that lead to decreasing oxygen supply such walking or hiking, even walking on their own pace and dressing. Furthermore, Parodi and Storey (2015) showed bigger percentage of number patients (47%) who had dyspnea with 19% of them on the moderate to severe limitation due to dyspnea (Arnold et al., 2009). It seems similar with this study at around 24.2%, representatively. To sum up, patients with ACS tend to less likely has dyspnea except they have other factors such hospitalization or complications. Due to less any further comorbidity disease assessment on this study, it needs more explore to research about it especially in Indonesia.

5.1.1.6 Social support

In the responses to ESSI questions, there were 99 participants (53.2%) who had high support from their spouse, family or their society with mean score 39.6 (SD=0.61). previous study showed that social support and ACS has significantly relationship between them (Roohafza, Talaei, Pourmoghaddas, Rajabi, & Sadeghi, 2012). They explained more that this association had linked with evaluation of social support and cardiovascular risks. For example, mechanism is association of social support and healthy life. Other survey stated degree of behavior in exercise was correlated to social support of family and friend.

Another comparison study revealed worse health condition in low score social support and chronic disease compared to patient with better good social support and chronic illness (Berkman, Glass, Brissette, & Seeman, 2000). Similarly, 87 participants had poor social support that it is possibility correlated with poor condition. This is undergone on male and female as a previous study showed low social support associated with CAD (H.-X. Wang, Mittleman, & Orth-Gomer, 2005).

5.1.1.7 Health-Related Quality of Life

This important finding was that more than half (51.1%) or 95 patients with ACS has high quality of life (Me=4.93, $\bar{x}$=4.97, SD=092). Similarity, in Germany, they used EQ-5D and EQ VAS to measure health status in HRQOL in which more than half respondents had minor problems in at least one dimension that 8.1% rated the problems in at least one dimension as severe such pain/discomfort is dominantly happened in this study (Schweikert et al., 2009)

Refer to some previous studies, those global score and its dimension such as emotional domain (4.94±0.89), physical domain (5.07±1.12), and social domain (5.00±5.06) showed has higher score in comparison others developing countries have a low mean MacNew HRQOL. For instance, Aljabery et al. (2017) as nurses in Jordan that tried to assess quality of life that yields the patients' quality of life mean score for all domains was low (4.06 ± 1.16). The physical domain was the most affected (3.87 ± 1.28), followed by the emotional (4.21 ± 1.18) and lastly is the social domain (4.26 ± 1.25) while Höfer et al. (2016) reported mean MacNew Global HRQOL in the total group was 5.04 (±1.1). Also on other studies, mean score of the EQ-5D index was 0.79±0.32 that showed low score on quality of life of coronary disease patient (Kahyaoğlu Süt & Ünsar, 2011).

Whereas in the European countries, some of studies used EQ-5D and SF-36 to measure HRQOL. For instance, in Germany, they used EQ-5D and EQ VAS to measure health status in HRQOL in which more than half respondents had minor problems in at least one dimension that 8.1% rated the problems in at least one dimension as severe such pain/discomfort is dominantly happened in this study (Schweikert et al., 2009). The dimension in which moderate or severe problems were most frequently stated was pain/discomfort. Other study by Rančić et al. (2013) showed the patients with AMI got severe problem in most frequent answer on question about mobility, self-care, daily activities, pain/discomfort, and anxiety or depression after one month after AMI modest. Thus, some studies had showed that that poor HRQOL was related to increased hospital readmission (Rodriguez &

Mahaffey, 2016) and mortality (Otero-Rodriguez et al., 2010; Rodriguez & Mahaffey, 2016)

5.1.2 **The relationship between independent variables and health-related quality of life**

5.1.2.1 Age

Interestingly, this correlation between age and HRQOL is not significant (P=0.200). It might happen when we are looking briefly at the data; age data has an SD score of 10.15 in which describes spreading data from the smallest number to the most prominent data. Thus, all age groups are having patients with ACS. This data indicates that not only older people or elderly who get ACS. Interestingly, most younger patients (68%), especially the age group 25 – 44, had a low emotional dimension. In line with it, another study said that younger people had lower at mental health (Hawkes et al., 2013).

In the aging process, it leads to STEMI and NSTE-ACS. This patient's characteristics are an imbalance between oxygen demand and supply by the inflammatory process and atheroma progression. The formation and expansion of necrotic core, fibrous cap, matrix accumulation, and various degrees of plaque instability yields atherosclerotic CAD. (Dai et al., 2016). Unfortunately, this possibility might not be directly associated with HRQOL. Related to a groupage, only very old patients (75 – 90) had low physical dimension, around 44.4% or only 4 persons. However, this research has one similar result in a similar region, and ethnicity showed no significant difference between age and quality of life and its subscale (Thiruvisaakachelvy et al., 2019). From this data, it doesn't mean getting old with ACS would have low nor high HRQOL. Hence it would happen in all age-group.

5.1.2.2 Self-Efficacy

Table 4 showed a significant relationship between self-efficacy and HRQOL with a p-value <0.01. It seems that patients have a belief about their abilities to complete their tasks (Bandura, 1977) in daily routines that could enhance to master patients' sense of living with the disease, which increases the overall quality of life (Loo, Jiang, Koh, Lim, & Wang, 2016). In line with this statement, higher

levels of self-efficacy predicated better HRQOL. When these patients have good confidence to preserve functioning in daily life, it could be seen that they have improved quality of life (Peters, Potter, Kelly, & Fitzpatrick, 2019). Indeed, the construct of self-efficacy has extended far beyond the psychological area and has been demonstrated to affect health behaviors and chronic disease management in many chronic disease settings (Sarkar, Ali, & Whooley, 2009). Peters et al. (2019) also state that self-efficacy is a predictor of HRQOL in congestive heart failure patients. Hence, patients' confidence will bring to high level of quality of life.

According to the low correlation in almost all subscale, even global score except emotional subscale (r= 0.349), it tends to moderate one. The indirect explanatory research about self-efficacy with quality of life proved that fatigue is a mediator effect between self-efficacy and physical and mental dimensions (Brink et al., 2012). It showed the caution of the result influenced by mediators such fatigue or other mediators, whereas the current study could directly show medium correlation.

But self-efficacy is modifiable in which it could be seen on a patient with multi comorbidity. They could undergo a better quality of life. In terms of modifiable, self-efficacy could be enhanced by person-center care. It tends to support them in enhancing their self-efficacy and self-management by educating them about disease management skills. Some regular interventions put some improvement sessions that will influence self-efficacy such as relaxation, diet, exercise, fatigue, breaking the "symptom cycle", managing pain and medication, and communication (Kennedy et al., 2007; Peters et al., 2019). Health professionals could start to be aware that those programs could be more useful to in supporting them, especially patients with the acute coronary syndrome.

5.1.2.3 Functional Status

The current study found that the SAQ score has a high association ($r=0.601$; $p<0.01$) with health-related quality of life. This result is in accord with a recent study indicating that patients with cardiac disease who had better functional status had better HRQOL. Despite heart failure patients, these patients are advance disease of ischemic such ACS. It can refer to individual's actual performance of

activities and tasks associated with their current life roles. Particularly, this study uses seattle angina questionnaire that composes physical dimension, angina stability, angina frequency, treatment satisfaction, and perception disease measuring functional status in ACS patients with a high relationship with all MacNew HRQOL namely r= .488, r=0.439, r=.605, and r=.586, respectively.

According to the strong relationship between disease perception and HRQOL, it is consistent with those of Yaraghchi, Rezaei, Mandegar, and Bagherian (2012) who studied on patient with coronary artery bypass graft showed illness perception associated with quality of life. Other studies said perception of CHD related to their symptom were linked with their quality of life after three years from discharge (Lau-Walker, Cowie, & Roughton, 2009).

Actually, using functional status is interchangeably such as health status, quality of life, physical functioning, activities of daily living (Bakas et al., 2012), level of impairment, and disability (Coyne & Allen, 1998). There is limited evidence to use this term on ACS patients. Thus, they explain that patients who depleting their energy expenditure to avoid symptoms because they have undergone life to avoid their symptoms by limited their movement activity. Regarding avoiding symptoms, it can be related to increasing their quality of life. It lines with its research; functional status is a predictor factor for cardiac event-free survival because that research showed cardiac event-free survival was significantly worse in patients who had poorer functional status (Wu et al., 2016). Another previous study show that myocardial infarction had similar condition on both quality of life and functional status (Pilote et al., 2002). Also, patients with acute myocardial infarction experienced a declining quality of life and functionality (Andrade et al., 2018). Hence, the evidence of a relationship between functional status and HRQOL is limited in a patient with ACS, but some studies showed that both have the same condition in the same time.

5.1.2.4 Pain

This study indicates a low relationship (r=0.296, p-value <0.01) between pain and HRQOL. In line with this, on the measuring of HRQOL by three global health assessment of HRQOL in three-time point, there is a significant correlation between chest pain and HRQOL. Similarly, general health perception as a

domain of HRQOL has been associated with chest pain in contra with the cognitive and social function that there is no relationship between those (Kiessling & Henriksson, 2007). Ischemic will make decrease blood flow in the coronary artery that leads pain in the chest. It has been clear that patients will avoid this uncomforted sensation. More pain emerges in their daily life, the more they will feel limited. It has been proven that patient with pain has a moderate relationship with the physical quality of life (r=.314). So, Kiebzak et al. (2002) said increasing the quality of life parallel with reducing pain in the patients after revascularization by coronary artery bypass graft surgery. Several independent factors could predict pain, such as age, body mass index, occupation, ACS diagnosis, self-management behaviors, sleep quality, and smoking (Supanam et al., 2020). Physiologically, the pain will come upon a patient with the acute coronary syndrome as the main manifestation clinic and will worsen if the ACS has bad prognoses (Amsterdam et al., 2014; Coven et al., 2016; Kumar & Cannon, 2009). To tackle this problem, the nurse could prevent it by providing a program to inform patient and educate the patient after discharge from the hospital and encouraging them to understand the pain killer and searching nearly medical resources when pain recure (Jarvish & Saman, 2017). It has been clear because revascularization could increase oxygen to the cardiac tissue. In short, increasing painless will correlated with increasing HRQOL.

5.1.2.5 Dyspnea

Breathlessness was negative associated with health-related quality of life (r=-0.438, P value <0.01). This finding is supported by Arnold et al. (2009) revealed that higher score of breathless highly associated with poor QOL both cross-sectional (1-U dyspnea increase = 2.5-point PCS decrease and 2.4-point SAQ QOL decrease). There are, however, other possible explanations by the second Randomized Intervention Treatment of Angina (RITA-2) trial that increasing of dyspnea severity was strongly associated with worse scores on the physical functioning, vitality, and general health scales of the SF-36. Also, independent of Canadian Cardiovascular Society angina grade (Pocock, Henderson, Clayton, Lyman, & Chamberlain, 2000). This report is similar to this current study that the patient has negative significance associated with emotion, physical, and social with r score at (-.367, -.445, -.455). It

seems that dyspnea will decrease after revascularization (Qintar et al., 2017), which is solved by oxygenation on the heart tissue. It will be different from health-related quality of life if the patient has treatment after the cardiac event.

5.1.2.6 Social Support

One exciting finding is a low significant relationship between social support and health-related quality of life (r=0.180, *p*-value=0.05). It may be that social support leads to be less concern about their health problem and feel no harm (Frasure-Smith et al., 2000; Khayyam-Nekouei et al., 2013). This study was conducted on patients post-MI. Patients with poor HRQOL will increase the incidence of mortality. In terms of social support, it was associated with 1-year cardiac mortality, but social support was not directly related to survival. Contrary, Other studies conducted in Western countries and Hong Kong have shown that patients perceived social support has a significant independent effect on the HRQOL of patients with CHD.

Besides, two significant predictors, accounting for 12.4% of the variance, were identified for poor mental health: co-morbidity of heart failure and perceived social support. The mean scores of the Chinese Mandarin Medical Outcomes Study Social Support Survey (CM: MOS-SSS) in our study were lower than that of the Hong Kong patients, except for the tangible support scale (W. Wang et al., 2014). This study has proven that it seems to possess lowest emotional mean's score as well. To support it, another showed that social support has strong interaction with disease-specific quality of life in which lowest social support had lower quality of life (Leifheit-Limson et al., 2010). It seems that small significant in this study, but social support from their family and surrounding's could have an impact on their health status because it has been proven that small, medium, and high support was needed by the patients (Garcia, Budó, Schwartz, Simon, & Silva, 2015)

5.2 Recommendation

5.2.1 **Recommendations for nursing practice**

5.2.1.1 To Manage Pain and Angina Frequency

Based on the result, the patient still has pain even they have been treated by revascularization. It is clear that one of the factors that make them still feel

pain is delaying to seek health care or any treatment. It might be able to happen related to drug adherence. Nurses could assess the level of adherence and knowledge related to drug usage. Moreover, identifying the feasibility of seeking health care providers related to control and buying the drugs could be assessed by a nurse. If they face difficulty, nurses could coordinate with a doctor to prescribe medicines and provide the drugs at a hospital pharmacy, facility, and distance. Increasing adherence to control and taking a pill is one of the essential things.

Educating patient to manage their pain is one of the nurse's interventions such as distraction, guided imagery, taking a deep breath, even hypnosis. There are many choices based on their needs. It could be applied during control involving their family or caregiver.

5.2.1.2 To manage dyspnea and physical limitation

There are some factors regarding dyspnea, such as side effects of drugs and increasing intolerance activity. When patients complain high of shortness of breath, identifying medicines to look over the possible side effect is needed by nurses, For example, ticagrelor that is usually used in acute coronary syndrome could trigger dyspnea.

Also, providing intolerance assessment form when patients started to complain about dyspnea during activity daily living. During control, the patient could be trained about increasing tolerance in their activity or self-detection-related strenuous activity. Cardiac rehabilitation has consisted of physical activity, travel and health advice, psychological and social support, advice on sexual activity, and support with lifestyle changes. Azzolin et al. (2013) reported that application of nursing intervention classification (NIC) such as health education, self-modification assistance, behavior modification, teaching: prescribed medication, teaching: disease process, nutritional counseling, telephone consultation, and energy conservation could enhance the nursing outcomes (NOC) such tolerance activity and energy conservation.

5.2.1.3 To Enhance Self-efficacy

As can be seen, self-efficacy could predict HRQOL. Increasing of self-efficacy would lead to getting a higher score of quality of life. Nurses could give interventions that emerge their self-awareness to maintain their health. Involving patients with ACS directly is better than health education or workshop. Nurses could ask them about hope and goals of interventions during control. It can be asking patients about the next goal in a month and involving them in managing their health problems at home. Family or caregiver could be implicated during this proses. Self-efficacy can help patients perform self-management supported by previous study (Joekes et al., 2007).

5.2.1.4 Maintaining Social Support

The relationship of social support with health-related quality of life might be caused by an indirect association between them. Social support is possibly correlated with other independent variables, such as physical or psychological factors. But it should be maintained involving spouse, family, or society during treatment. The contribution of family could be in stage of home care. Nurse could involve them during discharge or health education in which they will be encouraging and reminding patients about their health.

5.2.1.5 Increasing Health-related Quality of life

Provision functional status has strong relationship with health-related quality of life. Nurses could focus on enhancingng physical limitation, angina stability and frequency, treatment satisfactio and dan perception disease. It has been clear that older people had low physical limitation. It can be assessed Katz index in both discharges or during control at an outpatient clinic. In terms of emotional dimension, measuring psychological problem related to their disease is needed. Hence, treatment could be a focus by age group. The program could be systematically generated by nurses making discharge list and combined with cut edge technology such as telenursing.

Discharge program and secondary prevention after hospitalization from ACS should be applied. The discharge program should be ensured that they accept a copy

of their discharge summary and could be pieces of advice and encouragement to attend cardiac rehabilitation, changes of cardiac risk and lifestyle program, and drug therapy. There is a priority for them from the plenty of discharge information to emphasize with they had a history of an acute MI, the result of any investigations, and how they manage their condition. Also, to discuss the condition with their family is possible to help patients modify their lifestyle. Patients could be suggested to see an urgent medical center if they had pain. To be concerned, cardiac rehabilitation consists of physical activity, travel and health advice, psychological and social support, advice on sexual activity and support with lifestyle changes (Jarvish & Saman, 2017).

Some studies could give some program interventions related to patients' ACS after discharge, such as community-based collaborative peer advisor/advanced practice nurse and post-discharge transitional program. Community programs were conducted in patients after discharge in a specific period, such as 6 weeks, 3, 6, and 12 months after hospitalization, in which patients were divided into 4 groups. Patients will receive any interventions such as home visits and telephone interviews during an interview. There are significant relationships between programs, especially in coronary artery bypass graft surgery with the readmission (Carroll et al., 2007). Another plan could be incorporate with nursing care plan of NANDA I, NIC and NOC.

Looking more detail, in categories patient education and behavior therapy, as follows: health education; self-modification assistance; behavior modification; teaching: disease process; and teaching: prescribed medication. The following interventions were also implemented: nutritional counseling, family involvement promotion, family mobilization; energy management; fluid monitoring; and telephone consultation. It has been implemented that results in increasing of functional health, psychological health, symptom control, compliance behavior, and family health (Azzolin et al., 2013). Nursing cardiologist or specialist was recommended to provide to assess their needs after discharge (Jarvish & Saman, 2017)

5.2.2 **Recommendations for further studies**

Therefore, there is a definite need for exploring more about health-related quality of life and factors related nationally in different settings and areas. It needs further investigation all over the region in Indonesia. Considering the area and difference in each region, different ethnicities and cultures may lead to any perception, habit, belief, value, and religion.

Longitudinal research could be applied in this research to see how HRQOL changes and its factor. In this study, one recall will not outline it accurately because of many biases. Using other instruments or developing new instruments may be able to be applied.

It would be interesting to select variables in a causal model of health-related quality of life as a recommendation for n further research in Indonesian to develop nursing science. The result will be used to further research health problems in this population, such as randomize clinical trials.

This research's limitation is that functional status in different ages has a low score on the physical problem. Further work needs to be done on whether different functional status contained physical, angina stability and frequency, treatment satisfaction, and disease perception in any biological status, clinical status, and socio-economy in this population. Developing intervention research to increase HRQOL in a patient with ACS is recommended in an outpatient clinic. It could be program involved nurse and others profession such physician.

5.2.3 **Recommendations for the health care system in West Java Indonesia.**

As can be seen, age, pain, dyspnea, functional status, and self-efficacy related to HRQOL. In accordance, providing an integrated care system involved nurses and physicians in both inpatient and outpatient settings. This system will increase the quality of caring management as long-term care programs combine with cutting-edge technology such as smartphones. The health profession could manage and oversee the patient and prevent any advanced cardiac event problems in this program. This program requires eligible and experienced nurses, such as a nursing specialist or licensed in the cardiologist field. A nursing specialist will develop the

plan in terms of methodology, implementation, and evaluation that involve many sectors and health disciplines. It needs support policy from hospitals and health ministry to be applied to this kind of long-term care based on research.

Regarding the characteristics and factors related to HRQOL, policymakers such as hospitals or the Ministry of Health should promote healthy lives both in health and patients. Preventing risk factors such as expanding free smoking and physical activity areas provides more green areas, promotes healthy-life, and routine medical checkups.

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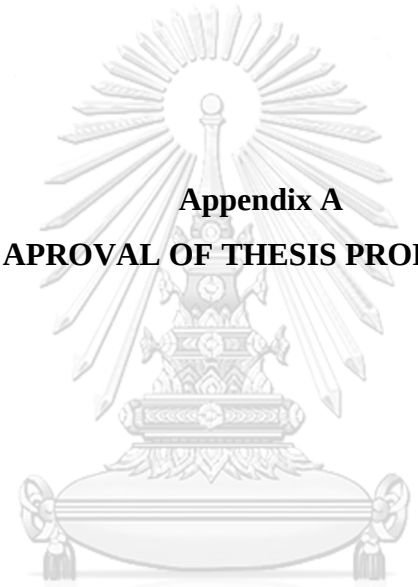
APPENDICES

Appendix A
APROVAL OF THESIS PROPOSAL



ประกาศ
(Announcement)
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
(Faculty of Nursing, Chulalongkorn University)
เรื่อง การอนุมัติหัวข้อวิทยานิพนธ์
(Proposal Approval)
ครั้งที่ 21/2561 ประจำปีการศึกษา 2561
(No. 21/2018, Academic year 2018)

นิสิตผู้ทำวิจัยและอาจารย์ที่ปรึกษาวิทยานิพนธ์

รหัสนิสิต *(ID)*	6077188836
ชื่อ-นามสกุล *(Name)*	นายฮารูน อิหม่าม *Mr. Harul Imam*
สาขาวิชา *(Academic Program)*	พยาบาลศาสตร์ (การพยาบาลผู้ใหญ่) *Master of Nursing Science Program in Nursing Science (Adult Nursing)*
ประธานกรรมการ *(Chairperson)*	รองศาสตราจารย์ ร.ต.อ.หญิง ดร. ยุพิน อังสุโรจน์ *Assoc. Prof. Capt. Dr. Yupin Aungsuroch*
อาจารย์ที่ปรึกษาหลัก *(Major-advisor)*	ผู้ช่วยศาสตราจารย์ ดร. ชนกพร จิตปัญญา *Asst. Prof. Dr. Chanokporn Jitpanya*
กรรมการภายนอก *(External Examiner)*	รองศาสตราจารย์ ดร. ธีระ สินเดชารักษ์ *Assoc. Prof. Dr. Teera Sindecharak*
ชื่อหัวข้อวิทยานิพนธ์ *(Title of Thesis)*	ปัจจัยที่มีความสัมพันธ์กับคุณภาพชีวิตด้านสุขภาพของผู้ป่วยที่มีภาวะกล้ามเนื้อหัวใจขาดเลือดเฉียบพลันในจังหวัดชวาตะวันตก สาธารณรัฐอินโดนีเซีย FACTORS RELATED TO HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ACUTE CORONARY SYNDROME IN WEST JAVA, INDONESIA
ครั้งที่อนุมัติ *(Announcement No.)*	21/2561
ระดับ *(Level)*	ปริญญาโท *Master degree*

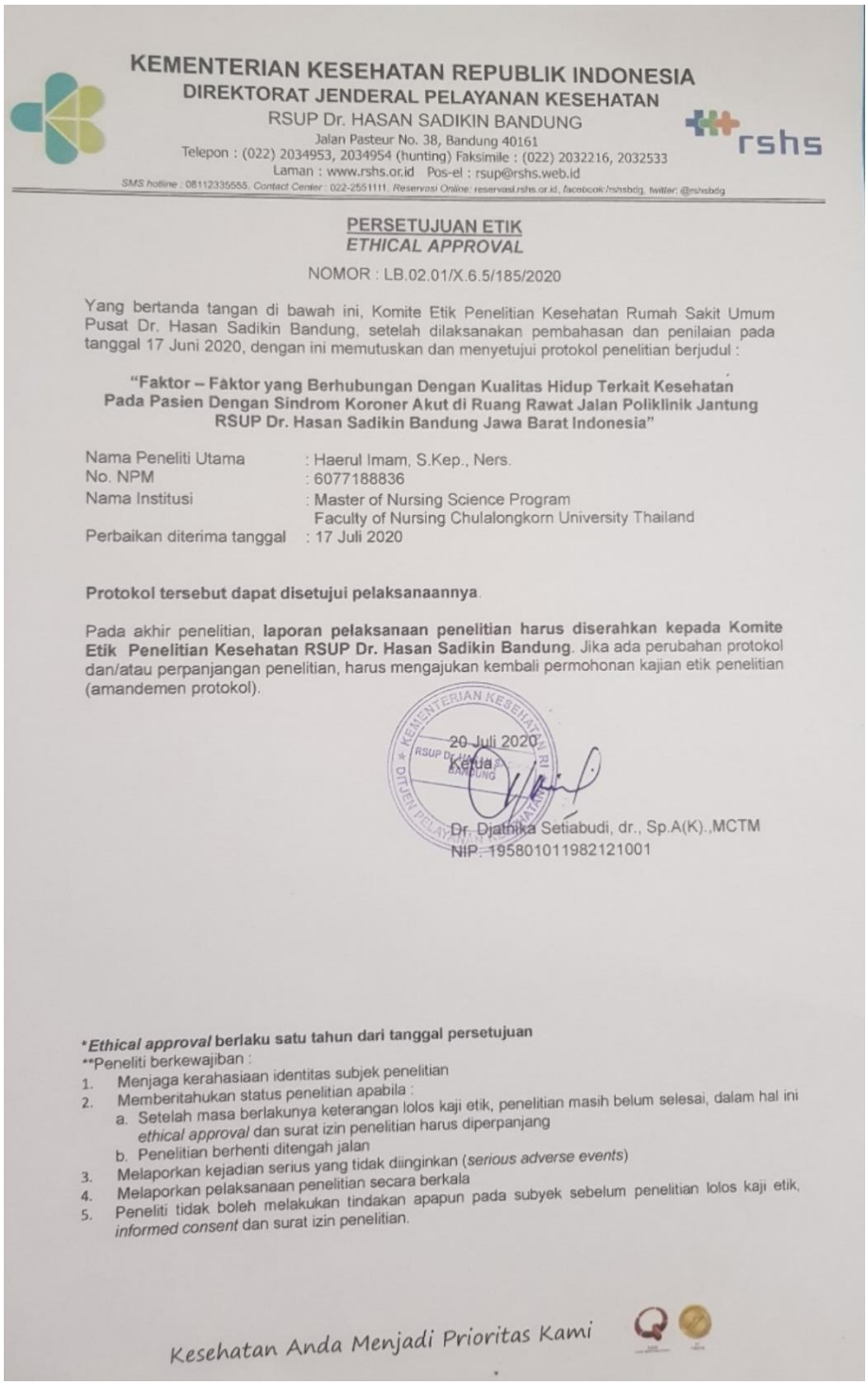
จากมติคณะกรรมการบริหารคณะพยาบาลศาสตร์ ครั้งที่ 12/2562 วันที่ 9 กรกฎาคม 2562
(Approved in the Faculty Board meeting No. 12/2019, July 9, 2019)

ประกาศ ณ วันที่ 19 กรกฎาคม พ.ศ. 2562
(Announced on July 19, 2019)

(รองศาสตราจารย์ ดร. วราภรณ์ ชัยวัฒน์)
(Waraporn Chaiyawat, D.N.S., Dip. APPN.)
คณบดีคณะพยาบาลศาสตร์
Associate Professor and Dean

Appendix **B**

IRB Approval



KEMENTERIAN KESEHATAN REPUBLIK INDONESIA
DIREKTORAT JENDERAL PELAYANAN KESEHATAN
RSUP Dr. HASAN SADIKIN BANDUNG
Jalan Pasteur No. 38, Bandung 40161
Telepon : (022) 2034953, 2034954 (hunting) Faksimile : (022) 2032216, 2032533
Laman : www.rshs.or.id Pos-el : rsup@rshs.web.id
SMS hotline : 08112335555. Contact Center : 022-2551111. Reservasi Online: reservasi.rshs.or.id, facebook:/rshsbdg, twitter: @rshsbdg

PERSETUJUAN ETIK
ETHICAL APPROVAL

NOMOR : LB.02.01/X.6.5/185/2020

Yang bertanda tangan di bawah ini, Komite Etik Penelitian Kesehatan Rumah Sakit Umum Pusat Dr. Hasan Sadikin Bandung, setelah dilaksanakan pembahasan dan penilaian pada tanggal 17 Juni 2020, dengan ini memutuskan dan menyetujui protokol penelitian berjudul :

"Faktor – Faktor yang Berhubungan Dengan Kualitas Hidup Terkait Kesehatan Pada Pasien Dengan Sindrom Koroner Akut di Ruang Rawat Jalan Poliklinik Jantung RSUP Dr. Hasan Sadikin Bandung Jawa Barat Indonesia"

Nama Peneliti Utama	: Haerul Imam, S.Kep., Ners.
No. NPM	: 6077188836
Nama Institusi	: Master of Nursing Science Program Faculty of Nursing Chulalongkorn University Thailand
Perbaikan diterima tanggal	: 17 Juli 2020

Protokol tersebut dapat disetujui pelaksanaannya.

Pada akhir penelitian, **laporan pelaksanaan penelitian harus diserahkan kepada Komite Etik Penelitian Kesehatan RSUP Dr. Hasan Sadikin Bandung**. Jika ada perubahan protokol dan/atau perpanjangan penelitian, harus mengajukan kembali permohonan kajian etik penelitian (amandemen protokol).

20 Juli 2020
Ketua

Dr. Djatnika Setiabudi, dr., Sp.A(K).,MCTM
NIP. 195801011982121001

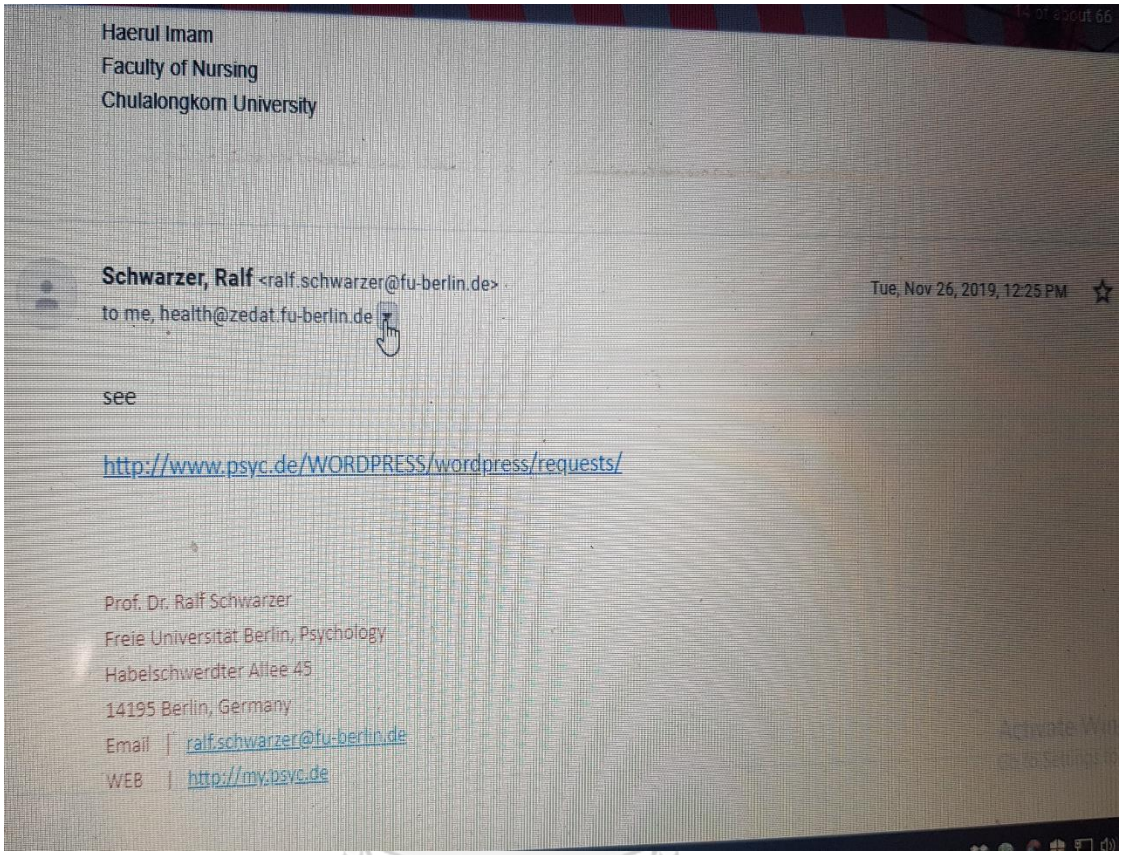
* ***Ethical approval*** **berlaku satu tahun dari tanggal persetujuan**
**Peneliti berkewajiban :
1. Menjaga kerahasiaan identitas subjek penelitian
2. Memberitahukan status penelitian apabila :
   a. Setelah masa berlakunya keterangan lolos kaji etik, penelitian masih belum selesai, dalam hal ini *ethical approval* dan surat izin penelitian harus diperpanjang
   b. Penelitian berhenti ditengah jalan
3. Melaporkan kejadian serius yang tidak diinginkan (*serious adverse events*)
4. Melaporkan pelaksanaan penelitian secara berkala
5. Peneliti tidak boleh melakukan tindakan apapun pada subyek sebelum penelitian lolos kaji etik, *informed consent* dan surat izin penelitian.

Kesehatan Anda Menjadi Prioritas Kami

Appendix C

Permission for Using Instrument

1. General Self Efficacy Scale



Haerul Imam
Faculty of Nursing
Chulalongkorn University

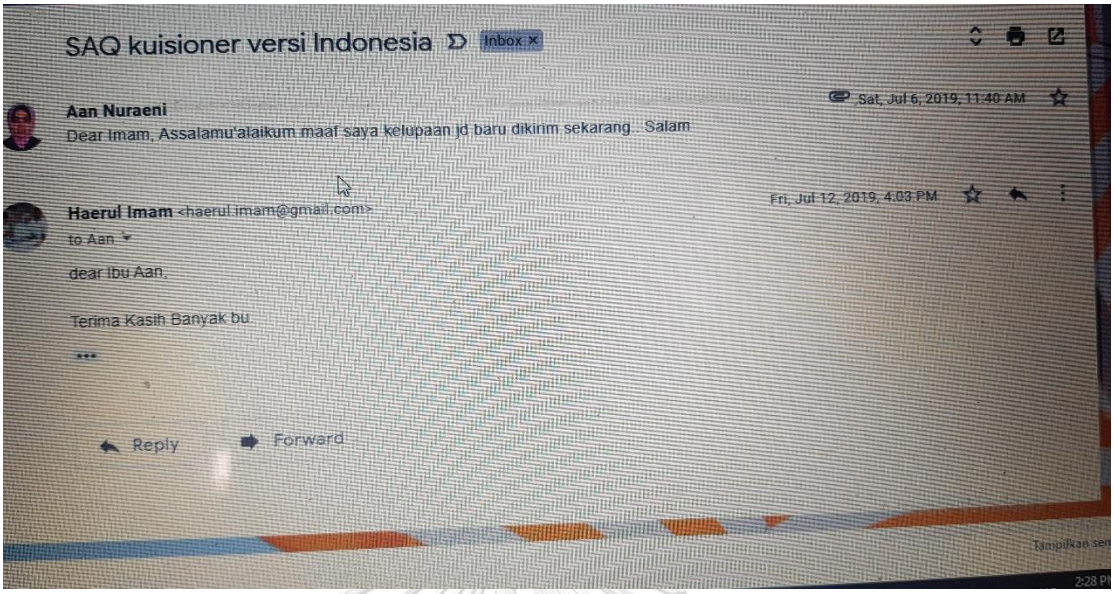
Schwarzer, Ralf <ralf.schwarzer@fu-berlin.de> Tue, Nov 26, 2019, 12:25 PM
to me, health@zedat.fu-berlin.de

see

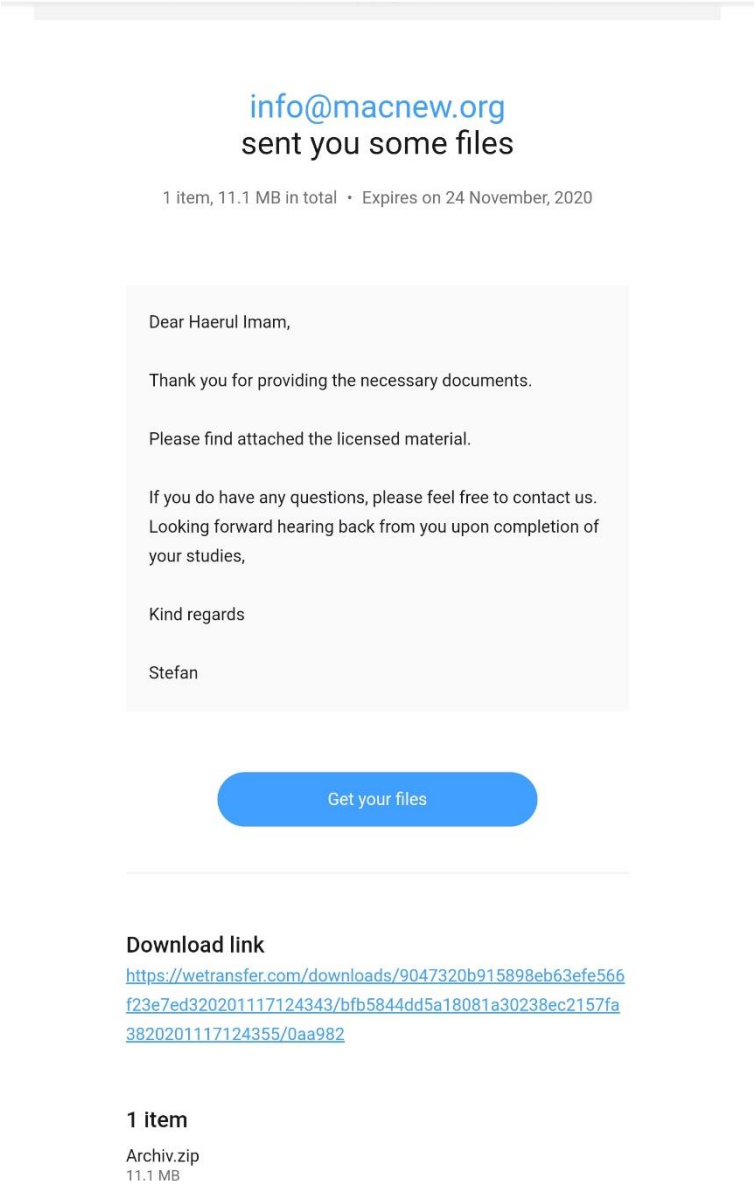
http://www.psyc.de/WORDPRESS/wordpress/requests/

Prof. Dr. Ralf Schwarzer
Freie Universität Berlin, Psychology
Habelschwerdter Allee 45
14195 Berlin, Germany
Email | ralf.schwarzer@fu-berlin.de
WEB | http://my.psyc.de

2. Indonesian Version of Seattle Angina Kuisioner



3. MacNew Heart Disease Health-Related Quality of Life



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Appendix D

List of Instrument Translator and Reviewer for Content Validity

1. **Kusman Ibrahim, RN., PhD** (Lecturer, Department of Medical Surgical Nursing, Padjadjaran University)
2. **Ns. Joko Gunawan., PhD** (Post-Doctoral Program, Chulalongkorn University)
3. **Ns. Cecep Eli Kosasih, PhD** (Lecturer, Department of Medical Surgical Nursing, Padjadjaran University**)**
4. **Titis Kurniawan, MNS., PhD (C)** (Lecturer, Department of Medical Surgical Nursing, Padjadjaran University and PhD Candidate, Prince of Songkhla University)
5. **Ns. Nurlaeci, S.Kep., Ners., M.Kep.** (Nurse, Supervisor of Cardiac Center Services Installation, Hasan Sadikin General Hospital)
6. **Ns. Noviyah, S.Kep., Ners** (Nurse, Department of Cardiovascular Outpatient Polyclinic, Hasan Sadikin General Hospital)

Appendix E

Research Instruments

1. **General Instrument Form**
2. **General Self-Efficacy Scale (GSES)**
3. **Seattle Angina Questionnaire (SAQ)**
4. **Rose Questionnaire for Angina**
5. **Rose Dyspnea Scale**
6. **ENRICH Social Support Inventory (ESSI)**
7. **MACNEW Heart Disease Health-Related Quality of Life Questionnaire (MacNew)**

1. General Information Form

Direction: Please fill in the blank or make "X" in to indicate the factual situation.

1. **Age** : ……years old
2. **Gender** : □ Male □ Female
3. **Marital status** :

   □ Single □ Married

   □ Divorced □ Widowed
4. Body Weight : …….Kg
5. Height :……..cm BMI:
6. Tobacco Use : Yes/No
7. History of Diabetes Mellitus: Yes/No
8. **Education level :**

   □ Non education

   □ Primary school

   □ Secondary school

   □ High school

   □ Diploma

   □ Bachelor or higher

9. Occupation:

- □ Officer & government officer
- □ Own businessmen
- □ Student
- □ Worker
- □ Labour
- □ Farmer
- □ Unemployed
- □ Other

10. **Income** (average/month) Rp……..

11. **Diagnose :**

12. **How long is your heart disease diagnose ?**…… years

13. **Do you have other diseases?**

2. General Self-Efficacy Scale (GSES)

General Self-Efficacy Scale

No	Questions	1	2	3	4
		Not at all true	**Hardly true**	**Moderately true**	**Exactly true**
1	I can always manage to solve difficult problems if I try hard enough.				
2	If someone opposes me, I can find the means and ways to get what I want.				
3	It is easy for me to stick to my aims and accomplish my goals.				
4	I am confident that I could deal efficiently with unexpected events.				
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.				
6	I can solve most problems if I invest the necessary effort.				
7	I can remain calm when facing difficulties because I can rely on my coping abilities.				
8	When I am confronted with a problem, I can usually find several solutions.				
9	If I am in trouble, I can usually think of a solution.				
10	I can usually handle whatever comes my way.				

3. Seattle Angina Questionnaire (SAQ)

The Seattle Angina Questionaire-7

1 The following is a list of activities that people often do during the week. Although for some people with several medical problems it is difficult to determine what it is that limits them, please go over the activities listed below and indicate how much limitation you have had **due to chest pain, chest tightness or angina over the past 4 weeks**.

Place "X" in one box on each line

	Activity	Extremely Limited	Quite a Bit Limited	Moderately Limited	Slightly Limited	Not at all Limited	Limited for Others Reasons or did not do the activities
1	Walking indoors on level grounds						
2	Gardening, vacuuming, or carrying groceries						
3	Lifting or moving heavy objects (e.g furniture objects)						

<table>
<tr><td>2</td><td colspan="6">Over the past 4 weeks, on average, how many times have you had chest pain, chest tightness, or angina?
I have had chest pain, chest tightness, or angina ..</td></tr>
<tr><td></td><td>□ 4 or more times per day</td><td>□ 1-3 times per day</td><td>□ 3 or more times per week but nor everyday</td><td>□ 1-2 times per week</td><td>□ Less than once a week</td><td>□ None Over past the weeks</td></tr>
<tr><td>3</td><td colspan="6">Over the past 4 weeks, on average, how many times have you had to take nitroglycerin (nitroglycerin tablets or spray) for your chest pain, chest tightness or angina?

I have taken nitroglycerin...</td></tr>
<tr><td></td><td>□ 4 or more times per day</td><td>□ 1-3 times per day</td><td>□ 3 or more times per week but nor everyday</td><td>□ 1-2 times per week</td><td>□ Less than once a week</td><td>□ None Over past the weeks</td></tr>
<tr><td>4</td><td colspan="6">Over the past 4 weeks, how much has your chest pain, chest tightness, or angina limited your enjoyment of life?</td></tr>
<tr><td></td><td>□ It has extremely limited my enjoyment life</td><td>□ It has limited my enjoyment life quite a bit</td><td>□ It has moderately limited my enjoyment life</td><td>□ It has slightly limited my enjoyment life</td><td colspan="2">□ It has not limited my enjoyment life</td></tr>
</table>

5	If you had to spend the rest of your life with your chest pain, chest tightness or angina the way it is right now, how would you feel about this?				
	Not satisfied at all	Mostly dissatisfied	Somewhat satisfied	Mostly satisfied	Completely satisfied

4. Rose Questionnaire for Angina

Rose Angina Questionnaire

Questions		**Answers**
RAQ possible myocardial infarction questionnaire		
1	Within the last 1 year, have you ever had a severe pain across the front of your chest lasting for half an hour or more? If No, go to the 'angina of effort questionnaire' If Yes, ask the following question:	Yes/No
2	Did the pain occur for the first time in the last year? If Yes to Q1 and Q2, diagnosed as 'incident case of possible myocardial infarction'	Yes/No
RAQ angina pectoris questionnaire		
1	Within the last 1 year, have you ever had any pain or discomfort in your chest? If No, within the last 1 year, have you ever had any pressure or heaviness in your chest? If No, diagnosed as 'not an incident case of angina pectoris'	Yes/No Yes/No
2	Did the pain/discomfort/pressure/heaviness in the chest occur for the first time in the last year? If No, diagnosed as 'not an incident case of angina pectoris'	Yes/No

3	Did you get it when you walked uphill or hurry?	Yes/No/Never hurries nor walks uphill
4	Did you get it when you walked at an ordinary pace on the level? If Yes to either Q3 or Q4, proceed to the next question	Yes/No
5	What did you do if you get it while you were walking?	Stops or slow down/Carry on
6	If you would stand still, what happened to it?	Relieved/Not relieved
7	How soon?	10 min or less/More than 10 min
8	Will you show me where it was?	Sternum/Left anterior chest/Left arm/Others
If Yes to Q1 and Q2, Q3 or Q4, 'stops or slow down' for Q5, 'relieved' for Q6, '10 min or less' for Q7, 'sternum' or 'left anterior chest and left arm' for Q8; diagnosed as 'incident case of angina pectoris'		
Coronary heart disease diagnosis for this study		
If anyone was classified as 'incident case of possible myocardial infarction' or as 'incident case of angina pectoris', h/she was diagnosed as 'incident case of coronary heart disease' for this study		

5. Rose Dyspnea Scale

Rose Dyspnea Scale

Dyspnea Score	Interpretation of Score
0	No dyspnea
1	Dyspnea only when hurrying or walking up a hill
2	Dyspnea when walking with people of similar age on level ground
3	Dyspnea when walking at own pace on level ground
4	Dyspnea when washing or dressing

6. ENRICH Social Support Instrument (ESSI)

No	Questions	None of All the time	A little of the time	Some of the Time	Most of the time	All the Time
		1	2	3	4	5
1	Is there someone available to you whom you can count on to listen to you when you need to talk?					
2	Is there someone available to give you good advice about a problem?					
3	Is there someone available to you who shows you love and affection?					
4	Is there someone available to help you with daily chores?					
5	Can you count on anyone to provide you with emotional support (talking over problems or helping you make a difficult decision					
6	Do you have as much contact as you would like with someone you feel close to, someone in whom you can trust and confide					
7	Are you currently married or living with a partner?					

7. MacNew Heart Disease Health-Related Quality of Life Questionnaire

We would now like to ask you some questions about how you have been feeling DURING THE LAST 2 WEEKS. Please check the box E that matches your answer

1. In general, how much of the time during the last 2 weeks have you felt frustrated, impatient or angry?
    1) ☐ ALLOFTHETIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OFTHE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME
2. How often during the last 2 weeks have you felt worthless or inadequate?
    1) ☐ ALL OF THETIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME
3. In the last 2 weeks, how much of the time did you confident and sure that you could deal with your heart problem?
    1) ☐ NONE OF THE TIME
    2) ☐ A LITTLE OF THE TIME
    3) ☐ SOME OF THE TIME
    4) ☐ A GOOD BIT OF THE TIME
    5) ☐ MOST OFTHE TIME
    6) ☐ ALMOST ALL OF THE TIME
    7) ☐ ALL OF THE TIME

4. In general, how much of the time did you feel discouraged down in the dumps during the last 2 weeks?

   1) ☐ ALL OF THE TIME
   2) ☐ MOST OFTHE TIME
   3) ☐ A GOOD BIT OF THE TIME
   4) ☐ SOME OF THE TIME
   5) ☐ A LITTLE OF THE TIME
   6) ☐ HARDLY ANY OF THE TIME
   7) ☐ NONE OF THE TIME

5. How much of the time during the past 2 weeks did you feel relaxed and free of tension?

   1) ☐ NONE OF THE TIME
   2) ☐ A LITTLE OF THE TIME
   3) ☐ SOME OF THE TIME
   4) ☐ A GOOD BIT OF THE TIME
   5) ☐ MOST OF THE TIME
   6) ☐ ALMOST ALL OF THE TIME
   7) ☐ ALL OF THE TIME

6. How often during the last 2 weeks have you felt worn out or low in energy?

   1) ☐ ALL OF THE TIME
   2) ☐ MOST OF THE TIME
   3) ☐ A GOOD BIT OF THE TIME
   4) ☐ SOME OF THE TIME
   5) ☐ A LITTLE OF THE TIME
   6) ☐ HARDLY ANY OF THE TIME
   7) ☐ NONE OF THE TIME

7. How happy, satisfied, or pleased have you been with your personal life during the last 2 weeks?

   1) ☐ VERY DISSATISFIED, UNHAPPY MOST OF THE TIME

2) ☐ GENERALLY DISSATISFIED, UNHAPPY

3) ☐ SOMEWHAT DISSATISFIED, UNHAPPY

4) ☐ GENERALLY SATISFIED, PLEASED

5) ☐ HAPPY MOST OF THE TIME

6) ☐ VERY HAPPY MOST OF THE TIME

7) ☐ EXTREMELY HAPPY, COULD NOT HAVE BEEN MORE SATISFIED OR PLEASED

8. In general, how often during the last 2 weeks have you felt restless, or as if you were having difficulty trying to calm down?

1) ☐ ALL OF THE TIME

2) ☐ MOST OF THE TIME

3) ☐ A GOOD BIT OF THE TIME

4) ☐ SOME OF THE TIME

5) ☐ A LITTLE OF THE TIME

6) ☐ HARDLY ANY OF THE TIME

7) ☐ NONE OF THE TIME

9. How much shortness of breath have you experienced during the last 2 weeks while doing your day-to-day physical activities?

1) ☐ EXTREME SHORTNESS OF BREATH

2) ☐ VERY SHORT OF BREATH

3) ☐ QUITE A BIT OF SHORTNESS OF BREATH

4) ☐ MODERATE SHORTNESS OF BREATH

5) ☐ SOME SHORTNESS OF BREATH

6) ☐ A LITTLE SHORTNESS OF BREATH

7) ☐ NO SHORTNESS OF BREATH

10. How often during the last 2 weeks have you felt tearful, or like crying?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

11. How often during the last 2 weeks have you felt as if you are more dependent than you were before your heart problem?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

12. How often during the last 2 weeks have you felt you were unable to do your usual social activities, or social activities with your family?

    1) ☐ ALL OFTHE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

13. How often during the last 2 weeks have you felt as if others no longer have the same confidence in you as they did be- fore your heart problem?

    1) ☐ ALL OF THE TIME

2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

14. How often during the last 2 weeks have you experienced chest pain while doing your day-to-day activities?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

15. How often during the last 2 weeks have you felt unsure of yourself or lacking in self-confidence?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

16. How often during the last 2 weeks have you been bothered by aching or tired legs?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME

4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

17. During the last 2 weeks, how much have you been limited in doing sports or exercise as a result of your heart problem?

1) ☐ EXTREMELY LIMITED
2) ☐ VERY LIMITED
3) ☐ LIMITED QUITE A BIT
4) ☐ MODERATELY LIMITED
5) ☐ SOMEWHAT LIMITED
6) ☐ LIMITED A LITTLE
7) ☐ NOT LIMITED AT ALL

18. How often during the last 2 weeks have you felt apprehensive or frightened?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

19. How often during the last 2 weeks have you felt dizzy or lightheaded?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME

7) ☐ NONE OF THE TIME

20. In general, during the last 2 weeks, how much have you been restricted or limited as a result of your heart problem?

1) ☐ EXTREMELY LIMITED
2) ☐ VERY LIMITED
3) ☐ LIMITED QUITE A BIT
4) ☐ MODERATELY LIMITED
5) ☐ SOMEWHAT LIMITED
6) ☐ LIMITED A LITTLE
7) ☐ NOT LIMITED AT ALL

21. How often during the last 2 weeks have you felt unsure as to how much exercise or physical activity you should be doing'?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

22. How often during the last 2 weeks have you felt as if your family is being over-protective toward you?

1) ☐ ALL OF THE TIME
2) ☐ MOST OF THE TIME
3) ☐ A GOOD BIT OF THE TIME
4) ☐ SOME OF THE TIME
5) ☐ A LITTLE OF THE TIME
6) ☐ HARDLY ANY OF THE TIME
7) ☐ NONE OF THE TIME

23. How often during the past 2 weeks have you felt as if you were a burden on others?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

24. How often during the past 2 weeks have you felt excluded from doing things with other people because of your heart problem?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

25. How often during the past 2 weeks have you felt unable to socialize because of your heart problem?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ A LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME

26. In general, during the last 2 weeks how much have you been physically restricted or limited as a result of your heart problem?

    1) ☐ EXTREMELY LIMITED
    2) ☐ VERY LIMITED
    3) ☐ LIMITED QUITE A BIT
    4) ☐ MODERATELY LIMITED
    5) ☐ SOMEWHAT LIMITED
    6) ☐ LIMITED A LITTLE
    7) ☐ NOT LIMITED AT ALL

27. How often during the last 2 weeks have you felt your problem limited or interfered with sexual intercourse?

    1) ☐ ALL OF THE TIME
    2) ☐ MOST OF THE TIME
    3) ☐ A GOOD BIT OF THE TIME
    4) ☐ SOME OF THE TIME
    5) ☐ LITTLE OF THE TIME
    6) ☐ HARDLY ANY OF THE TIME
    7) ☐ NONE OF THE TIME
    8) ☐ NOT APPLICABLE

Appendix F

Participant Information Sheet

1. Title: Factor Related to Health-Related quality of life in patient with acute coronary syndrome
2. Researcher's name: Mr. Haerul Imam
3. Address: Jalan Citepus 2 RT 009/006 Kelurahan Pajajaran Kecamatan Cicendo Kota Bandung, Jawa barat 40173.
4. Office: Faculty of nursing, Chulalongkorn university, Borommaratchachonnani Srisataphat building Flor 11, Rama 1 road, Wangmai, Pathumwan, Bangkok 10330.

   Email: haerul.imam@gmail.com, Mobile phone: +62812 1410 8365.
5. Information relevant to informed consent form of this study consists of

   5.1 Background and significance of this study,

   5.2 The rationale and necessity for being a participant in this study:

   5.3 The objectives of the study are to: 1) explore the relationship among age, self-efficacy, functional status, social support, pain, dyspnea, and health-related quality of life, and 2) develop and validate a factor associated model that explains the relationship of age, self-efficacy, functional status, social support, pain, dyspnea on health-related quality of life in persons with acute coronary syndrome.

   5.4 The research design is a cross-sectional correlation study. The participants in this study are persons with acute coronary syndrome who aged from 25 to 60 years old, both male and female, and attend medical monitoring at out-patient department in public hospitals in Thailand.

5.5 The details and the methods of the study which the participants will be asked to conduct when they participate in the study.

The participant will be asked to answer the interview about personal data, self-efficacy, functional status, social support, pain, dyspnea, and health-related quality of life.

Participant may read and answer the questions in questionnaires by himself/herself or ask the researcher to read it for him/her. Then participant would answer the questionnaire regarding to his/her thought or perception.

5.6 The benefit of the study will be expected that the results of the study will help nurse understand the factor related to health-related quality of life among patients with acute coronary syndrome in Indonesia and establish the effective intervention for enhancing health-related quality of life in this population.

5.7 Protection of the rights of human subjects, the participants will be informed of the purpose of the study and their rights to decline participation. The participants will also be informed that if they decided to participate in the study, during the participation, they could express doubt about some questions or refuse to answer any of the questions. In addition, the participants will be told that they are able to withdraw from the study at any time if they wished and their decision would not affect the treatments or services that they would receive from healthcare providers at the hospitals. If the participants felt uncomfortable while filling out the questionnaires, the researcher would stop the interviews immediately and provide psychological support.

5.8 Some possible risk such as tiredness and fatigue could occur. The participant will be asked to take a rest after each test and he or she can stop the task whenever the

participant feels tired or uncomfortable. In addition, the nurse researcher will stand next to the participant during the task and will observe the participants for sign of fatigue or weakness.

5.9 The participant is free not to be in the study, or the participant may drop out of the study at any time without penalty. Whether he or she is in the study or not, there will be no effect on health care service in any way.

5.10 The participation in this study is voluntary. After participant sign the form, he/she will receive a copy of the informed consent form.

5.11 There is no remuneration for the participant in this study because the interview would take time approximately 45 minutes. Therefore, it would not put the participants in any risk.

5.12 The results of the study will be present as the whole view of the group. Each participant will be assigned a number and his or her name will not relate to the study in any way when the results reported. The participants will be assured that their names and addresses would be kept strictly confidential and would not be reported with the study findings. Instead, a code number will be used to ensure confidentiality. The participants are also assured that the study data collected from them would be stored in a secure place and would not be accessible to any other person without their permission. However, there is no guarantee that this information cannot be obtained by court order.

5.13 The participant understands that during the study he or she can contact the researcher by calling Mr. Haerul Imam as information have provided above.

5.14 If you do not receive information and procedure as have mentioned above, please do not hesitate to contact the Ethics Committee for Human Research at Hasan Sadikin Hospital or Padjadjaran University or the Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University, office of research affairs Chulalongkorn university, Chamchuri 5 Bluiding, 6th Floor., Phayathai Road, Wangmai, Pathumwan, Bangkok ,10330, E- Mail: research@chula.ac.th.

Appendix G
Informed Consent Form

Title: Factors Related to Health-Related Quality of Life in Patients with Acute Coronary Syndrome

Code number: Population or Participant …….

I was informed by the researcher namely Mr. Haerul Imam, address Jalan Citepus 2 RT 009/006 Kelurahan Pajajaran Kecamatan Cicendo Kota Bandung, Jawa barat 40173.

I am willing to take part in a research study, which help nurse understand about patient's quality of life. This study is about the health-related quality of life and factor related in person with acute coronary syndrome in West Java and Jakarta. The results of the study will help nurse understand and establish the effective intervention for enhance quality of life for this population.

I know that I will be one out of 186 adults who asked to answer some question about personal data, self-efficacy, functional status, social support, pain, dyspnea, and health-related-quality of life. These tasks will be timed, and it will take approximately 45 minute to do.

I have been told that some possible risk such as tiredness and fatigue could occur. I have been told that I will be asked to take a rest after each test, and I can stop the task whenever I feel tired or uncomfortable. In addition, the nurse researcher will stand next to me during the task and will observe me for sign of fatigue or weakness.

I know that I am free not to be in the study, or I may drop out of the study at any time without penalty. Whether I am in the study or not, there will be no effect on health care service in any way. I have been told about the results of the study will be

present as the whole view of the group. I will be assigned a number and my name will not relate to the study in any way when the results reported. I know that the researcher will make every effort to keep my identity confidential. Nobody can access my information, except the nurse researcher. However, there is no guarantee that this information cannot be obtained by court order.

I understand that during the study I can contact the researcher by calling Mr. Haerul Imam at +62812 1410 8365, Email: haerul.imam@gmail.com, or at faculty of nursing, Chulalongkorn university, Borommaratchachonnani Srisataphat building Flor 11, Rama 1 road, Wangmai, Pathumwan, Bangkok 10330.

I have read the information above. I am willing to be in this study and participation is voluntary. After I sign the form, I understand I will receive a copy of this consent form.

	Signature..……
……	…
….	(……)
Date/Month/Year	Name of subject/participant
	Signature..……
……	…
….	(……)
Date/Month/Year	Main researcher
	Signature..……
……	…
….	(……)
Date/Month/Year	Witness

Appendix H

Health Care System in Indonesia

HEALTH CARE SYSTEM IN INDONESIA

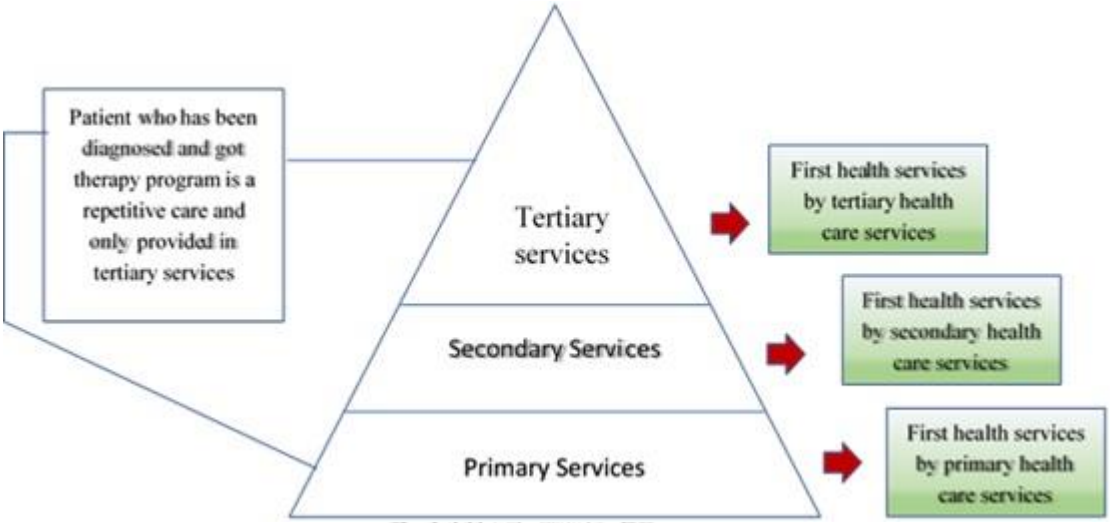
Indonesia government has reformed health finance in Indonesia by developing National Insurances System that have been assigned by the constitution at 2014. It has been performing by Indonesian Insurance Board. It aims to facilitate people to access health services and receiving good quality health services. Specification of area related to reference patient's system by determining administration area based on medical services capability, supporting system and health facility except of emergency condition. Health Reference is a hand in hand authority and responsibility by reciprocal horizontally or vertically also structural or functional in term of case of disease.

There are two kinds of reference system namely medical reference and health reference. Medical reference relates to curing and recovery such as transporting patient, specimen, and knowledge transferring. Whereas health reference refers to preventing and increasing health such as facility, technology, and operational system. (MOH, 2012)

Horizontal reference is transferring patients to another similar level health services because the previous health care services has incomplete facilities. Whilst vertical reference is to refer patients to transfer in higher level health care service if the patients' need special or sub-special services or treatment, pervious health services do not have complete facilities or staff.

Vertical refence include primary health services or public health services, private clinic, or midwife's village. It is started by referring patient in first health services, and if health services cannot give any facilities or treatment so patients will transfer to secondary health services. if secondary level still couldn't give treatment, they will transfer in high level health services. principally, reference could be applied if there are any reference form lower level health services. Patient will get any treatment in higher level directly if patients are emergency, disaster, special treatment, geographic conditions, or incomplete previous health services. For instance of patients

with acute coronary syndrome, they will refer to second level to get first line treatment and refer to tertiary for regiment therapy or rehabilitation.



VITA

NAME	Haerul Imam
DATE OF BIRTH	26 March 1989
PLACE OF BIRTH	Ciamis
INSTITUTIONS ATTENDED	Faculty of Nursing, Chulalongkorn University
HOME ADDRESS	Jl. Citepus II No. 100 RT 009/006 Bandung City, West Java, Indonesia
PUBLICATION	-
AWARD RECEIVED	-