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THE EFFECTIVENESS OF EDUCATION PROGRAMS ON THE MANAGEMENT OF ACUTE CORONARY SYNDROME PATIENTS: A SCOPING REVIEW

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ABSTRACT
Acute Coronary Syndrome (ACS) is a serious condition that requires quick treatment to prevent complications and death. The education program is one of the effective interventions in improving the understanding, compliance, and quality of life of ACS patients. Objective: This study aims to evaluate the effectiveness of educational programs in ACS patient management through a scoping review. Method: This study uses the scoping review method with the PRISMA-Scr protocol. Data was obtained from Scopus, ProQuest, PubMed, and EBSCO databases with relevant keywords and publication of articles in the last 5 years (2019–2024). Articles that met the inclusion criteria were analyzed using a descriptive approach. Quality assessment is carried out using the Joanna Briggs Institute (JBI) Critical Appraisal tool. Results: Of the initial 34,668 articles, 12 articles with good and medium quality were selected. Effective educational programs include behavioral, media, distance, and group-based methods. These interventions have been shown to improve patient understanding, medication adherence, and quality of life as well as reduce anxiety and depression. The instruments used included PPE-15, HADS-A, HADS-D, SF-12, HeartQoL and GENEActiv accelerometer questionnaires. Conclusions: Educational programs based on a patient-centered care approach (PCC), technology, and physical exercise have proven to be effective in improving ACS patient management. Behavioural and media-based education, such as traffic light labels for nutrition understanding, is able to support lifestyle changes and patient rehabilitation. Intensive education also has a positive impact in reducing the risk of long-term complications.

Keywords: ACS; disease management; educational programs

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INTRODUCTION

Acute Coronary Syndrome (Acute Coronary Syndrome) is a serious and urgent medical condition, which includes a variety of manifestations of coronary heart disease, such as myocardial infarction and unstable angina. Acute Coronary Syndrome occurs as a result of a sudden decrease in blood flow to the heart muscle, often caused by a blood clot blocking the coronary arteries. This condition can cause permanent damage to the heart muscle if not treated quickly and appropriately. Common symptoms include chest pain, shortness of breath, and excessive sweating. Therefore, prompt and effective treatment is essential to improve the patient's prognosis(Black, J. M. and Hawks , 2014).The problem of Acute Coronary Syndrome is of global concern due to its high prevalence and impact on public health. Data shows that Acute Coronary Syndrome is one of the leading causes of death worldwide, with the incidence rate increasing along with lifestyle changes and existing risk factors, such as hypertension, diabetes, high cholesterol, and smoking. According to the World Health Organization, coronary heart diseases, including Acute Coronary Syndrome, account for

about 17.9 million deaths annually, making it the number one cause of death in various countries thus, Acute Coronary Syndrome is not only an individual health problem, but also a major challenge for the global health system (WHO, 2023).

Risk factors that accumulate over time, such as hypertension and dyslipidemia are often early signs of chronological progression of Acute Coronary Syndrome. The process of atherosclerosis, in which fatty plaque accumulates on the walls of the arteries, can last for years without obvious symptoms. However, when the plaque ruptures, a sudden blood clot can occur, resulting in blockage of the coronary arteries and triggering symptoms of Acute Coronary Syndrome. Timely and comprehensive treatment is indispensable to prevent further complications, such as heart failure or sudden death (Janice & Kerry, 2018).The continuous care (CCM) model can encourage adherence to long-term treatment. By providing ongoing support and regular monitoring, patients are more likely to follow their treatment plan, which in turn can reduce recurrence rates and complications. Intensive patient education is also a key element in this strategy, as it provides the necessary knowledge to manage their own condition. For example, educational programs designed to reduce anxiety and depression can help patients understand their illness and develop effective coping skills(Zakeri et al., 2020)

Nurse education programs as a solution to overcome the problem of Acute Coronary Syndrome, are one of the effective approaches. Nurse education can improve nurses' knowledge and skills in the management of Acute Coronary Syndrome patients, so that they can provide better care and support patient recovery. The program includes training on symptom recognition, early management, risk factor management, and emotional support for patients and families. By improving the competence of nurses, it is hoped that it can optimize the treatment outcomes of Acute Coronary Syndrome patients and reduce the mortality rate and related complications.

METHOD

Research Design

The design of this study uses *Scoping Review, Scoping Review* aims to explore topics that are currently being developed. The researcher chose this topic because it has a concept with a wide scope to discuss the object of the research. This research stage consists of determining research objectives, preparing research questions, determining inclusion and exclusion criteria, selecting articles, and preparing a report on the results of the analysis in *the Scoping Review*. This study used the PRISMA *Extension* protocol for *scoping review* (PRISMA-ScR) to identify and select articles that discuss nurse education programs in the management of patients with Acute Coronary Syndrome

Data Search

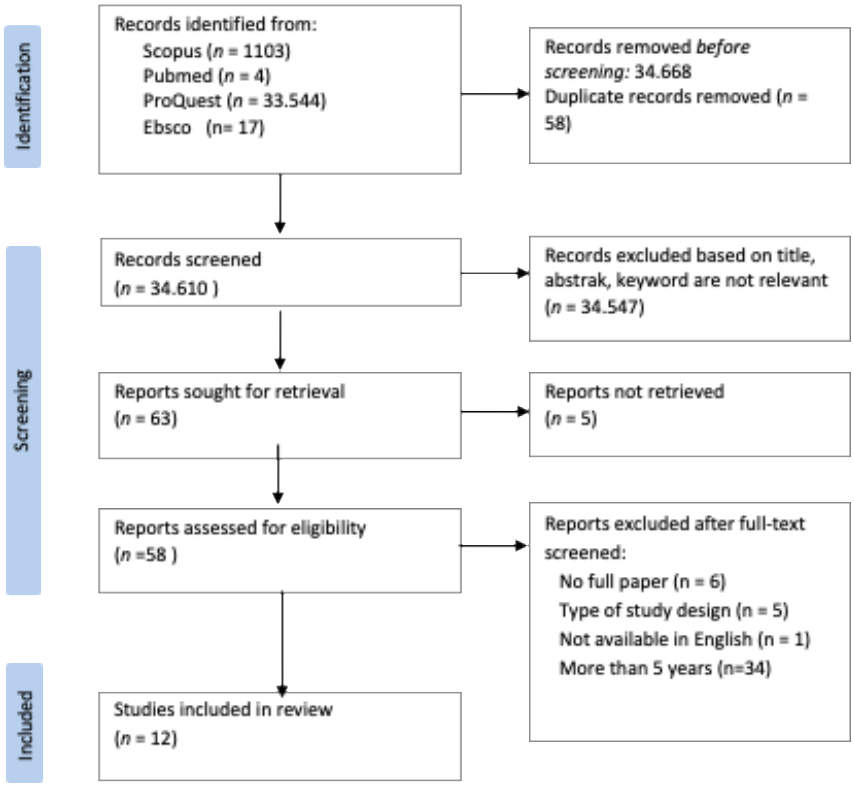
Data search was carried out using *Scopus, ProQuest, PubMed, EBSCO databases.*The search for relevant keywords using *Medical Subject Heading* (MeSH) and the theme search in obtaining references for similar research articles was carried out using *Boolean Operator* words in the form of "*education program OR Patient education OR Health Education OR training program" AND "Acute Coronary Syndrome OR Myocardial Infarction OR Acute Myocardial Infarction OR Angina Pectoris, Unstable" AND "Patient care management, disease management".*

Inclusion Criteria and Exclusion Criteria

This study uses a method of selecting articles that are in accordance with the theme of the article through the PICOS technique, namely:

a. *Population*: Adult patients with coronary syndrome

b. *Intervention*: Education provided by nurses (such as counseling, education on disease management and stress management)
c. *Rate* : Patients who only receive standard care without educational intervention
d. *Output* : Forms of educational programs to improve ACS patient management such as increased adherence to treatment, improvement of quality of life, patient understanding, anxiety/stress reduction and others.
and. *Study design* : *Randomized controlled trial (RCT)*
The selection of articles is carried out by selecting articles based on inclusion criteria and exclusion criteria. The inclusion criteria used in this study are the sample of adult patients with coronary syndrome, interventions carried out by nurses in the form of education, articles in English, *open access,* and publication of articles in the last 5 years (2019–2024). While the exclusion criteria are in the form of articles that are not related to *the Randomized Controlled trial (RCT)* and do not discuss interventions, the article is incomplete.



Picture 1 PRISMA-Scr Flowchart

The authors finally obtained 12 articles that were in accordance with the research objectives. The articles were evaluated using the JBI Critical Appraisal Tool to ensure that the articles used in this study were of high quality and 12 articles were obtained. The articles used in this study have a standard value for JBI assessment, which is above 75%.

Data Extraction
The use of data extraction tables in the study aims to enable researchers to easily find the characteristics of articles that are worthy of being used as *the scope* of research and easily compare the types of interventions used in relation to the education of patients with Acute Coronary Syndrome. Data extraction uses several parameter components such as *Title, Author, and Year, Sample Design, Country, Intervention, Duration, Instrument, Result*.

Table 1.
Critical Appraisal

Author	Design	JBI (%)
Wolf et al.(2019)	RCT	10/13 (76,9%)
Zakeri et.al. (2020)	RCT	11/13 (84,6%)
Nie et al. (2019)	RCT	10/13 (76,9%)
Herring et.al. (2020)	RCT	11/13 (84,6%)
Poplar et.al. (2022)	RCT	11/13 (84,6%)
Schneider et al. (2020)	RCT	10/13 (76,9%)
Jiang et al. (2019)	RCT	11/13 (84,6%)
Roshandel, M, et.al. (2021)	RCT	11/13 (84,6%)
Sadeghi et. al. (2024)	RCT	10/13 (76,9%)
Breschneiderl et.al (2024)	RCT	10/13 (76,9%)
Al-Juboury & Al-Janaby (2024)	RCT	10/13 (76,9%)
Lima et.al. (2025)	RCT	10/13 (76,9%)

Data Analysis

This study uses a descriptive approach to data analysis. The selection of articles is based on inclusion criteria and exclusion criteria with the aim of narrowing the scope of the search for articles obtained so that it becomes focused on the purpose of the research. Articles that have met the inclusion criteria are then analyzed by conducting *a Critical Appraisal* using JBI *(Joanna Briggs Institute),* with the aim of assessing that all selected articles have met the requirements of scientific articles, namely valid, relevant, and worthy of being used as a research reference. Articles that discuss interventions would be better analysed with JBI.

RESULT

The authors found 34,668 articles based on initial searches from 4 databases, namely 1103 Scopus, 4 Pubmed, 33,544 ProQuest, and 17 Ebsco. The results of the Scoping Review of 12 articles found 5 journals with good quality and 7 journals with medium quality. This study uses the design of A Randomized Controlled Trial (RCT). The instruments used in this study were questionnaires for patient experience (PPE-15), medication adherence, and psychological conditions such as anxiety (HADS-A), depression (HADS-D), and mental quality of life (SF-12 and HeartQoL).

Table 3.
Form of Educational Program

Educational Programs	Key themes	source
Media-based educational programs	*Peer education* with multimedia, structured education with text messages, nutrition education with *traffic light*	(Roshandel and to the, 2021), (Herring and to the, 2021)(Sadeghi et al., 2024)
Distance education programs	*Internet-Delivered Cognitive Behavioral Therapy (CBT),* program digital "mebix"	(Scheider and to the, 2020), (Bretschneider et al., 2024)
Behavior-based education programs	Person-centred care *approach*, *continuous care model*, multidisciplinary self-management program, intensive education and lifestyle improvement, physical education program, counseling with eye masks, *walking training*	(Wolf and to the, 2019), (Zakeri and to the,2020), (Jiang and to the, 2019), (No and to the, 2019), (Al- Juboury & Al- Janaby, 2024), (Kelly and al., 2023) (Andrade-Lima et al., 2025)
Peer *group-based education program*	*Peer education* with multimedia, structured education with text messages	(Roshandel and to the, 2021), (Herring et al., 2021)

Physical activity was measured with the GENEActiv accelerometer, while self-management behavior and self-efficacy were assessed through CADSs and SECD6. Additional data were collected using questionnaires, cardiovascular risk profiles, sphygmomanometers, EEG, and analyzed with SPSS version 26.All articles are from developed countries. Based on the characteristics of the sample, the number of samples in the article ranged from 15 to 354 people with an age range of 21-85 years old, providing important insights for the treatment of Acute Coronary Syndrome (ACS) patients in terms of education and emotional support.

Table 4.
Educational programs in improving the quality of life

Category	Education Programs	Research Results	Source
Improved Quality of Life	PCC-based education	Increased patient information and involvement in decision-making, especially in patients with low education.	Wolf et al. (2019)
	Intensive education and lifestyle improvement program (IPEL)	Reduce anxiety, depression, and improve *Overall Survival* (OS) in patients with psychological problems.	Nie et al. (2019)
	Internet-based education	Reduce anxiety, depression, and improve the quality of life of patients with cardiovascular problems.	Schneider et al. (2020)
	Program peer education	Improvement of self-care, compliance, and quality of life of patients through a peer approach.	Roshandel et al. (2021)
	Community-based education	Improvement of self-management, self-efficacy, and quality of life of patients.	Jiang et al. (2019)
	structured education	Improvement in quality of life averaged 7.35 points, reduction in cardiovascular mortality risk, and management of smoking behavior.	Breschneider et al. (2024)
	Counseling and use of eye masks	Anxiety: There was a significant difference between the intervention group and the control group in anxiety scores (t=-2.040, p=0.044), with the intervention group showing lower anxiety scores (11.44±8.74 vs. 15.38±10.49 in the control group).	Herring et al. (2021)

Based on the table above, it can be seen that in the educational program that focuses on improving the quality of life of ACS patients, it includes a *Patient-Centered Care* (PCC)-based approach, education through the internet, community, and peers, as well as intensive programs such as IPEL and structured educational interventions. PCC education increases patient engagement, especially those with low education, while internet-based and community-based education is effective in reducing anxiety, improving self-efficacy, and self-management behavior. IPEL and peer education programs help to overcome psychological problems and improve self-care and quality of life. Structured interventions contribute to cardiovascular risk reduction and positive lifestyle changes, demonstrating the importance of an organized and flexible approach in supporting patient well-being.

Table 5.
Educational programs in condition management

Category	Education Programs	Research Results	Source
Condition Management	CCM-based education	Increased adherence to diet, medication use, and physical activity.	Zakeri et al. (2020)
	Nutrition education based on traffic light labels	Increase understanding of healthy food choices and reduce the consumption of unhealthy foods.	Sadeghi et al. (2024)

The education program in managing the condition of ACS patients includes education based on *the Continuous Care Model* (CCM) and nutrition education based on *traffic light labels*. CCM-based education has been shown to be effective in improving patient adherence to diet, medication use, and physical activity, which is an important aspect of chronic condition management. Meanwhile, nutrition education with *the traffic light labels* approach helps patients understand the choice of nutritious foods and reduce the consumption of unhealthy foods. This approach makes it easier for patients to make daily decisions regarding nutritional intake, thereby supporting sustainable health management and increasing the effectiveness of medical interventions.

Table 6 .
Educational programs in the rehabilitation of ACS patients

Category	Education Programs	Research Results	Source
Rehabilitation of ACS Patients	Education on the importance of physical activity	Emphasis on the importance of regular exercise for patients with coronary artery disease to improve lifestyle.	Al-Juboury & Al-Janaby (2024)
	Integrated physical activity program	Reduction in systolic, diastolic, and *Rate Pressure Product* (RPP) blood pressure after 12 weeks of intervention.	Lima et al. (2025)
	Walking Training (WT)	Improvement of cardiovascular variables, including a decrease in blood pressure and RPP after walking for 12 weeks.	Lima et al. (2025)

The education program in the rehabilitation of ACS patients includes education on the importance of physical activity, integrated physical activity programs, and *Walking Training* (WT). Education on physical activity emphasizes the importance of regular exercise for patients with coronary artery disease, based on data and guidelines that show its benefits in supporting patient management and rehabilitation. The integrated physical activity program is designed to improve the overall lifestyle of patients with cardiovascular conditions, emphasizing the importance of physical exercise in long-term recovery. In addition, *Walking Training* (WT) has been shown to be effective in improving cardiovascular parameters such as reduction in systolic and diastolic blood pressure, as well as reduction in rate-pressure product (RPP) pressure, which significantly supports the patient's rehabilitation process after 12 weeks of intervention.Various studies have shown that education with innovative approaches is effective in improving the quality of life, health behavior, and management of patient conditions. Approaches such as Patient-Centered Care (PCC) increase the involvement of low-educated patients, while the Continuous Care Model (CCM) supports adherence to diet, medication, and physical activity. Intensive programs such as IPEL reduce anxiety, depression, and improve the survival of patients with psychological problems. Internet-based education helps cardiovascular patients' mental health, peer education improves self-care, and traffic light labels make it easier to understand nutrition and reduce the consumption of unhealthy foods. Integrated exercise programs are also effective in reducing the risk of complications in patients with cardiovascular disease. These findings underscore the importance of education as a key intervention in patient health management and rehabilitation.

Various educational interventions have been implemented to improve patient health, such as *Patient-Centered Care* (PCC), *Continuous Care Model* (CCM), and intensive programs such as IPEL that focus on healthy lifestyles. Other approaches include online CBT, group health education, multimedia-based peer education, and nutrition education based on traffic light labels. Additional support, such as follow-up text messaging, eye masks and counselling to reduce anxiety, as well as Mebix's digital program for post-cardiac rehabilitation care, is also effective. Physical interventions such as structured walking exercises on the treadmill add effectiveness in the management of physical activity and patient health.

DISCUSSION

Based on the 12 articles reviewed, several forms of nurse education programs in the management of Acute Coronary Syndrome (ACS) patients were obtained that can be used as strategies in improving patient care outcomes. There are various types of methods of implementing nurse education programs, such as media-based education programs, distance education programs with the use of technology, behavior-based education programs, and group-based education programs (peer group). These various educational programs are aimed at improving the quality of life of patients, managing patient conditions and rehabilitating ACS patients. Educational programs in improving the quality of life of patients consist of various implementation methods. In the behavior-based education method, there is an educational program with a Person-Centred Care approach to increase patient involvement in treatment decision-making and improve patient understanding of their condition. In addition, there is education through counseling and the use of eye masks that are effective in reducing patient anxiety levels (Kavaklı et al., 2023). The (Wolf Et Al. , 2019)peer group method in the form of peer education which includes roleplay, group discussions, and the use of multimedia clips in the delivery of education has an impact on improving patients' self-care scores and patients' quality of life(Roshandel Et al., 2021). The method provides a diverse range of patient learning preferences, ultimately strengthening their understanding and involvement in healthcare management.

The remote based education method with internet-based education, namely internet delivered Cognitive Behavioral Therapy (CBT), with the use of digital platforms, this program is effective in reducing anxiety and depression of patients based on distance. Anxiety is an unpleasant experience that is commonly experienced by patients with cardiovascular disorders. This statement is in line with the results of studies that show that anxiety is a symptom that is commonly experienced by heart failure patients, education is needed so that patients can find out information related to various interventions to overcome the anxiety experienced. One of the anxiety interventions is murotal therapy, murotal therapy has been proven to have a significant impact on patient anxiety levels and comfort (Scheider and to the, 2020)(Wahyuningsih et al., 2024)The education program in improving patients' ability to manage their conditions is carried out through a behavior-based education method with a continuous care model that integrates various educational sessions, interactive answers, and informative presentations to deepen patients' understanding of their health conditions, further promote medication adherence and encourage healthy lifestyle modifications to improve their abilities patients in managing adherence behavior to medication and patient lifestyle (Zakeri et al., 2020). The strategy used in the model is crucial to minimize the likelihood of recurrence and related complications. In addition, there is a media-based method to improve patients' ability to understand and manage nutrition that is appropriate to their condition, namely through color-label-based nutrition education (traffic light labels) to make it easier for patients to understand the information provided (Sadeghi et al., 2024).

The education program in the rehabilitation of ACS patients is a behavior-based method by training the physical abilities possessed by patients. The education provided is education about the needs of patient activities that emphasizes the importance of regular exercise to improve lifestyle (Al-Juboury & Al-Janaby, 2024). Then, education through walking training, this program is effective in improving cardiovascular parameters (Andrade-Lima et al., 2025). Physical activity and exercise in patients with cardiovascular system disorders, can support patient management and rehabilitation.

CONCLUSION

This scoping review shows that education programs have an important role in the management of patients suffering from Acute Coronary Syndrome (Acute Coronary Syndrome). Diverse educational methodologies have an impact on improving patients' understanding of their medical conditions, promoting compliance, and facilitating lifestyle modifications. The education program has shown considerable effectiveness in improving the health status of patients with Acute Coronary Syndrome (ACS). Educational programs that are well-structured and tailored to the needs of patients are effective in increasing motivation to modify positive behaviors, adherence to treatment, and reducing the risk of long-term complications.

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