

# OUTCOME EXPECTANCIES AND PLANNING IN ACUTE CORONARY SYNDROME PATIENTS

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**Abstract.** Acute coronary syndrome (ACS) is the main cause of death globally. The patient recurrence rate is also found to be high. This study aimed to analyze the relationship between outcome expectancies and treatment planning in ACS patients. This research used a cross-sectional study design. Samples were 145 ACS patients who were taken by convenience sampling technique. This research variables were outcome expectancies and planning. The research instrument used a questionnaire. Data analysis was performed using the spearman rank test (95% significance level). The results of the study illustrate that the respondent's outcome expectancies are 62.8% good and 37.2% enough while planning obtained as much as 50.3% good and 49.7% enough. Spearman rank analysis results show that outcome expectancies are significantly related to planning ( $p$ -value<0.001). Outcome expectancies and planning are important components in the care of ACS patients. Good outcome expectancies are associated with good planning in treatment and prevention of relapse. The practical implication of the results of this study is that nurses and other health workers need to be involved in patient care planning to optimize care and prevent relapse.

**Keywords:** acute coronary syndrome, outcome expectancy, treatment planning

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## INTRODUCTION

The development of the diagnosis and treatment of acute coronary syndrome (ACS) has made significant progress. However, ACS, which is part of cardiovascular disease, is still the main cause of death worldwide (Bergmark *et al*, 2022). The results of the study show that deaths from ACS are more common in men than women, and occur mostly in low-income countries (Timmis *et al*, 2023). This condition, in addition to having an impact on public health status, also has an impact on increasing health costs (Roth *et al*, 2020). Reducing death and recurrence of ACS through prevention strategies has an important role to play by prioritizing high-risk individuals. Secondary prevention through behavior changes by making lifestyle modifications and regular medication are key components in preventing relapse and reducing the risk of death in ACS patients (Quiles and Miralles-Vicedo, 2014). Efforts to improve the health behavior of ACS patients are an important component. Specific approach strategies are needed to achieve success in changing patient behavior (Leung Yinko *et al*, 2015).

The Health Action Process Approach (HAPA) is a theory that explains changes in a person's behavior in terms of the psychological dimension which is divided into a motivational phase and a volitional phase. The stages of behavior change in this theory involve a person's self-regulation process. One of the stages, namely outcome expectancies, is one of the processes in the motivational phase that underlies the formation of one's intention to make changes in behavior. There is an intention to bring someone to carry out certain action plans (Schwarzer, 2016). A patient who has been diagnosed with ACS must have the right self-care behavior so that it can reduce the risk factors for the disease, the occurrence of recurrent stenosis and reduce the severity of the disease (Charintranont *et al*, 2023). Studies show that unhealthy behavior habits are associated with higher rates of depression, anxiety and the perception of illness. This will certainly have an impact on increasing the risk of recurrence of

ACS patients (Monzani *et al*, 2018). The results of Research in 2018 show that in Indonesia the average prevalence of heart disease, including ACS, continues to increase. In 2013, the prevalence of heart disease was 0.5%, while in 2018 it was 1.5%. The Yogyakarta Special Region has a prevalence rate of 2.0%, this is the third highest province after North Kalimantan (2.2%) and Gorontalo (2.1%) which have a prevalence above the national average (Indonesian Ministry of Health, 2019).

Research on outcome expectancies and health behavior planning has been carried out in certain diseases. However, research on outcome expectancies and planning in acute coronary syndrome patients is still not widely carried out. This study aims to analyze the outcome expectancies and health behavior planning for recurrence prevention of ACS patients.

## MATERIALS AND METHODS

### **Study design, setting and participants**

The study used an observational study design with a cross-sectional approach which aimed to analyze the relationship between outcome expectancies and health behavior planning in patients with ACS. Samples were 145 patients who had been diagnosed with ACS and were taken by convenience sampling technique. This technique is carried out by providing research instruments to patients who come for medical examinations at the cardiac polyclinic of four hospital in the Yogyakarta area, Indonesia. The research variables measured were outcome expectancies and planning.

### **Study tools and data collection**

Outcome expectancies are the expected results of an ACS patient on the health behavior they carry out which includes carrying out physical activities, managing diet, stress management, taking drugs, health checks and health care. The outcome expectancy questionnaire was modified from

the Outcome Expectancies by Behavior Change Questionnaire (Renner and Schwarzer, 2005). Each question is provided with a choice of answers in the form of a Likert scale ranging from disagree to strongly agree (scores 1-5). Planning is the act of compiling a strategy to be carried out by ACS patients as an effort to maintain their health behavior and prevent recurrence. The planning questionnaire was modified from Planning - HAPA Inventory (Schwarzer *et al*, 2007), presenting questions with answer choices ranging from never to always (scores 1-4). Both of these measurement instruments have been tested for validity and reliability. The results showed that the instrument was declared valid and reliable. The results of the validity test showed that the questions for each instrument had a calculated r value of  $>0.162$ ; this shows that the instrument is valid. Meanwhile, the results of the reliability test obtained a Cronbach alpha value of 0.884, which means that the instrument is reliable. The process of collecting respondent data is done by filling out the questionnaire that has been provided.

### **Data management and analysis**

The research data were then analyzed using Statistical Program for the Social Sciences (SPSS) for Windows Version 23 (IBM, Armonk, NY). The data were analyzed using univariate and bivariate methods. Univariate analysis was carried out by analyzing the frequency distribution of each measured variable, namely outcome expectancies and planning. While bivariate analysis was carried out using the Pearson test (95% significance level) to determine whether there was a relationship between the two variables. Furthermore, the presentation of data in the form of a percentage for each variable and the results of the analysis of the Spearman rank test.

### **Ethical consideration**

Before filling out the questionnaire sheet, the respondents explained the aims and objectives of the research, the impacts and risks that occurred

on their involvement as research respondents and the benefits received. Respondents who agreed to the research process signed an informed consent sheet as a form of willingness to be involved in the research. This research has been approved by the ethics committee of the PKU Muhammadiyah Yogyakarta hospital (reference no. 007/KEP-PKU/I/2023).

## RESULTS

The study was conducted on 145 ACS patients with details as many as 103 men (71%) and 42 female patients (29%). The results of each variable and the relationship between the two variables are presented in Tables 1-2.

Table 1 consists of 2 parts: the first part 'Outcome Expectancies' comprising 6 items (A1-A6) and the second part 'Planning' comprising 5 items (B1-B5). Table 1 illustrates that the outcome expectancies which A6, namely the outcome expectancies on quality of life, has the highest mean value (4.47) compared to the other outcome expectancies items. While the outcome expectancies A2 related to controlling cholesterol levels and blood pressure has the lowest average value (4.27). Furthermore, in planning, it was found that B2 planning, namely planning to carry out a health check-up, had the highest average value (3.9) while B4 planning, namely planning to do physical activity/exercise, and B5 planning, namely planning to stress management, had the lowest average values of 2.9 and 2.9, respectively –

Table 2 illustrates that the majority of ACS patients, as many as 62.8%, have outcome expectancies in the good category while 50.3% had good planning in carrying out treatment and prevention of recurrence.

As for the analysis of Spearman rank test, it was found that outcome expectancies had a significant relationship with recurrence prevention planning in ACS patients ( $p$ -value  $<0.001$ ) with sufficient correlation strength ( $r = 0.320$ ).

Table 1

Mean outcome expectancies and recurrence prevention planning for ACS patients

	Item	Mean value
A. Outcome expectancies		
A1	If I do physical activity regularly and regularly, it is very beneficial for my heart health.	4.29
A2	If I adjust my food consumption pattern by avoiding fatty foods, sweet foods and increasing consumption of fibrous foods, I can control my cholesterol and blood pressure levels.	4.27
A3	If I think positively and avoid stress, it can prevent a recurrence of a heart attack for me.	4.31
A4	If I follow the advice of the health worker to take the prescribed medicines, it will prevent me from having a heart attack.	4.45
A5	If I routinely control health services (Puskesmas/clinic/hospital), then my health condition will be monitored properly.	4.38
A6	If I take good care of myself, then my quality of life will improve.	4.47
B. Planning		
B1	I have made a plan in detail what should I do so that I don't experience a relapse.	3.5
B2	I have made a schedule when I have to do a health check.	3.9
B3	I have compiled and planned what foods I should avoid each day.	3.3
B4	I have planned a schedule of when I have to do physical activity/exercise.	2.9
B5	I have planned a schedule of activities so that my heart is always happy, such as recreation with family/gathering with colleagues, friends, relatives, etc.	2.9

ACS: Acute coronary syndrome

Table 2  
Outcome expectancies and planning for recurrence prevention of ACS patients  
(N = 145)

Outcome expectancies and planning	Frequency <i>n</i> (%)
Outcome expectancies	
Good	91 (62.8)
Enough	54 (37.2)
Less	0 (0.0)
Planning	
Good	73 (50.3)
Enough	72 (49.7)
Less	0 (0.0)

Note: Outcome expectancies are categorized as follow: Good (scores 25-30), Enough (scores 17-24) and Less (scores 1-16).

Planning is categorized as follow: Good (scores 17-20), Enough (scores 12-16) and Less (scores 1-11).

ACS: Acute coronary syndrome

## DISCUSSION

Healthy behavior is an important component for preventing relapse in ACS patients. One of the stages of behavior change, namely outcome expectancies, is an important stage for the formation of one's intentions. The results of the study illustrate that the outcome expectancies of ACS patients are significantly related to action planning in carrying out healthy living behaviors, adherence to medication and being active in carrying out health checks. Good outcome expectancies are associated with increased good planning in changing behavior. The results of this study are in line with previous research which states that outcome expectancies are

positively related to a person's health behavior (Schwarzer *et al*, 2018). Outcome expectancies affect intentions to act and assist patients in adopting their health behavior (Hartono and Pohan, 2018). Health behavior is formed because of good planning, where action planning is able to help a person achieve his goals. Action planning can help determine the steps a person must take (Bailey, 2019).

Outcome expectancies are closely related as predictors of patient self-management. High outcome expectancies are significantly associated with high patient adherence to health care. In addition, outcome expectancies can also be used to identify and provide interventions for patients who have poor self-management (Karl *et al*, 2018). Several studies have analyzed the role of health beliefs as a factor that is also related to outcome expectancies and action planning. Perceived severity, perceived benefit and self-efficacy which are components of health belief, have a significant relationship with outcome expectancies. Perceived severity, perceived benefit and high self-efficacy are closely related to good outcome expectancies. A patient who feels the high seriousness of his illness and feels the benefits of the actions taken will also have a good outcome expectancy. Apart from that, this study also produced the role of intention in patient outcome expectancies (Fikriana *et al*, 2020). In terms of action planning and health beliefs, studies have found that diet planning carried out by patients influences self-efficacy in behaving (Schwarzer *et al*, 2018). High self-efficacy can improve the lifestyle behavior of ACS patients (Greco *et al*, 2023).

Self-care of ACS patients is needed as an effort to prevent recurrence. Studies say that there are several obstacles that cause a patient to fail in carrying out self-care properly and correctly such as feeling that his body condition has improved, lack of motivation, being busy with work and feeling bored with taking medicine every day (Afik and Fikriana, 2021). This can result in increased patient recurrence which is characterized by the appearance of a heart attack. Heart attacks in ACS patients can occur suddenly. When a heart attack occurs, the patient must immediately receive

treatment so that it does not continue in a bad condition (Afik *et al*, 2023). Good outcome expectancies accompanied by good action planning in carrying out self-care will have a positive impact on the health status of ACS patients so that the quality of life will increase. A patient who has negative outcome expectancies and social support that is not significantly related to poor patient quality of life (Tommel *et al*, 2021). Outcome expectancies are important components that can affect the patient's psychosocial well-being (Han *et al*, 2022).

In summary, this study found that good outcome expectancies were significantly associated with good action planning in ACS patients. Outcome expectancies of ACS patients were found to be mostly in the good category. Likewise, with self-care action planning, it was found that half of ACS patients had carried out action planning properly. These two things are done by the patient as an effort to prevent recurrence of heart attack.

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## CONFLICT OF INTEREST DISCLOSURE

The authors declare no conflict of interest.

## REFERENCES

- Afik A, Arif YS, Bakar A, Fikriana R. Overcoming relapse experience in acute coronary syndrome patients. *Bali Med J* 2023; 12: 510-3.
- Afik A, Fikriana R. Self-care experience in hypertensive patients. *Bali Med*

J 2021; 10 (Special Issue 3): 1398-402.

Bailey RR. Goal setting and action planning for health behavior change.

*Am J Lifestyle Med* 2019; 13: 615-8.

Bergmark BA, Mathenge N, Merlini PA, Lawrence-Wright MB, Giugliano

RP. Acute coronary syndromes. *Lancet* 2022; 399: 1347-58.

Charintranont K, Juntawises U, Kritpracha C. Illness perception in predicting smoking cessation behaviors in patients with acute coronary syndrome after percutaneous coronary intervention, 2023 [cited 2023 Jul 10]. Available from: URL: <https://he02.tci-thaijo.org/index.php/cmunursing/article/view/261493/179910> [in Thai]

Fikriana R, Afik A, Kodriyah L, Ayuhana D. The effect of intentions, outcome expectancies and self-beliefs in the ability to carry out physical activities in patients with hypertension. *Pak J Med Health Sci* 2020; 14: 1064-7.

Greco A, Adorni R, De Matteis C, *et al.* Latent change models of lifestyle in acute coronary syndrome patients: Are lifestyle changes associated with resilience changes? *Health Psychol Open* 2023; 10: 20551029231167836.

Han PKJ, Scharnetzki E, Anderson E, *et al.* Epistemic beliefs: relationship to future expectancies and quality of life in cancer patients. *J Pain Symptom Manage* 2022; 63: 512-21.

Hartono GM, Pohan LD. Boost outcome expectancies to improve cancer survivors' health behaviours. In: Ariyanto AA, Muluk H, Newcombe P, Piercy FP, Poerwandari EK, Suradijono SHR, editors. Diversity in unity: perspectives from psychology and behavioral sciences. New York, NY: Routledge/Taylor & Francis Group; 2018. p. 35-9.

Karl FM, Holle R, Schwettmann L, Peters A, Laxy M. Time preference, outcome expectancy, and self-management in patients with type 2 diabetes. *Patient Prefer Adherence* 2018; 12: 1937-45.

- Indonesian Ministry of Health. 2018 basic health research report, 2019 [cited 2023 Jan 15]. Available from: URL: <https://repository.badankebijakan.kemkes.go.id/id/eprint/3514/1/Laporan%20Riskasdas%202018%20Nasional.pdf> [in Indonesian]
- Leung Yinko SS, Maheswaran J, Pelletier R, *et al.* Sex differences in health behavior change after premature acute coronary syndrome. *Am Heart J* 2015; 170: 242-8.
- Monzani D, D'Addario M, Fattiroli F, *et al.* Clustering of lifestyle risk factors in acute coronary syndrome: prevalence and change after the first event. *Appl Psychol Health Well Being* 2018; 10: 434-56.
- Quiles J, Miralles-Vicedo B. Update: Acute coronary syndrome (IX). Secondary prevention strategies for acute coronary syndrome. *Rev Esp Cardiol* 2014; 67: 844-8.
- Renner B, Schwarzer R. Risk and health behaviors, 2005 [cited 2019 May 20]. Available from: URL: <http://www.gesundheitsrisiko.de/docs/RACKEnglish.pdf>
- Roth GA, Mensah GA, Johnson CO, *et al.* Global burden of cardiovascular diseases and risk factors, 1990-2019: update from the GBD 2019 Study. *J Am Coll Cardiol* 2020; 76: 2982-3021.
- Schwarzer R. Health Action Process Approach (HAPA) as a theoretical framework to understand behavior change, 2016 [cited 2019 May 19]. Available from: URL: <https://www.scielo.sa.cr/pdf/ap/v30n121/2215-3535-ap-30-121-119.pdf>
- Schwarzer R, Schuz B, Ziegelmann JP, Lippke S, Luszczynska A, Scholz U. Adoption and maintenance of four health behaviors : theory-guided longitudinal studies on dental flossing, seat belt use, dietary behavior, and physical activity. *Ann Behav Med* 2007; 33: 156-66.
- Schwarzer R, Warner LM, Fleig L, *et al.* Dietary planning, self-efficacy, and outcome expectancies play a role in an online intervention on fruit and vegetable consumption. *Psychol Health* 2018; 33: 652-68.

Timmis A, Kazakiewicz D, Townsend N, Huculeci R, Aboyans V, Vardas P. Global epidemiology of acute coronary syndromes. *Nat Rev Cardiol* 2023. doi: 10.1038/s41569-023-00884-0. Online ahead of print.

Tommel J, Evers AWM, van Hamersvelt HW, *et al.* Predicting health-related quality of life in dialysis patients: factors related to negative outcome expectancies and social support. *Patient Educ Couns* 2021; 104: 1474-80.