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The Effect of Audiovisual Health Promotion on Knowledge, Attitudes, and Behaviors Related to the Prevention of Recurrent Chest Pain in Patients with Coronary Heart Disease

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ABSTRACT

Cardiovascular disease remains a leading cause of mortality worldwide, with a continuously increasing prevalence. In Indonesia, coronary heart disease (CHD) contributes substantially to cardiovascular-related deaths, highlighting the importance of effective secondary prevention strategies. Health promotion using appropriate educational media is essential to improve patients' knowledge, attitudes, and self-care behaviors. This study aimed to examine the effect of audiovisual health promotion on knowledge, attitudes, and behaviors related to the prevention of recurrent chest pain among patients with coronary heart disease. A quantitative quasi-experimental study was conducted using a pretest–posttest control group design. Participants were patients diagnosed with coronary heart disease who were assigned to intervention and control groups. The intervention group received audiovisual-based health education, while the control group received standard care. Data were analyzed using univariate, bivariate, and multivariate analyses. Paired t-tests, independent t-tests, and Wilcoxon tests were used for bivariate analysis, and multiple logistic regression was applied for multivariate analysis. The results showed a significant improvement in knowledge ($p = 0.001$) and attitudes ($p = 0.018$) in the intervention group after exposure to audiovisual health promotion. However, no significant effect was observed on preventive behaviors related to recurrent chest pain ($p = 0.084$). In conclusion, audiovisual health promotion effectively improves knowledge and attitudes among patients with coronary heart disease but does not significantly influence preventive behaviors. These findings suggest that while audiovisual media are effective for cognitive and affective outcomes, additional or sustained interventions are required to promote behavioral change in the secondary prevention of coronary heart disease.

Keywords: audiovisual media, attitude, behavior, coronary heart disease, health promotion

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INTRODUCTION

Coronary heart disease (CHD) remains a major global public health problem and is the leading cause of mortality worldwide. Each year, more than 17 million deaths are attributed to cardiovascular diseases, with approximately 80% resulting from coronary heart disease and stroke. In Indonesia, the prevalence of CHD has reached 1.5% and continues to increase annually, posing a significant burden on the healthcare system. This high prevalence is influenced not only by biological factors but also by limited public knowledge and awareness of CHD risk factors and preventive measures, which often leads to delayed diagnosis and treatment at advanced stages.

Health education plays a crucial role in improving knowledge, shaping attitudes, and encouraging preventive behaviors related to coronary heart disease. According to health behavior theories, including Bloom's taxonomy, changes in behavior are preceded by improvements in cognitive and affective domains, namely knowledge and attitudes. Educational media that engage multiple senses, such as audiovisual media, have been shown to enhance information retention and understanding more effectively than verbal or written materials alone. Audiovisual media can increase information absorption up to six times compared with single-sensory learning methods, making them a promising tool for health promotion.

In the context of secondary prevention, health education is essential to slow disease progression, reduce the risk of recurrent symptoms, and support patients in managing their condition. Effective secondary prevention strategies can help minimize recurrent chest pain episodes, reduce hospitalization rates, and improve quality of life among patients with coronary heart disease. Previous studies have demonstrated that the use of digital and audiovisual health education can improve stress management, motivation, and adherence to healthy lifestyles among cardiac patients. However, evidence also indicates that public knowledge regarding CHD symptoms, risk factors, and preventive behaviors remains insufficient, underscoring the need for more engaging, interactive, and accessible educational interventions.

Despite the growing application of audiovisual media in health education, several research gaps remain. Most existing studies focus on general cardiovascular knowledge or lifestyle modification, without specifically addressing the prevention of recurrent chest pain among patients with coronary heart disease. Furthermore, many studies emphasize short-term improvements in knowledge, with limited evaluation of changes in attitudes and preventive behaviors as components of secondary prevention. Evidence from Indonesia, particularly at the facility-based or local level, is still limited, even though sociocultural and contextual factors may influence the effectiveness of educational interventions.

Therefore, this study aimed to examine the effect of audiovisual health promotion on knowledge, attitudes, and behaviors related to the prevention of recurrent chest pain among patients with coronary heart disease. The findings of this study are expected to contribute evidence on the effectiveness of audiovisual educational media as a secondary prevention strategy and to inform the development of more comprehensive health education interventions for patients with coronary heart disease.

METHOD

This study employed a quantitative quasi-experimental design with a pretest–posttest control group approach. Participants were divided into an intervention group and a control group to evaluate the effect of audiovisual health promotion on knowledge, attitudes, and preventive behaviors related to recurrent chest pain among patients with coronary heart disease.The study was conducted at the Heart Clinic of Santosa Hospital Bandung Central (SHBC) from October to

December 2023. The study population consisted of patients diagnosed with coronary heart disease who received care as inpatients or outpatients during the study period. A total of 142 patients were identified, from which 59 participants were selected using a non-probability sampling technique with a consecutive sampling approach.

Participants were assigned to either the intervention group (n = 29) or the control group (n = 30) based on the inclusion and exclusion criteria. The inclusion criteria were patients who agreed to participate in the study; male or female patients diagnosed with coronary heart disease; patients who had experienced recurrent hospitalization within the past year following their first cardiac event; patients with a history of prior treatment for coronary heart disease; patients with a history of non-adherence to medical therapy; patients who smoked; patients with unhealthy or unbalanced dietary patterns; and patients who did not routinely engage in physical activity or exercise.

The exclusion criteria included patients who did not complete the intervention for unexplained reasons and patients who were hospitalized due to their first episode of chest pain. Dropout criteria included patients whose clinical condition deteriorated during the study period.

The intervention consisted of audiovisual-based health education delivered over four sessions. The first session involved the administration of the pretest questionnaire. The second, third, and fourth sessions included the delivery of audiovisual educational materials related to coronary heart disease, risk factor management, and prevention of recurrent chest pain. The posttest questionnaire was administered during the fourth session following completion of the intervention. The control group received standard care without exposure to the audiovisual educational intervention.

Knowledge was assessed using a questionnaire adapted from the Heart Disease Fact Questionnaire (HDFQ) developed by Wagner et al. (2005), which has demonstrated acceptable validity and reliability using the Kuder–Richardson method. Attitudes toward coronary heart disease were measured using the Perception of Risk of Heart Disease Scale (PRHDS) developed by Amouri and Neuberger (2008). Preventive behaviors related to coronary heart disease were assessed using a questionnaire adapted from the Health-Promoting Lifestyle Profile II (HPLP-II), which was modified by the researchers to suit the study context.

The audiovisual educational material consisted of a digital health education video on coronary heart disease prevention. The content of the video was reviewed and validated by patients, a cardiologist at the study site, and a faculty member from Universitas Jenderal Achmad Yani to ensure content accuracy, clarity, and relevance.

This study received ethical approval from the Health Research Ethics Committee of the Faculty of Health Sciences, Universitas Jenderal Achmad Yani, Cimahi (Ethical Approval Number: B.044/Kesmas(S-2)/Fitkes-UNJANI/II/2024

Written informed consent was obtained from all participants prior to data collection. Data analysis was performed using univariate, bivariate, and multivariate statistical methods. Univariate analysis included descriptive statistics such as mean, median, standard deviation, and minimum–maximum values. Bivariate analysis was conducted using paired t-tests and independent t-tests for normally distributed data, and the Wilcoxon signed-rank test for non-normally distributed data. Multivariate analysis was performed using multiple logistic regression to identify factors associated with changes in knowledge, attitudes, and behaviors while controlling for potential confounding variables.

RESULT

A total of 59 patients with coronary heart disease participated in this study, consisting of 29 participants in the intervention group and 30 participants in the control group. The characteristics of respondents in both groups were relatively comparable. In the intervention group, the majority

of participants were aged ≤45 years (55.2%) and female (51.7%). Most respondents had completed high school or university education (79.3%) and were employed as civil servants (51.7%). Similarly, in the control group, half of the respondents were aged ≤45 years (50.0%), and most were female (66.7%), had high school or university education, and were employed as civil servants. Most respondents in both groups had a history of hypertension and/or diabetes mellitus, reported smoking habits, and had a family history of coronary heart disease. Overall, the distribution of demographic and clinical characteristics between the intervention and control groups was relatively balanced, indicating comparability between groups at baseline.

Table 1. Description of Respondent Characteristics

Characteristics	Intervention		Control	
	Amount	Percentage	Amount	Percentage
Age				
≤ 45 Years	16	55.2%	15	50.0%
≥ 45 Years	13	44.8%	15	50.0%
Gender				
Woman	15	51.7%	20	66.7%
Man	14	48.3%	10	33.3%
Education				
Lower Middle	6	20.7%	9	30.0%
High School/University	23	79.3%	30	100%
Work				
Non-civil servant	9	31.0%	6	20.0%
civil servant	15	51.7%	15	50.0%
Economic Status				
Lower Middle	10	34.5%	12	40.0%
Upper Middle School	19	65.5%	18	60.0%
There is a history (DM/HT)	21	72.4%	24	80%
Smoke				
Do not smoke	9	31.0%	13	43.3%
Yes, I smoke	20	69.0%	17	56.7%
Genetic History				
There isn't any	7	24.1%	10	33.3%
HistoryThere is a history	22	75.9%	20	66.7%

Before the intervention, more than half of the respondents in the intervention group had insufficient knowledge regarding the prevention of recurrent chest pain (55.2%), whereas the majority of respondents in the control group demonstrated good baseline knowledge (66.7%).

Table 2. Baseline Knowledge Before the Audiovisual Media Intervention

Knowledge	**Intervention**		**Control**	
	Amount	**Percentage**	**Amount**	**Percentage**
Poor	16	55.2%	10	33.3%
Good	13	44.8%	20	66.7%
Total	29	100%	30	100%

Regarding attitudes, most respondents in the intervention group showed negative attitudes toward coronary heart disease prevention (41.4%), while in the control group, negative attitudes were observed in 46.7% of respondents.

Table 3. Baseline Attitudes Before the Audiovisual Media Intervention

Attitude	Intervention		Control	
	Amount	Percentage	Amount	Percentage
Negative (≤ 23Median)	12	41.4%	14	46.7%
Positive (≥23Median)	17	58.6%	16	53.3%
Total	29	100%	30	100%

In terms of preventive behaviors, the majority of respondents in both the intervention group (58.6%) and the control group (60.0%) demonstrated inadequate preventive behaviors prior to the intervention.

Table 4. Description of Behavior Prior to the Audiovisual Media Intervention

Behavior	Intervention		Control	
	Amount	Percentage	Amount	Percentage
Poor	17	58.6%	18	60.0%
Good	12	41.4%	12	40.0%
Total	29	100%	30	100%

After the administration of audiovisual health promotion, knowledge levels improved in both groups. In the intervention group, 75.9% of respondents demonstrated good knowledge, while in the control group, 80.0% showed good knowledge.

Table 5. Overview of Knowledge After the Audiovisual Media Intervention

Knowledge	Intervention		Control	
	Amount	Percentage	Amount	Percentage
Poor	7	24.1%	6	20.0%
Good	22	75.9%	24	80.0%
Total	29	100%	30	100%

Positive attitudes toward coronary heart disease prevention were observed in 58.6% of respondents in the intervention group and 53.3% in the control group after the intervention.

Table 6. Description of Attitudinal Outcomes After the Audiovisual Media Intervention

Attitude	Intervention		Control	
	Amount	Percentage	Amount	Percentage
Negative (≤ Median)	12	41.4%	14	46.7%
Positive (≥ Median)	17	58.6%	16	53.3%
Total	29	100%	30	100%

Preventive behaviors also showed improvement descriptively. In the intervention group, 62.1% of respondents demonstrated good preventive behaviors, while in the control group, 66.7% exhibited good behaviors after the intervention.

Table 7. Description of Behavioral Outcomes After the Audiovisual Media Intervention

Behavior	Intervention		Control	
	Amount	**Percentage**	**Amount**	**Percentage**
Poor	11	37.9%	10	33.3%
Good	18	62.1%	20	66.7%
Total	29	100%	30	100%

Statistical analysis demonstrated a significant improvement in knowledge scores in the intervention group following the audiovisual media intervention. The mean knowledge score increased from 5.86 ± 2.13 at baseline to 7.38 ± 2.32 after the intervention (p = 0.001). Similarly, attitudes toward coronary heart disease prevention showed a significant increase, with mean scores rising from 23.21 ± 4.24 before the intervention to 25.10 ± 2.46 after the intervention (p = 0.018). In contrast, the mean preventive behavior score increased only marginally, from 27.28 ± 2.55 to 27.38 ± 3.52, and this change was not statistically significant (p = 0.084).

Table 8. Changes in Knowledge, Attitudes, and Behavior Before and After the Audiovisual Media Intervention in the Intervention Group

Knowledge	**Mean**	**Standard Deviation**	**Standard Errors**	**P-value**	**Amount**
Pre-Intervention	5.86	2,133	.396	0.0001	29
Post Intervention	7.38	2,321	.431	0.0001	29

Based on Table 9, attitudes toward coronary heart disease prevention differed before and after the audiovisual media intervention. The mean attitude score increased from 23.21 (SD = 4.24; SE = 0.79) at baseline to 25.10 (SD = 2.46; SE = 0.46) after the intervention. Statistical analysis showed that this difference was significant in the intervention group (p = 0.018).

Table 9. Changes in Attitudes Before and After the Audiovisual Media Intervention in the Intervention Group

Attitude	**Mean**	**Standard Deviation**	**Standard Errors**	**P-value**	**Amount**
Pre-Intervention	23.21	4,237	.787	0.018	29
Post Intervention	25.10	2,455	.456	0.018	29

The mean preventive behavior score increased slightly from 27.28 before the intervention to 27.38 after the audiovisual media intervention. However, this change was not statistically significant (p = 0.084).

Table 10. Changes in Behavior Before and After the Audiovisual Media Intervention in the Intervention Group

Behavior	**Mean**	**Standard Deviation**	**Standard Errors**	**P-value**	**Amount**
Pre-Intervention	27.28	2,548	.473	0.0841	29
Post Intervention	27.38	3,519	.645	0.0841	29

Based on Table 11, knowledge scores in the control group increased after the intervention. The mean knowledge score rose from 6.17 before the intervention to 7.57 after the intervention. Wilcoxon test results indicated that this difference was statistically significant (p < 0.001).

Table 11. Changes in Knowledge Before and After the Intervention in the Control Group

Knowledge	Mean	Standard Deviation	Standard Errors	P-value	Amount
Pre-Intervention	6.17	1,783	.325	0.0001	30
Post Intervention	7.57	2,473	.452	0.0001	30

Based on Table 12, attitude scores in the control group increased following the intervention. The mean attitude score rose from 22.13 before the intervention to 24.20 after the intervention. Independent *t*-test results indicated that this difference was statistically significant ($p < 0.001$).

Table 12. Changes in Attitudes Before and After the Audiovisual Media Intervention in the Control Group

Attitude	Mean	Standard Deviation	Standard Errors	P-value	Amount
Pre-Intervention	22.13	3,598	.657	0.0001	30
Post Intervention	24.20	2,455	.448	0.0001	30

Based on Table 13, the mean preventive behavior score in the control group increased from 27.03 before the intervention to 28.23 after the intervention. Independent *t*-test results indicated that this difference was statistically significant ($p = 0.006$).

Table 13. Changes in Behavior Before and After the Audiovisual Media Intervention in the Control Group

Behavior	Mean	Standard Deviation	Standard Errors	P-value	Amount
Pre-Intervention	27.03	2,846	.520	0.006	30
Post Intervention	24.23	2,944	.538	0.006	30

Based on Table 14, post-intervention knowledge scores did not differ significantly between the control group (mean = 7.57) and the intervention group (mean = 7.38), as indicated by the Mann–Whitney test ($p = 0.683$). Similarly, no significant difference in attitudes was observed between the control group (mean = 24.20) and the intervention group (mean = 25.10), based on the independent *t*-test ($p = 0.163$). Regarding preventive behaviors, the mean scores in the control group (28.23) and the intervention group (27.38) were also not significantly different, as shown by the independent *t*-test ($p = 0.854$).

Table 14. Comparison of Knowledge, Attitudes, and Behavior between the Intervention and Control Groups

Group	Mean	Standard Deviation	Standard Errors	P-value	Amount
Knowledge					
Control	7.57	2,473	0.452	0.683	30
Intervention	7.38	2,321	0.431	0.683	29
Attitude					
Control	24.20	2,455	0.488	0.163	30
Intervention	25.10	2,455	0.456	0.163	29
Behavior					
Control	28.23	2,944	0.538	0.316	30
Intervention	27.38	3,519	0.654	0.316	29

Based on Table 15, the audiovisual media intervention was not independently associated with changes in respondents' knowledge, attitudes, or preventive behaviors. Economic status acted as a confounding factor for knowledge outcomes. For attitudes, age, education level, gender, and economic status were identified as potential confounding variables. In terms of preventive behaviors, occupation and education level also functioned as confounding factors. These findings suggest that demographic and socioeconomic characteristics may have a greater influence on changes in knowledge, attitudes, and behaviors than the audiovisual media intervention alone.

Table 15. Analysis of Confounding Variables Affecting Knowledge, Attitudes, and Behavior

Variables	B	P	Ext (B)	OR (95%) CI	
				Lower	Upper
Knowledge					
Group	-.170	0.799	0.844	0.299	3.112
Economy	-2,303	0.033	0.100	0.012	0.835
Attitude					
Age	1,891	.039	6,625	1,100	39,887
Education	0.822	0.252	0.440	0.108	1,796
Gender	1,284	0.62	0.277	0.72	1,069
Economy	1,237	0.57	3,446	0.966	12,287
Behavior					
Work	-1,981	.069	0.138	0.016	1,167
Education	0.416	0.563	0.660	0.161	2,703

DISCUSSION

Most patients with coronary heart disease (CHD) in this study were aged ≤45 years, indicating a shift in the occurrence of CHD toward younger age groups. This trend is likely influenced by lifestyle-related risk factors, including smoking, high-fat dietary patterns, psychological stress, obesity, and physical inactivity, which have been increasingly reported among younger populations in Asia and Indonesia (Dong, 2021; Virani et al., 2021; Ministry of Health of the Republic of Indonesia, 2018). Although men are generally at higher risk and tend to develop CHD earlier, women constituted a larger proportion of participants in this study, which may reflect changing lifestyle patterns and increasing cardiovascular risk among women (Eaker, 1989; Lima Dos Santos et al., 2023).

In terms of education and occupation, most respondents had secondary or higher education and were employed as civil servants—an occupational group often characterized by sedentary work patterns and high work-related stress. Previous studies have shown that occupational stress and limited physical activity contribute significantly to cardiovascular risk (Green & Kreuter, 2005; Kabo, 2018). The majority of participants also belonged to middle- to upper-income socioeconomic groups, which are frequently associated with dietary patterns high in fat and sugar (Ministry of Health of the Republic of Indonesia, 2020, 2023). Family history emerged as an important risk factor, with 72.4% of respondents reporting a familial history of heart disease, a factor consistently shown to substantially increase CHD risk (Virani et al., 2021; PERKI, 2022).

Other dominant risk factors identified in this study included smoking, hypertension, and diabetes mellitus. Sixty-nine percent of respondents reported smoking, a behavior widely recognized as a major modifiable risk factor for coronary heart disease (Diana et al., 2020; Djunaidi, 2016). Although some participants had no initial comorbid conditions, disease progression was frequently exacerbated by hypertension and diabetes mellitus, both of which

accelerate endothelial dysfunction, vascular damage, and impaired myocardial oxygen supply (Virani et al., 2021; Ministry of Health of the Republic of Indonesia, 2023).

Overall, these findings confirm that age, gender, education, occupation, socioeconomic status, family history, smoking habits, hypertension, and diabetes mellitus remain key determinants of coronary heart disease, consistent with national and international evidence (Ministry of Health of the Republic of Indonesia, 2018; PERKI, 2022; Virani et al., 2021). Therefore, effective prevention and management strategies should prioritize blood pressure and glycemic control, smoking cessation, and the adoption of healthy lifestyle behaviors, including regular physical activity and balanced nutrition (American Heart Association, 2020; PERKI, 2022).

The findings of this study demonstrated a significant improvement in knowledge among participants in the intervention group following the audiovisual media intervention. The mean knowledge score increased from 5.86 to 7.38 ($p < 0.001$). Audiovisual media engage multiple sensory modalities, facilitating better comprehension, retention, and understanding of health-related information. According to learning theory, video-based education enhances engagement and improves the learning experience, making complex health information more accessible to patients (Gerlach & Ely, 1971; Anderson & Krathwohl, 2010). This finding is consistent with health education theories and previous studies, which indicate that multimedia-based education can improve knowledge, promote disease prevention, and support healthy lifestyle behaviors (Green & Kreuter, 2005; Notoatmodjo, 2014).

In addition to knowledge, attitudes toward coronary heart disease prevention also improved significantly. The mean attitude score increased from 23.21 to 25.10 ($p = 0.018$). Audiovisual media have been shown to influence individual perceptions of health risks and promote positive attitudes toward preventive behaviors (Ajzen & Fishbein, 2005; Azwar, 2013). Consistent with Bloom's taxonomy, attitude change represents the affective domain of learning, which is closely associated with cognitive development (Anderson & Krathwohl, 2010).

In contrast, although a slight increase in preventive behavior scores was observed (from 27.28 to 27.38), this change was not statistically significant ($p = 0.084$). Behavioral change is a complex process influenced by multiple interacting factors, including knowledge, attitudes, personal experience, motivation, and environmental context (Notoatmodjo, 2007; Pender et al., 2019). Behavioral theories emphasize that sustainable behavior change requires repeated exposure, reinforcement, and long-term interventions. Previous studies have similarly reported that while audiovisual media are effective in improving knowledge and attitudes, measurable behavioral change often requires longer intervention periods and more comprehensive support strategies (Green & Kreuter, 2005; Pender et al., 2019).

Overall, audiovisual media offer several advantages, including engaging presentation, ease of comprehension, repeatability, and the ability to convey messages through both visual and auditory channels. These characteristics enhance understanding, promote positive attitudes, and support health education efforts (Gerlach & Ely, 1971; Bensley & Brookins-Fisher, 2003). However, influencing long-term behavioral change requires additional strategies beyond single-mode educational interventions.

The control group also demonstrated significant improvements in knowledge and attitudes following the intervention period. Knowledge scores increased from 6.17 to 7.57 ($p < 0.001$), and attitude scores increased from 22.13 to 24.20 ($p < 0.001$). Preventive behavior scores also showed a statistically significant change ($p = 0.006$), indicating behavioral variation within the group. These findings suggest that exposure to health information, even without structured audiovisual intervention, may contribute to improvements in cognitive and affective domains (Notoatmodjo, 2014).

Audiovisual media function as an effective communication tool by simultaneously engaging visual and auditory senses, allowing both verbal and non-verbal messages to be delivered clearly and comprehensively. According to learning theory, combined visual and auditory stimulation

enhances information retention and understanding, supporting more effective health communication and counseling strategies (Gerlach & Ely, 1971; Anderson & Krathwohl, 2010).

Comparative analysis between the intervention and control groups showed no statistically significant differences in knowledge, attitudes, or preventive behaviors after the intervention. These findings indicate that audiovisual health promotion alone did not produce significantly different outcomes between groups in the post-intervention assessment. This result aligns with health education theory, which emphasizes that educational media function as supportive tools rather than independent determinants of behavioral change (Green & Kreuter, 2005).

Multivariate analysis demonstrated that the audiovisual media intervention was not independently associated with changes in knowledge, attitudes, or behaviors. Economic status functioned as a confounding variable for knowledge outcomes, while attitudes were influenced by age, education level, gender, and economic status. Preventive behaviors were affected by occupational and educational factors. These findings indicate that demographic and socioeconomic characteristics play a substantial role in shaping health knowledge, attitudes, and behaviors (Notoatmodjo, 2014; Pender et al., 2019).

Although socioeconomic theory suggests that economic status influences diet and cardiovascular risk, contemporary lifestyle patterns have led to widespread consumption of high-cholesterol foods across socioeconomic groups, reducing the exclusivity of economic status as a primary risk factor (Ministry of Health of the Republic of Indonesia, 2023). Individual factors such as age, education, and occupation also significantly influence health-related decision-making. Education shapes cognitive understanding and health literacy, while occupational stress and workload contribute to cardiovascular risk through metabolic and physiological pathways, supporting existing evidence that psychosocial and occupational stressors are critical contributors to coronary heart disease risk (Eaker, 1989; Kabo, 2018).

CONCLUSION

This study demonstrated that audiovisual health promotion significantly improved knowledge and attitudes among patients with coronary heart disease. However, no statistically significant effect was observed on preventive behaviors. These findings indicate that audiovisual interventions are effective in enhancing cognitive and affective outcomes but are insufficient as stand-alone strategies for producing sustained behavioral change.Although improvements in mean scores for knowledge, attitudes, and behaviors were observed, behavioral transformation appears to require longer-term, more intensive, and multifaceted interventions. Confounding factors such as age, education level, gender, occupation, and socioeconomic status were shown to influence outcomes, highlighting the importance of individualized and context-sensitive health education approaches.

Overall, audiovisual media have strong potential as effective educational tools for improving understanding and attitudes among patients with coronary heart disease. However, achieving meaningful and sustained behavioral change requires integrated interventions that combine audiovisual education with counseling, follow-up support, and lifestyle modification programs.

RECOMMENDATION

Audiovisual media should be utilized as part of comprehensive health education programs to improve knowledge and attitudes among patients with coronary heart disease, particularly among high-risk groups such as individuals with hypertension, diabetes mellitus, and genetic predisposition. However, audiovisual interventions should not be implemented as stand-alone strategies for behavioral modification.

Healthcare institutions are encouraged to integrate audiovisual education with complementary interventions, including individualized counseling, practical demonstrations, structured follow-up programs, and community-based support systems. Special attention should be given to patients with limited digital literacy to ensure equitable access to educational interventions.

Future research should employ longer intervention durations, multimodal educational strategies, larger sample sizes, and longitudinal designs to better assess long-term behavioral outcomes. Further studies should also consider individual characteristics such as age, education, gender, occupation, and socioeconomic status to better understand their moderating effects on the effectiveness of audiovisual health education.

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