

Improving Cardiovascular Health Index: The Effect of Education Intervention Program in Coronary Artery Disease Patients

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ABSTRACT

Background: A crucial indicator of heart health is the Cardiovascular Health Index (CVHI). Improving CVHI requires modifying modifiable risk factors, a process significantly enhanced by educational interventions. **Objectives:** To identify the impact of educational intervention programmes on the cardiovascular health index of coronary artery disease patients. **Methods:** This quasi-experimental study assessed the impact of a four-week educational intervention on the CVHI of 80 Indonesian coronary artery disease patients (40 intervention, 40 control) at Jambi Hospital. The intervention consisted of a structured educational programme regarding coronary artery disease, lifestyle modification, stress management techniques, and weekly follow-up calls. Data collected via demographic surveys and pre- and post-intervention CVHI measurements. Data were analysed with descriptive and inferential statistics. **Results:** There were significant improvements in systolic blood pressure, psychological distress ($p < 0.001$), and physical activity ($p < 0.005$), with moderate effect sizes (0.42-0.67). The intervention group demonstrated a positive mean change of 0.175 ± 0.54 , while the control group experienced a negative mean change of -0.10 ± 0.44 . The difference in mean change between the two groups was statistically significant ($p = 0.0163$). **Conclusion:** Implementing an educational intervention programme resulted in significant improvements in various aspects of the cardiovascular health index among patients with Coronary Artery Disease (CAD). Nurses should provide comprehensive CAD patient education covering blood pressure management, healthy eating, physical activity, and stress management. Post-hospitalisation support, such as telephone follow-ups, is crucial for long-term effectiveness. Future studies are encouraged to implement longer follow-up periods of 3 to 6 months to evaluate sustained intervention effects and to involve a larger population.

Keywords: Cardiovascular Health Index; Coronary Artery Disease; Patient Education

INTRODUCTION

Cardiovascular diseases claimed the lives of roughly 19.1 million people in 2020, with Eastern Europe and Southeast Asia experiencing the highest death rates. In Indonesia, Coronary Artery Disease (CAD) ranks as the second most common cause of mortality in Indonesia, surpassed only by stroke. A total of 12.93 million cases were reported in 2021, increasing to 15.5 million in 2022 (Lestari ; Tsao *et al.*, 2022). CAD is characterised by narrowing blood vessels due to atherosclerosis (plaque accumulation). This blockage causes ischaemia, potentially leading to tissue death (infarction). Effective secondary prevention is very vital to avoid more events and enhance the cardiovascular health index, given the tendency of CAD for recurrence (Tillmann *et al.*, 2017).

The Cardiovascular Health Index (CVHI) functions as a metric for assessing heart health by combining conventional risk factors associated with Cardiovascular Disease (CVD), which is developed by the American Heart Association (Lloyd-Jones *et al.*, 2022). The CVHI consists of seven key indicators: smoking behavior, body mass index (BMI), diet, physical activity, blood pressure, glucose levels, and cholesterol levels (Ketelaar *et al.*, 2020; Lloyd-Jones *et al.*, 2022). It can predict both cardiovascular and overall health outcomes (Han *et al.*, 2018; Xu *et al.*, 2025).

Increasing the CVHI can prevent disease recurrence (Sigamani & Gupta, 2022). Quitting smoking helps to increase life expectancy (Le *et al.*, 2024). Critical preventative measures include systolic and diastolic blood

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pressure (Zang *et al.*, 2022). Moreover, CAD incidence and recurrence are closely related to obesity and overweight (Katta *et al.*, 2021).

In addition to physiological impairments, individuals with CAD often endure detrimental psychological symptoms, such as depression, anxiety, and stress. These psychological issues are associated with an increased risk of mortality, hospital readmission, diminished participation in rehabilitation programs, and an inadequate cardiovascular health index. (Carney *et al.*, 2008; Karami *et al.*, 2023; Patterson *et al.*, 2022; Shan *et al.*, 2023; Dhital *et al.*, 2018). Maintaining an optimal cardiovascular health index is essential to avoid repeat CAD events and problems. A healthy cardiovascular index also helps with symptoms, increase daily functioning, and quality of life (Rippe, 2018).

Education can be a way to raise cardiovascular health index (CVHI). A low CVHI score is linked to higher rates of recurrent coronary artery events, hospitalisations, and deaths (Manap *et al.*, 2018). Even though CAD rates are high, there aren't many efforts in Indonesia to improve CVHI as a whole. This shows that we need new ways to improve patient outcomes. Educational programs are an important part of treatment plans. Nurses play a key role in the comprehensive management of Coronary Artery Disease (CAD) and make a big difference in patient education, support for self-management, and secondary prevention (Shan *et al.*, 2023). They can give patients personalised information about CAD pathophysiology, risk factors, and management strategies because they are experts in health education. This gives patients more control over their care (Paterick *et al.*, 2017). Effective nurse-led education improves patient well-being and medication adherence and encourages lifestyle changes, which are important parts of the CVHI (Badrooh *et al.*, 2020; Saki *et al.*, 2022).

Comprehensive education encompassing medical, psychological, and social aspects enables patients to manage their condition and enhance their quality of life (Anderson *et al.*, 2017; Chollou *et al.*, 2022; Ghali *et al.*, 2024). However, despite its significance, patient education frequently receives lower priority than other medical interventions (Saki *et al.*, 2022). Through structured education, patients acquire knowledge, develop skills, and build confidence in managing their health behaviours. Educational intervention increased self-efficacy, patients' perception of the seriousness of CAD and the benefits of preventive behaviours. Self-efficacy significantly enhances patients' self-care management (Susanti *et al.*, 2024). A previous study indicated that the individualised educational programme could enhance the CVHI (Manap *et al.*, 2018). Nevertheless, comprehensive education structured programmes are underexplored. Nurses are optimally positioned to address this disparity by delivering comprehensive education and integrating their expertise in health promotion, patient advocacy, and holistic care. Through empowering patients to manage their condition actively, this approach contributes to improved cardiovascular health and reduces CAD recurrence and complications.

Research conducted in Indonesia revealed that patients with coronary artery disease lacked sufficient knowledge and awareness about preventing recurrence. This was because information on this subject was only provided to individuals being discharged from the hospital (Fitriyah *et al.*, 2020). While numerous studies have examined the role of educational interventions in improving specific cardiovascular outcomes, few have assessed the composite Cardiovascular Health Index (CVHI), which integrates physiological and behavioural factors into one measure. In Indonesia, limited studies have evaluated structured, nurse-led educational programmes on the overall CVHI of coronary artery disease patients. Therefore, this study aims to address this gap by analysing both individual CVHI components and the composite CVHI score to evaluate the effects of education on cardiovascular health.

METHODOLOGY

Design

This study was a quasi-experimental study with a pre-post control group design. It was conducted from June to November 2024.

Sample and Setting

The study was conducted from June to November 2024 in the cardiac care unit of the Jambi Hospital. Consecutive sampling was then performed. Eligible patients who met the inclusion criteria were recruited sequentially during their inpatient stay in the cardiac care unit. After baseline data collection, participants were

non-randomly assigned to either the intervention or control group based on the day of recruitment to prevent contamination between groups. Patients admitted during the first recruitment period were allocated to the intervention group, while patients admitted during the subsequent period were assigned to the control group. The inclusion criteria were 1) age 40-69 years, 2) first-time diagnosis of acute coronary syndrome, 3) stable condition, and 4) having a communication device (handphone). Exclusion criteria included 1) patients with deteriorating conditions and 2) patients with hearing impairment.

The sample size was determined based on a previous study using the Lemeshow formula (Lemeshow *et al.*, 1990 ;Hsieh & Liu., 1990). The mean pre-test depression score was 18.17 (SD: 3.06), and the mean post-test score was 11.28 (SD: 4.13) (Manap *et al.*, 2018). The significance level (alpha) was set at 0.05 and the power (1-b) at 0.80. Potential dropouts were 5% added to the sample size. No dropouts occurred during the study period. It resulted in a total sample of 80 respondents, divided into 40 for the intervention group and 40 for the control group.

Instruments and Data Collection

The questionnaires were divided into three parts: Part I: Demographic characteristics. Part II: Psychological condition assessment using the DASS scale (DASS 21), with 21 Likert-scale questions (0-3). Higher scores indicate higher levels (Lovibond, 1998). Researchers conducted validity and reliability tests on this questionnaire, and the Cronbach's alpha results for each item were 0.841, 0.843, and 0.719, respectively. Meanwhile, the Cronbach's alpha results for all items was 0.928. Part III: Clinical data for the cardiovascular health index (smoking behaviour, systolic and diastolic blood pressure, body mass index, and physical activity). This study is a pilot study that assessed only 4 out of the 7 CVHI indicators, namely blood pressure, body mass index, physical activity, and smoking, with a total score ranging from 0 to 4. Smoking behaviour was assessed based on the respondents' self-reports. Blood pressure was measured with a digital sphygmomanometer. Weight and height data were obtained from patient records.

Physical activity levels were measured using the International Physical Activity Questionnaire-Short Form (IPAQ-SF). This questionnaire has been previously tested for validity and reliability with a Cronbach alpha value of 0.884 (Dharmansyah & Budiana, 2021).

Another instrument used was an education booklet containing information about the anatomy and physiology of the heart, the definition of CAD, signs and symptoms, risk factors, mechanisms of CAD, diet, medication, physical activity, stress management (the Benson relaxation technique and progressive muscle relaxation), modifying lifestyle, and Cardiopulmonary Resuscitation (CPR). The content and display validity of the booklet were reviewed by experts consisting of two lecturers and two cardiac nurses. A pilot test with five patients outside the study sample was conducted to assess clarity and comprehension, and the results based on patient responses to the media booklet showed very feasible (>75%).

Intervention

The educational intervention was designed to address multiple dimensions of the cardiovascular health index through evidence-based, structured sessions and continuous follow-up support. By integrating cognitive, behavioural, and emotional components, it aimed to promote sustainable lifestyle modifications, improve psychological resilience, and enhance self-management skills among CAD patients.

This study employed a pre-post control group design. Participants meeting the inclusion criteria and those meeting the exclusion criteria were recruited. Data collection and the intervention commenced on the second day of inpatient cardiac care. Baseline data, including demographic information (Questionnaire Part I), psychological measures (Questionnaire Part II), and clinical data (Questionnaire Part III), were collected. Then, a 30-minute structured educational intervention was delivered using a booklet.

On the third day, researchers allocated 30 minutes for educational intervention and demonstrated stress management techniques, including progressive muscle relaxation and the Benson relaxation technique. Subsequently, respondents were asked to re-demonstrate. At the end of the session, participants were instructed to review the booklet at home. Follow-up telephone consultations were conducted every week for two consecutive weeks (weeks two and three) to reinforce learning and address any remaining enquiries, with each

call lasting 20 minutes. A post-test was administered during the patient's scheduled fourth-week follow-up appointment. The control group received standard care and accessed existing ward educational leaflets provided by cardiac nurses during admission and discharge.

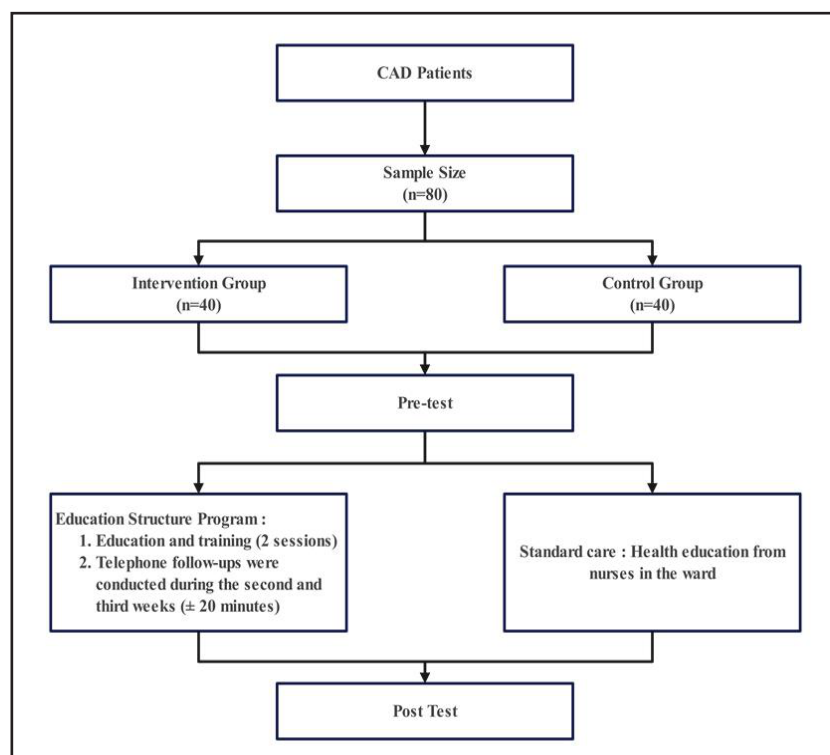


Figure 1: Flow Chart of the Study Procedure

Data Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS). Normally distributed data are presented as mean and standard deviation, while non-normally distributed data are described using the median and interquartile range. Categorical variables are summarised as frequencies and percentages.

In this study, normality was tested using the Shapiro-Wilk test. For normally distributed data, dependent *t*-tests were utilised. Wilcoxon signed-rank tests were applied for data that did not follow a normal distribution; independent samples *t*-tests were employed to compare mean cardiovascular health index scores in normally distributed data. Mann-Whitney tests were used to analyse non-normally distributed data. Categorical data were analysed using McNemar's test and the marginal homogeneity test. Additionally, the study assessed effect size using Cohen's *d* and the rank biserial correlation formula. Cohen's *d* was selected for effect size interpretation due to its wide acceptance in clinical research. For sample sizes >20, the results for Cohen's *d* and Hedges' *g* statistics are roughly equivalent (University of Southampton, 2024). The effect size was categorised as small (0.20-<0.50), moderate (0.50-<0.80), or large (0.80) (Sullivan & Feinn, 2012).

Potential confounding variables, including differences in age, gender, and lifestyle, were assessed. Although differences in lifestyle were recorded, no statistical adjustments were applied due to sample size considerations.

Ethical Consideration

This study received ethical approval from Raden Mattaher Jambi Hospital, Indonesia with reference number S.153/SPE/XI/2024 on 25th November, 2024.

RESULTS**Table 1: Distribution of Demographic Data (n=80)**

Variable	Groups	
	Intervention f (%)	Control f (%)
Age (Mean $\pm$ SD)	59.35($\pm$ 10.17)	57.67(12.51)
Gender		
Male	22(55)	22(55)
Female	18(45)	18(45)
Income		
< Rp. 3,000,000	28 (70)	33(82.5)
$\geq$ Rp. 3,000,000 – 5,000,000 -	12 (30)	5(12.5)
>Rp. 5,000,000 -	0 (0)	2(5.0)
Education Level		
No formal education	1(2.5)	2(5)
Primary education	16(40)	12(30)
Lower secondary education	7(17.5)	7(17.5)
Upper secondary education	7(17.5)	12(30)
Tertiary education	9(22.5)	7(17.5)
Marital Status		
Married	38(95)	35(87.5)
Single	2(5)	5(12.5)
Family History		
Yes	11(27.5)	10(25)
No	29(72.5)	30(75)

Table 1 presents the demographic characteristics of the intervention and control groups. The intervention group had a mean age of 59.35 years ($\pm$ 10.17 SD), with 55% males and 45% females. Income distribution showed a preponderance of lower-income participants (70%) earning less than Rp 3,000,000. Educational attainment varied, with the largest proportion having completed primary education (40%), followed by tertiary education (22.5%) and lower and upper secondary education (17.5% each). Most (95%) were married, and most (72.5%) reported no family history of heart disease.

The control group had a mean age of 57.67 years ($\pm$ 12.51), with a similar gender distribution to the intervention group (55% male, 45% female). However, a higher proportion (82.5%) reported incomes below Rp 3,000,000 compared to the intervention group. Educational levels also varied, but the distribution differed slightly from the intervention group, with primary and upper secondary education each representing 30% and lower secondary and tertiary education at 17.5%. Most participants (87.5%) were married, and 75% reported no family history of heart disease.

Table 2: The Comparison of Cardiovascular Health Index Measurement Before and After Educational Intervention between the Intervention and Control Group

Variable	Group	Pre	Post	p-value
Systole blood pressure	Intervention	137.50 (SD $\pm$ 20.88)	131.73 (SD $\pm$ 9.93)	0.034 ^a
	Control	132.20(SD $\pm$ 15.41)	137.48(1 SD $\pm$ 3.67)	0.21 ^a
	p-value	0.02 ^c		
Diastole blood pressure	Intervention	80 (IQR 10)	80 (IQR 8)	0.27 ^b
	Control	79 (IQR 8)	80 (IQR 10)	0.39 ^b
	p-value	0.45 ^d		
Body mass index	Intervention	24.71 (SD $\pm$ 4.64)	24.61 (SD $\pm$ 4.42)	0.73 ^a
	Control	22.83(SD $\pm$ 3.80)	22.86(SD $\pm$ 3.83)	0.32 ^a
	p-value	0.07 ^c		
Depression score	Intervention	9.00(IQR 6)	3.5(IQR 3)	<0.001 ^b
	Control	8.03(3 IQR.19)	8.18(IQR 3.20)	0.083 ^a
	p-value	<0.001 ^d		
Anxiety score	Intervention	13(IQR 4)	5 (IQR 3)	<0.001 ^b
	Control	11.45(2.89)	11.33(2.85)	0.23 ^a
	p-value	<0.001 ^d		
Stress score	Intervention	13(4)	6(3)	<0.001 ^b
	Control	11.63(SD $\pm$ 3.10)	11.55(SD $\pm$ 3.22)	0.372 ^a
	p-value	<0.001 ^d		

Smoking	Intervention	Yes	17(42.5%)	15(37.5%)	0.50 ^e
		No	23(57.5%)	25(62.5%)	
	Control	Yes	30(75%)	29(72.5%)	1.000 ^e
		No	10(25%)	11(27.5%)	
Physical Activity	Intervention	Light	15(37.5%)	11(27.5%)	0.035 ^f
		Moderate	23(57.5%)	28 (70%)	
		Heavy	2(5%)	1 (12.5%)	
	Control	Light	16(40%)	16(40%)	0.317 ^f
		Moderate	10(25%)	12(30%)	
		Heavy	14(35%)	12(30%)	

^aT-Dependen test; ^bWilcoxon test; ^cT-Independen test; ^dMann-Whitney test; ^eMc-Nemar test; ^fMarginal Homogeneity test

Table 2 compares the intervention and control groups' pre- and post-intervention cardiovascular health indexes. Statistically significant improvements were observed in the intervention group for systolic blood pressure ($p < 0.05$) and DASS scores ($p < 0.001$), indicating the program's positive impact. No significant between-group differences were found for diastolic blood pressure, BMI, or smoking status. The intervention group also significantly increased in physical activity ($p < 0.05$).

Table 3: Effect Sizes for Each CVHI Component

Variable	Effect Size	Interpretation
Systolic Blood Pressure	0.48	Small
Body Mass Index	0.42	Small
Depression Score	0.60	Moderate
Anxiety Score	0.75	Moderate
Stress Score	0.67	Moderate
Physical Activity	0.35	Small

Cohen's d test conducted on systolic blood pressure and BMI yielded effect sizes of 0.48 and 0.42, respectively. The Rank Biserial Correlation test on diastolic blood pressure and DASS score yielded effect sizes of 0.007, 0.60, 0.75 and 0.67 (Table 3). The effect size values for the DASS score indicate a moderate effect size.

Each component of the Cardiovascular Health Index (CVHI) was analysed individually because each represents a distinct modifiable risk factor with unique clinical relevance. Analysing each criterion allows for a more detailed understanding of the specific effects of the educational intervention on different aspects of cardiovascular health, which align with CVHI guidelines that assess individual metrics independently rather than as a single composite score.

	Group	Pre (Median)	P-value	Post (Median)	P-value
CVHI Score	Intervention	2	0.0716	2	0.8377
	Control	2		2	

Table 4 above shows that no significant difference was found between the two groups before and after the structured health education ($p > 0.05$)

Table 5: The Comparison of Pre and Post Intervention Cardiovascular Health Index Score within the Intervention and Control Groups

	Group	Pre (Median)	Post (Median)	P-value
CVHI Score	Intervention	2	2	0.0522
	Control	2	2	0.1573

Table 5 above shows no significant change in the CVHI scores within the intervention group. Similarly, no

significant change was observed in the control group. However, the intervention group demonstrated a tendency toward improvement after the intervention, although it was not statistically strong enough to reach significance.

Table 6: Changes in Mean and Median CVHI Scores after Educational Intervention

Group	Mean	Median Change	SD Change	P-value
Intervention	0.175	0	0.54	0.0163
Control	-0.1	0	0.44	

Table 6 shows the mean, median, and standard deviation of changes in the Cardiovascular Health Index (CVHI) scores after the educational intervention. The intervention group demonstrated a positive mean change of 0.175 ± 0.54 , while the control group experienced a negative mean change of -0.10 ± 0.44 . The difference between the two groups was statistically significant ($p = 0.0163$).

DISCUSSION

The findings of this study showed that structured educational intervention would significantly improve the CVHI, especially in systolic blood pressure, psychological aspects (depression, anxiety, and stress scores), and physical activity. No significant changes were observed in BMI, diastolic blood pressure, or smoking behavior. Although the composite CVHI score showed a tendency to improve in the intervention group, the difference was not statistically significant. The control group showed no meaningful changes across all variables. Another study found that combining education with telephone follow-up after myocardial infarction improved psychological adaptation, reduced anxiety and depression, and promoted better health outcomes (Kavradim & Canli Özer, 2020).

The educational intervention served as an external stimulus, facilitating adaptive responses, enabling patients to manage their physical and psychological health better. Patient education is an essential strategy for improving disease knowledge and emphasizing the importance of treatment adherence. Through targeted educational efforts, patients are equipped with accurate information, disposing of erroneous beliefs, and commitment to therapeutic regimens is consequently enhanced (Demirel & Kilic, 2024). By enhancing patients' knowledge, self-efficacy, and coping strategies, the intervention promotes positive adaptations that improve cardiovascular health indicators. Education strengthened patients' physiological regulation and enhanced their psychological adaptation by reducing depression, anxiety, and stress (Manap *et al.*, 2018; Magnani *et al.*, 2018).

The intervention group experienced a significant reduction in systolic blood pressure, highlighting the programme's effectiveness in managing hypertension. However, no difference was found in diastolic blood pressure. Structured educational programmes are necessary to enhance the effectiveness of lifestyle modification advice, particularly concerning blood pressure control. Numerous studies have shown that health education positively impacts blood pressure management (Ashraf *et al.*, 2024; Kordvarkane *et al.*, 2023).

No significant differences in BMI or smoking cessation were observed between groups post-intervention. The researchers suggest this might be due to the relatively short duration of the intervention (4 weeks). This could also be due to economic factors. In this study, the majority of the respondents had low incomes. People of higher socioeconomic standing generally have improved access to health-promoting resources, including nutritious food options and medical care, contributing to maintaining a healthy body weight (Pourfarzi *et al.*, 2022). Nonetheless, a reduction in mean BMI was found in both groups. Obesity is linked to cardiovascular diseases (Luo *et al.*, 2024). Reducing BMI is crucial to managing CAD risk factors, achievable through dietary changes and lifestyle modifications (Jafari *et al.*, 2020). The nurses' role in providing ongoing education and support related to weight management, including reducing calorie, fat, and sodium intake and regular physical activity and BMI monitoring, is essential.

Meanwhile, the intervention group showed a reduction of two smokers; no significant difference in smoking status was observed between groups after the intervention. It contrasts with other studies (Manap *et al.*, 2018) demonstrating a positive effect of educational interventions on smoking cessation in CAD patients.

Given the significant role of smoking cessation in CAD management, nurses have a critical role in educating patients about the negative consequences of smoking and its impact on the cardiovascular and other bodily systems (Badrooh *et al.*, 2020).

The intervention clearly raised levels of physical activity. Monitoring cardiovascular health includes keeping track of physical activity (Lloyd-Jones *et al.*, 2022). Physical activity, including walking, is associated with reduced levels of cardiovascular disease risk factors like blood pressure, Body Mass Index (BMI), blood glucose, cholesterol, and triglyceride levels (Widyawati *et al.*, 2023). This study demonstrates a positive impact of structured education on the physical activity levels of CAD patients, aligning with previous research (Pitta *et al.*, 2022). Significantly, the nurses' role in imparting this education and offering continual encouragement and support for embracing a more active lifestyle was essential to attaining these outcomes. The educational program emphasized the significance of exercise in enhancing myocardial perfusion and HDL cholesterol levels, thereby reducing cardiac stress in both healthy individuals (Che *et al.*, 2017; Fontana, 2018; Pinckard *et al.*, 2019).

Patients with CAD often have mental health problems that affect both their prognosis and their quality of life. The intervention led to decreased scores on assessments of depression, anxiety and stress, which are recognised as detrimental to CAD prognosis and elevate the risk of cardiovascular events, readmission, and mortality (Dhital *et al.*, 2018). Another study showed that teaching patients about their condition helped them feel less depressed and anxious after having a heart attack. Education can improve patients' confidence in the healthcare system, make them feel more capable, help them fight feelings of helplessness, and encourage them to believe in themselves (Kavradim & Canli Özer, 2020; Zhamaliyeva *et al.*, 2023). Nurses play a vital role in putting these educational programs into action and getting families involved to provide full psychological support.

Nurse-led education programs are helpful for people with coronary artery disease because they help them adjust to their condition better. Nurses help patients see their illness in a more positive light, build confidence in their ability to manage their health, and feel more in control through structured education and ongoing support. Patients who learn more and learn how to take care of themselves often feel less emotionally distressed and better mentally, which can lead to better physical health and better quality of life (Afik *et al.*, 2021; Bagheri *et al.*, 2022; Chang *et al.*, 2020).

This study extends previous research by Manap *et al.* (2018) by incorporating weekly nurse-led telephone follow-ups after discharge, supplementing an initial in-hospital educational intervention. This approach ensures continuity of care and enhanced long-term effectiveness, addressing patients' educational, motivational, and emotional needs beyond the immediate hospital setting. Integrating similar follow-up sessions into routine clinical appointments or existing services would enhance both efficacy and efficiency (Huriani *et al.*, 2022; Kavradim & Canli Özer, 2020).

The positive outcomes highlight several key implications for nursing practice. The intervention's efficacy underscores the necessity for ongoing professional development in evidence-based patient education, necessitating continuing education and standardised protocols to maintain consistent and high-quality care. A previous study showed that educational programmes could enhance medication adherence over six months post-intervention (Xu *et al.*, 2025). Integrating structured patient education into routine nursing care should be a priority, transforming it from an ancillary component to a core element of comprehensive CAD management.

While limitations such as the intervention's short duration, single-site recruitment, and reliance on self-reported smoking status are prone to social desirability bias, the results strongly suggest that nurse-led comprehensive educational interventions, including post-discharge support, significantly improve patient outcomes and promote better cardiovascular health.

Limitations

The limitations of this study include a restricted sample size and the omission of other cardiovascular health indices, such as plasma glucose, lipid profiles and dietary factors. Furthermore, this study was

conducted within a single hospital setting, thereby constraining the generalisability of the findings to a broader population.

CONCLUSION

This study demonstrates that the structured educational intervention improves many aspects of the cardiovascular health index, particularly systolic blood pressure, psychological distress, and physical activity, in patients with CAD. Nurses should make a complete educational program for people with CAD. These programs should teach people how to deal with stress emotions, eat well, stay active, and keep their blood pressure in check. People should also understand how important it is to keep helping after the first hospital stay, like by making follow-up phone calls. It can ensure that the treatment works in the long run and address any problems that might arise after leaving the hospital. Future studies ought to incorporate extended follow-up durations (3-6 months) to assess long-term effects, include a larger sample size, employ randomised controlled designs, and incorporate a more diverse participant pool to enhance generalisability and corroborate findings. This line of inquiry will facilitate the development of more effective and sustainable strategies for improving cardiovascular health outcomes within this population.

Conflict of Interest

The authors declare that they have no competing interest.

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