



## Perceptions of self-care readiness among STEMI patients following primary PCI<sup>☆</sup>



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### KEYWORDS

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### Abstract

**Objective:** This study aimed to explore the perceptions of STEMI patients after Percutaneous primary intervention regarding their readiness to conduct and maintain self-care.

**Method:** The study used a qualitative design. Fifteen STEMI patients after Percutaneous primary intervention and nine partners of them were interviewed in the inpatient unit at the main referral government cardiac center in Indonesia. Data were analyzed using content analysis.

**Results:** The results showed there is an inability to recognize and manage ischemic symptoms immediately. Patients had physical problems following primary PCI such as cough, chest tightness, chest pain, bloating and get tired easily—psychological problems experienced by the patient and his partner at the acute and recovery phase.

**Conclusion:** The findings provide for health care professionals in developing self-care ability among STEMI patients at first attack following primary PCI by considering the influenced factors

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### Introduction

Cardiovascular disease contributes to the number of deaths. A cardiovascular disease is a group of diseases involving the heart and or blood vessels, and also including coronary heart disease (CHD), coronary artery disease and acute coronary

syndrome. The 2016 Heart Disease and Stroke Statistics from the American Heart Association (AHA) had reported that 15.5 million people whose ages are more than 20 years old in the USA had CHD.<sup>1</sup> Although CHD mortality rate has gradually declined over the last decades in western countries, this condition still causes about one-third of all deaths in people who are older than 35 years old. Based on the previous evidence, the fact shown that the mortality rate from CHD is expected to continue increasing in developing countries.<sup>2</sup>

ST-segment elevation myocardial infarction (STEMI) is one of classification of acute coronary syndrome. The estimated annual incidence of myocardial infarction is 550,000 new attacks and 200,000 recurrent attacks.<sup>1</sup> STEMI incidence in Jakarta and surroundings were increasing in the

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past decade particularly after Jakarta Cardiovascular care unit network system was implemented in 2011.<sup>3</sup> STEMI patients in Jakarta and its surroundings who had received reperfusion therapy, fibrinolysis or primary Percutaneous Coronary Intervention (PPCI) were increasing in the past decade.<sup>3,4</sup> Those interventions do not eliminate the main causes of coronary artery disorders that occur, thereby occlusion in non-culprit blood vessels.

Post-PPCI STEMI patients complained about having physical, psychosocial problems and the need for education. Physical problems experienced by STEMI patients immediately after PCI include angina, fatigue, chest tightness and difficulty sleeping.<sup>5,6</sup> Psychological problems experienced by patients include anxiety and symptoms of depression.<sup>5,7</sup>

Myocardial infarction does not only affect the individual patients but also to their partners where about 15–60% of couples will experience psychosocial.<sup>8</sup> Problems experienced by partners will have an impact on adherence to medication and treatment programs and patient self-care abilities which ultimately will effect the quality of life.<sup>9</sup> One of the efforts is to improve the patient's self-care abilities by supporting all sources including from health care personnel for a spouse through continuous care in various settings.

According to observation in a cardiac center in Jakarta, the nursing care among STEMI patients after primary PCI is focused more on physical problems, while discharge planning programs have not been carried out based on the assessment of the needs for patients' self-care development by involving partners actively. The available insurance is not covering rehabilitation programs for post-PCI patient. Therefore, the purpose of this study was to explore the perceptions of STEMI patients after Percutaneous primary intervention regarding their readiness in conducting and maintaining self-care.

## Methods

### Setting and sample

A phenomenology qualitative study with semi-structured interviews was conducted at the National Cardiac Center in Indonesia to STEMI patients after primary Percutaneous intervention regarding perceptions about their readiness in conducting and maintaining self-care. The data were collected from June to October 2018. Fifteen STEMI patients who were following Percutaneous primary intervention and nine partners of them were recruited using the purposive sampling method. The numbers of participants were achieved based on saturated data. The patients recruited for this study were defined as STEMI patients who were following Percutaneous primary intervention, the first attack, had undergone treatment in hospital and were willing to be research participants. While partners recruited for this study were defined as partners who accompanied those patients, and they were willing to join this research.

Prior to the study, the ethical approval to conduct the research was obtained from the ethics committee of the Faculty of Nursing Universitas Indonesia and the committee on institutional review board/health research ethics of national Cardiac Center "Harapan Kita". Participants were recruited from the outpatient unit, and the

data collection procedure was as follows: First, patients who were eligible for the study were screened by the researcher in the outpatient unit and their eligibility was then confirmed using their medical records. The researcher approached the patients and explained the research process and procedure before requesting their participation. Those who agreed to participate gave the consent information and proceeded with the semi-structured interviews. Following are some examples of the questions: What do you know about your disease? Can you tell us how you got the disease? How did you feel when you are staying in the hospital? What did you do after having a heart attack? Is there any problem after PPCI? What would you do to prevent another heart attack? For ethical reasons, the confidentiality of the subjects' data was strictly guarded safely by the researcher.

Content analysis was used to analyze the data, the data was transcribed, and each sentence was grouped into defining units. Furthermore, the transcript was translated from bahasa Indonesia to the English language. The researcher also clarified some uncertain data to participants to ensure the data was properly understood and interpreted. Investigator triangulation was also conducted to minimize potential bias.<sup>10</sup>

## Result

This study aimed to explore the perceptions of STEMI patients after Percutaneous primary intervention regarding their readiness in conducting and maintaining self-care. The participants of the study consisted of fifteen individuals who were divided by fourteen men and one woman. The youngest of those participants was 45 years old and the oldest, 67 years old. Most respondents have a history of smoking and accompanied by comorbidity. They had primary PCI one week up to one year ago.

### The inability to recognize and manage the symptoms immediately at the first attack

Most participants and his/her partners could not recognize the ischemic symptoms at the first attack immediately.

"...people at home thought I might have indigestion..." (Participant 3)

"...I thought I was poisoned..." (Participant 13)

"...I felt sore, it might happen after exercise..." (Participant 4)

The inability to recognize the symptoms caused by not believing that they had a heart attack because of their social status. "*Why poor people would get this kind of sickness.. Heart disease is for rich people only*" (partner of participant 1). Some participant did not believe because they did exercise regularly, even though they had risk factors. "*I was a smoker.... Why I could get a heart attack, even though I run 'odong-odong' regularly (like riding a bicycle)*" (participant 13). Participant had a history of another disease "*...I thought it caused by his lung disease. ... I didn't know it was a heart attack*" (Partner of participant 2). The participant was misdiagnosed by his/her physician "*... The physician*

*said it was gastritis, so the medication is for gastritis...'* (Partner of participant 3).

The inability of the participants or their partners' in recognizing the symptoms leads them to an inappropriate heart attack management.

*"just take medication to relieve indigestion or back scrap treatment"* (participant 3).

*"give medication oil"* (participant 4),

*"warm compress on his back"* (participant 14)

Those interventions could not reduce the symptoms or get worst. Thus they went to primary facility health care or hospital to get further treatment.

*"after back scrap treatment, I was still unconscious...and snoring...so my friend gives a compression on my chest....I could say it was hurt. ...and my family took me to the nearest hospital"* (participant 11)

### Physical problems after discharge

Participants were complaining about physical problems they felt after discharge until 3 months following to PPCI. The physical problems are such as chest tightness, another chest pain, cough, bloating, limp and getting tired easily.

*"...early after discharge, there was a slight ...if I stepped up the stairs. ...I could not afford..."* (participant 4)

*"... sometimes I could not sleep, that's why I need the medication to sleep"* (participant 11)

*"...I felt bloating... chest tightness around one month after discharge...but it disappeared slowly..."* (participant 14)

*"...cough...dry cough...till I felt chest tightness"* (participant 2)

*"...I felt weak ...like I didn't have energy..."* (participant 3)

*"... chest pain..."* (participant 5, 7 and 11)

*"...got tired easily"* (participant 10)

### Psychosocial problems

Participants felt afraid of dying at the first attack. *"It might be like a fear of death at the first attack rather than the second one"*. (participant 7). Interestingly, during the primary PCI procedure, there were no participants who were afraid of the intervention, even though they were conscious. *"...no..fear."* (participant 1). *"It's ok. ..., It's up to the doctor, ...what the matter is the pain is relieved"* (participant 5).

The psychosocial problems during the acute phase also experienced by their partners. Moreover, partners of the participants delayed giving the patient any consent because of her anxiety. *"I was worried about the complications of the procedure. if it's failed. ...stroke...the doctor said when*

*the patient wanted to have the intervention. ... but his family was reluctant"*. (Partner of participant 7).

Following the primary PCI intervention, some participants were feeling anxious. Participants afraid could not recover after the intervention. *"Can a person with heart disease return to normal activity and still confidence?"* (participant 6). Another participant fear of experiencing a further heart attack. *"I was worried... having a recurring heart attack"*. (participant 8). *"After discharge from hospital, he was quieter and be lost in thought"* (partner of participant 9).

On the other hand, partner of participant also felt anxious if their partner has another heart attack. *"when he was working, I felt whether he was tired or not...whether or not he has arrived at his office, I was worried ...something might happen to him"*. (partner of participant 8).

### Coping with psychological problems

Participants were expected to be understood from their surroundings because of their current conditions. *"I asked for an understanding from my wife and children ..."*. (participant 4). *"at the office, my boss was less demanding to me because he knew I had a heart attack"* (participant 8). *"now, my children already understood about my condition, I may (die) at any time, they pay more attention to me"* (participant 6). Another participant coping for their problems were doing their hobbies and getting closer to God. *"...I did more hobbies"*. (participant 4). *"Get closer to God"*. (participant 6).

### Self-care readiness

#### The uncertainty to do self-care

The participant was trying to do a healthy life style. *"...it must follow the healthy eating pattern"*. (participant 1). *"...already stopped (smoking) completely"*. *"I walked in the morning since the first-day discharge from hospital"*. (participant 13). *"Always take medication"*. (participant 1). *"Always take medication regularly"*. (participant 15). *"I commit to myself not to eat (durian and fried snack)"*. (participant 8).

Even though participants knew what needs to be changed to prevent another heart attack, but they felt hesitant if they had to implement the new healthy life style for a long period of time. *"I tried to stop smoking"*. (participant 11). *"I wish I am not smoking anymore, but I can't say... because I still have the desire (to smoke)"*. (participant 9). *"I walked when I was not feeling well...just for sweating"*. (participant 15). *"it's only around a year, I have controlled myself to eat healthy food only"*. (participant 5). *"Basically, it was good to follow dietician advice, but I could not implement it"* (participant 6). *"lazy...he was lazy to walk"*. (partner of participant 9).

#### Support of partners

Partners of participants were trying to support the implementation of self-care. They stewed, grilled and sauteed the food. *"sometimes, it (fish) was fried, or stewed using ginger and onion"*. (partner of participant 12). *"preparing stewed food ... the white rice... but the portion was reduced, and*

*the number of vegetables were added*”. (partner of participant 2). *“If I cooked, the food was sauted, grilled or stewed. Using diet salt, diet sugar, and diet soy sauce. Zaitun oil was used for sauting. Preparing lunch”*. (partner of participant 8).

Partner also accompanied the patient during hospitalization or followed up visit, prepared their medication and paid more attention. *“I accompanied my husband during hospitalization”* (participant 10). *“accompanied my husband during the followed-up visit, alternatively our son came along”* (partner of participant 8). Partner is preparing the medication. *“I prepare the medication”*. (partner of participant 13). *“I paid more attention to him”* (partner of participant 6).

### The needs of education

The education is needed not only for the patients but also for their partners before and after the intervention. Before the intervention patient and or family postponed signing the pPCI consent. *“I thought I would be dissected, but actually it was just inserted through arm”*. (participant 13). *“No, I haven’t given any information (pPCI)”*. (participant 2). *“I wait for a while to sign an agreement for the intervention”* (partner of participant 7).

The needs of education also raised among patients and their partner following the intervention to start doing self-care. *“I took medication regularly, but I have not visited the doctor”*. (participant 8). There was a misunderstanding about medication or a healthy and balanced diet. *“Should I consume the medication for blood thinner regularly? I think if it were consumed regularly, it would disrupt my well”* (partner of participant 3). *“my husband did not take his diabetic medication, because the blood glucose rate was normal”* (partner of participant 10). *“now, I only cook vegetable with either tofu or tempe”* (participant 13). Inconsistent of activity should be done after the intervention. *“take a rest for 2 weeks up to 1 month”* (participant 1). *“it was told that you couldn’t climb up the stairs”* (participant 13). *“yesterday, he worked, drove the car”* (participant 13).

### The source of information

Participants and their partners have several sources of information to take an appropriate decision regarding heart attack and its management after discharge from the hospital. Participants can access open information to recognize the symptoms. *“I was suspicious (I had a heart attack) then... I checked on google ... I was looking for back pain accompanied by jaw pain ..... it was a heart attack”* (participant 9). Participants and their partners were getting information from the health care team during hospitalization, attending health seminar, joining a health club in church, having relatives as health care workers, and previous experiences. *“I attended a health seminar that was conducted together with blood donor activities”* (partner of participant 2). *“I attended health seminar and joined the health club ... changing to healthy lifestyles ...in church community”* (partner of participant 7). *“I had an experience taking care for father in law when he had bypass surgery for his heart”* (partner of participant 10). *“I made a call to my relative who works in a cardiac*

*center... my daughter is a midwife and my son in law is a physician...so they understood...”* (participant 12). *“the doctor said ... I should not smoke anymore...”* (participant 15). *“medication from pharmacist...when it was going to discharge... the pharmacist comes to me and gave explanation....I also discussed with the doctor”* (partner of participant 7).

## Discussion

This study found that STEMI patients and their partners could not recognize ischemic symptoms immediately at the first attack. They assumed it caused by indigestion or effects of exercise or their activity. Most of the participants complained of having excessive sweating, nausea, bloating, which were common signs for indigestion. The early intervention was focusing on the indigestion symptoms such as back scrap treatment, putting medication oil, giving warm compress and taking common medication for indigestion. That intervention did not relieve the symptoms. They even became worst and causing the patients went to the nearest hospital or health care facility immediately. In addition to that participant or their partners did not believe their spouse actually had a heart attack due to their social status, or the fact that they had exercised regularly, and having a record of another disease. This condition might cause a delay in proper treatment. Being more certain that symptoms were heart-related or having previous MI resulted in significantly shorter delay time.<sup>11</sup> Furthermore, 30.6% respondent who complained of chest pain or ischemic symptoms within 2–5 days after PCI, 80% amongst them did not manage appropriately.<sup>6</sup> Therefore, the information about how patients should recognize the related symptoms to the cardiac event was essential.<sup>12,13</sup>

Participants were complaining about physical problems after discharge up to 3 months following PPCI. The physical problems such as chest tightness, another chest pain, cough, bloating, sleep deprivation, limp and getting tired easily. This study showed consistency with the previous study that in a period of 3, 6 and 12 months there were complaints of angina, shortness of breath and psychosocial problems.<sup>5,6</sup> Even though the symptoms were partially resolved, most patients were experiencing physical capacity characterized by 12% of patients who were still having limitation to walk 100 m and 25% of them experiencing physical limitations by going 1 step up. After 1 year 57.3% of patients felt the symptoms resolved and perceived heart disease as a chronic condition.<sup>7,14–17</sup> Physical problems may cause high readmission of post PCI patients and increase the risk of mortality.<sup>18</sup>

This study showed that anxiety occurred before and after treatment. Before treatment participant was afraid to die, while during the procedure there was no fear because the participants’ matter was how to relieve the pain. Following primary PCI intervention, some participant felt anxious for not being able to recover as before and afraid of getting another heart attack. Psychological problems which include anxiety and symptoms of depression which occurred in the first 24 h and decreased during discharge and again increased in the third month and sixth month.<sup>5,7,19</sup> Physical problems experienced by STEMI patients immediately after PCI cause anxiety. Conversely, anxiety or depression that is not man-

aged properly will effect to a physical function which also has an impact on quality of life and even increase the risk of recurrent angina attacks.<sup>20</sup> Some of the men were particularly frustrated that symptoms had reduced their physical abilities, which may lead to 'slowing down' or incapability to return to work. Feelings of fatigue and weakness might have been related to the reduction of psychological health, a known concept in MI patients.<sup>21-24</sup>

The psychosocial problems also experienced by their partners during the acute and recovery phase. They were worried whether her approval for primary PCI would end up to complication. It implies that reassurance was not only given for the patient but also to their partners. After discharge from the hospital partner of participant also felt anxious if their partner may have another heart attack. The result of this study is consistent with the previous study that reported stressors for patients' partner who were concerned about treatment, recovery, and prognosis (75.5%); mood changes in patients (66.7%), worry when patients return to work to gain money (38.8%); sexual problems (36.7%) and helplessness/patient apathy causing the partner to juggle more responsibilities (36.1%).<sup>25</sup>

At first, the participants did not believe that they had a heart attack and were unaware of the risk factors they had. After the intervention, the participant had gained knowledge through interacting with health care professionals and other patients. They were trying to do a healthy life style. It is consistent with a study which reported that patients had become motivated in finding strategies to help them to live a healthier lifestyle such as quitting from smoking, improving healthy diet and lessening stressor.<sup>26</sup>

Even though participants knew what needs to be changed to prevent another heart attack, but they still felt uncertain if they had to implement those program for a long period. Therefore social supports are important for self-care achievement. It is consistent with the study reported that social support indirectly influenced self-care compliance through self-efficacy, reducing anxiety and increasing perceived benefit.<sup>27</sup> Other than physical support, the study showed that participants also need psychological encouragement from their partners, family, and surroundings. A qualitative study of patient and partner coping with myocardial infarction in 12 couples showed the importance of seeking emotional, cognitive and social coping of partners after attacks of myocardial infarction.<sup>28</sup> Perception of partner support contributes to improving quality of life, whereas perceptions of overprotective couples cause poor physical function in the ninth month. Improvements of patient self-care in the ninth month were reported in patients who received support from partners.<sup>29</sup>

The needs of education are not only for the patients but also for their partners before the primary PCI and after the intervention. Before the intervention patient and or family postponed signing the primary PCI consent. The needs of education also increased among patients and their partners to start the self-care. There was a misunderstanding about medication or a healthy balanced diet and activity. Some participants were searching actively and joining activity that provides information to support the self-care. The information was gathered through accessible online sources, health care team during hospitalization, attending health seminars, joining a health club in church, having relatives

who are health care workers and based on the same previous experiences.

This study focused only on patients' perceptions in regard to the self-care. Further study is recommended in exceeding self-care for STEMI patients and their partners to make their healthier lifestyles are sustained and expectedly increased the quality of life.

## Conclusion

This study focused on exploring the perceptions of STEMI patients after Percutaneous primary intervention in regards to their readiness in conducting and maintaining self-care. The results reveal that there is an incapability to recognize and manage ischemic symptoms, physical and psychological problems, patients' self-care ability and the influenced factors. The results of this study provide important information for health care professionals in developing self-care among STEMI patients at first attack who follow primary PCI and put a depth consideration to the influenced factors.

## Conflict of interests

The authors declare no conflict of interest.

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