

## ARTICLE

# Acute Coronary Syndrome and patient behavior factors in overcoming the event of chest pain in pre hospital phase

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## Abstract

**Background:** Acute coronary syndrome (ACS) is a complex disease induced by thrombosis, which causes unstable angina (UA), acute myocardial infarction (AMI) or sudden cardiac death. It is important to rapidly detect the presence of chest pain to conduct the pre-hospital phase. This study aims to analyze the behavioral factors of patients suffering from ACS in overcoming the incidence of chest pain in the prehospital phase.

**Design and Methods:** The consecutive sampling technique and cross-sectional method were used to obtain data from a sample of 110 outpatient respondents at the Community-Integrated Health Center.

**Results:** After the logistic regression test, a significant relationship was found between the occurrence of chest pain (P-value = 0.040), with compressive behavior factors, buying over the counter drugs (P-value = 0.001), massaging and rubbing with oil (P-value = 0.046).

**Conclusions:** In conclusion, the significant behavioral factors associated with ACS sufferers in dealing with the occurrence of chest pain in the pre-hospital phase are due to the act of buying OTC drugs and the habit of massaging or rubbing with oil.

## Introduction

Acute coronary syndromes (ACS) is a comprehensive disease characterized by acute myocardial ischemia due to disorders and stenosis induced by thrombosis, which causes unstable angina (UA), acute myocardial infarction (AMI) or occlusion of coronary artery-induced thrombosis, or sudden cardiac death.<sup>1</sup>

According to the data obtained from World Health Organization in 2016, more than 17 million people worldwide died from heart and blood vessel disease, with approximately 37% due to coronary heart disease.<sup>2-4</sup> One of the causes of delay in handling this disease has been attributed to behavior. Most times,

patients hesitate to seek health services.<sup>5</sup> Family member often overlook heart attacks on those affected by heart disease because they presume it is common colds or sitting winds. This perception is because myocardial infarction attacks are not accompanied by severe signs and symptoms and patients usually look healthy. Therefore, they stick to the usual act of simply rubbing balm or buying OTC medicine, without visiting the nearest hospital.<sup>6</sup> This study aims to analyze the behavioral factors of ACS sufferers in overcoming the incidence of chest pain in the pre-hospital phase at the community-integrated health center, in order to overcome the incidence of chest pain in the pre-hospital phase. The benefit of this research is to improve the behavior of patients with ACS in overcoming the incidence of chest pain in the pre-hospital phase.

## Materials and Methods

This study uses the *consecutive sampling method* with a cross-sectional design to obtain data from 110 outpatients that visited community-integrated health center. However, approval from was first acquired from the Research Ethics Commission of the Faculty of Health, University of Muhammadiyah Jember, with research permit obtained from the Health Office, community-integrated health center. The multivariate analysis with logistic regression test was used to analyze data.

## Results and Discussions

Table 1 shows that the average respondent had an elementary school education (30.9%), they were smokers (87.3%), males (83.6%), performed an action compressed with warm water (53%), bought over the counter (OTC) drugs (81.8%), took action by herbal remedies - massaged and rubbed with oil (63.6%). 93 (84.5%) experienced chest pain.

### Significance for public health

One of the causes of delay in handling Acute Coronary Syndrome (ACS) has been attributed to patient behavior. Most times, patients hesitate to seek health services. This delay is because myocardial infarction attacks are not accompanied by severe signs and symptoms and patients usually look healthy. Improving the behavior of patients with ACS while dealing with the incidence of chest pain in the prehospital phase is very important to prevent delays in the prehospital phase. This study aims to explain the behavioral factors of ACS sufferers in dealing with the incidence of chest pain in the prehospital phase.

Table 2 illustrates the results of the bivariate analysis using logistic regression tests, with a significance value of less than 0.05 error levels. These results are seen at the significance of 0.005 for those with the habit of buying OTC drugs when pain occurs. The results of significant value are also seen at 0.026 for those with the habit of using herbal remedies, compressing when chest pain occurs 0.395 means that the p-value is greater than 0.05.

Patient's educational level plays an important role in determining the symptoms associated with coronary heart diseases. Many patients with coronary heart disease are not aware of its symptoms: some think that their lifestyle is perfect, without knowing that they suffer from this disease.<sup>7,8</sup> This is supported by education level

**Table 1. Characteristics of Respondents.**

Variables	N= 110	Percentage (%)
Gender		
Male	92	83.6
Female	18	16.4
Level of education		
Elementary school	34	30.9
Middle School	25	22.7
High school	15	13.6
Bachelor	13	11.8
Smoking History		
Yes	96	87.3
No	14	12.7
Compressed		
Often	59	53.6
Never	51	46.4
Over the Counter Medicine		
Often	90	81.8
Never	20	18.2
Using herbal remedies		
Often	70	63.6
Never	40	36.4
Incidence of chest pain		
Often	93	84.5
Never	17	15.5

**Table 2. Bivariate Analysis of the behavioral factors of ACS sufferers in dealing with the incidence of chest pain in the pre-hospital phase.**

Variables in the Equation		B	SE	Wald	Df	Sig.	Exp (B)
Step 1 <sup>a</sup>	Compressed (1)	-0.496	0.583	0.721	1	0.396	0.609
	Buy_doctor (1)	-1.638	0.601	7.434	1	0.006	0.194
	Herbal (1)	-1.322	0.585	5.110	1	0.024	0.267
	Constant	0.411	0.599	0.472	1	0.492	1.509
Step 2 <sup>a</sup>	Buy_doctor (1)	-1.690	0.598	7.972	1	0.005	0.185
	Herbal (1)	-1.292	0.580	4.952	1	0.026	0.275
	Constant	0.197	0.541	0.133	1	0.715	1.218

data and the unhealthy patients' patterns, such as smoking, which puts them in the high-risk category for ACS. Good knowledge helps individuals to recognize and understand the symptoms they experience, to avoid prolonging the arrival time at the hospital, which can lead to death. There are lots of studies that states that lack knowledge is one of the important factors in prolonging the patient's arrival time and that invite to educate those with less information on the signs and symptoms of coronary heart disease.<sup>9</sup>

The ratio of heart disease in men below 40 years (83.6%) compared to women is 8:1, and after 70 years it is 1:1. The peak incidence of clinical manifestations in men and women is between 50-60 years and 60-70 years respectively. Research by Viktor Culic shows that acute myocardial infarction is more common among men (70.8%) than women.<sup>10</sup> The responses when someone is sick can be undergoing self-medication, or seek treatment in hospitals, health centers and to doctors, and in alternative health facilities (native medicine and traditional healers).<sup>11,12</sup> Respondents that underwent self-medication used warm water compresses, bought OTC medicine, massaged and smeared with oil, or visited health facilities to seek proper treatment. Farshidi et al. stated that 3.4% of patients arrive late to the ED due to attempts to self-medicate during chest pain attacks, and this often leads to death.<sup>13</sup>

The results showed that behavioral factors determines patient arrival time in the ER while experiencing ACS because they believe they possess the ability to perform independently by means of compression 59 (53%), using herbal remedies 70 (63.6%), and even buying OTC drugs to reduce complaints 90 (81.8%). Previous studies have suggested that a patients decision to call physician increases the delay to hospital admission. This, along with self treatment with rest or medication and an extended process of decision making in which the patient seeks the help of a physician or family member, contributes to prolong delay in seeking hospital care.<sup>14</sup>

## Conclusions

In conclusion, the significant behavioral factors associated with ACS sufferers in dealing with the occurrence of chest pain in the pre-hospital phase are due to the act of buying OTC drugs and the habit of massaging or rubbing with oil.

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