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Research Article

A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Early Signs and Immediate Management of Myocardial Infarction Among Secondary Students of Selected Schools of Pulwama Kashmir

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I N F O

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A B S T R A C T

Background: Myocardial Infarction (MI) is a life-threatening condition caused by the sudden blockage of blood flow to the heart muscle, leading to tissue necrosis[1]. Early recognition of warning signs and prompt management are essential to reduce mortality.

Objectives: To assess the pre-test level of knowledge regarding early signs and immediate management of myocardial infraction among secondary school students and to assess the post-test level of knowledge regarding early signs and immediate management of myocardial infraction among secondary school students.

Materials and Methods: A pre-experimental one-group pre-test post-test design was used among 60 secondary school students selected through purposive sampling. Following the pre-test, a 30-minute STP was delivered, and post-test knowledge was assessed after seven days.Data was analyzed using descriptive statistics, paired t-test, and Fisher Exact Test.

Results: Pre-test findings showed that 13.3% of students had inadequate knowledge, 75% had moderately adequate knowledge, and 11.7% had adequate knowledge.

Keywords: Myocardial Infarction, Knowledge, Structured Teaching Programme, Secondary Students

Introduction

Cardiovascular diseases (CVDs) remain a major global health burden, with Myocardial Infarction (MI) or heart attack being one of the most severe manifestations[1]. Myocardial infarction (MI) is a leading cause of death worldwide, with over 254 million cases and 9.1 million deaths reported in 2021[2]. Its prevalence is rising among younger adults, with early-onset cases increasing significantly and linked to smoking, obesity, and stress Myocardial Infarction (MI) is a life-threatening condition caused by the sudden blockage of blood flow to the heart muscle, leading to tissue necrosis[3]. Early recognition of warning signs and prompt management are essential to reduce mortality. However, awareness among adolescents remains limited, especially in Pulwama, Kashmir. This study aimed to evaluate the effectiveness of a Structured Teaching Programme (STP) in improving knowledge regarding early signs and immediate management of MI among secondary school students

Early detection plays a crucial role in reducing mortality and improving survival outcomes Awareness of MI symptoms remains low, especially regarding atypical signs like jaw pain, nausea, or shortness of breath[4]. These trends highlight the urgent need for educational and structured teaching programs to promote early recognition and management of MI.

Structured teaching programmes have been shown to significantly improve knowledge regarding Early signs and immediate management of myocardial infarction among secondary students of selected schools of Pulwama Kashmir.

Need for Study

Myocardial Infarction (MI) is a type of heart disease, more commonly known as heart attack as due to this disease one or more than one areas of heart muscles don't get enough oxygen[1].

Myocardial infarction (MI) is a leading cause of death worldwide, with over 254 million cases and 9.1 million deaths reported in 2021[2]. Its prevalence is rising among younger adults, with early-onset cases increasing significantly and linked to smoking, obesity, and stress. Awareness of MI symptoms remains low, especially regarding atypical signs like jaw pain, nausea, or shortness of breath. These trends highlight the urgent need for educational and structured teaching programs to promote early recognition and management of MI[4]. WHO reported that 16.7 million people are the world die due to coronary artery diseases. Each year 29% of all deaths are globally caused due to Myocardial Infarction (MI) and it is considered as major health problem in India including Kashmir. Global Burden of Disease study estimated an age-standardized cardiovascular disease (CVD) death rate of 272 per 100,000 population in India, which is higher than the global average[5]. A comprehensive study conducted in the Kashmir Valley reported an overall coronary heart disease (CHD) prevalence of 7.54%. The study found a higher prevalence in urban areas (8.37%) compared to rural areas (6.70%). Gender-wise, males exhibited a prevalence of 7.88%, while females had a slightly lower rate of 6.63%. Age and Gender Distribution: Research focusing on patients under 40 years of age revealed that 76.7% were males and 23.3% were females, with a mean age of 37.7 years[7]. This indicates a higher incidence of MI among younger males in the region. The unique socio-environmental factors in Kashmir, including prolonged stress due to regional disturbances, sedentary lifestyles, dietary habits, and harsh climatic conditions, may contribute to the increased prevalence of Myocardial Infarction (MI)[10] despite these factors, there is a paucity of region-specific data on MI.

In this context This study aims to contribute to existing body of knowledge by evaluating the effectiveness of structured teaching Program(STP) in improving students' knowledge about Myocardial Infarction(mi), the findings of the study can be used to develop targeted educational interventions to enhance students' knowledge about Myocardial Infarction(mi), ultimately contributing to improved health outcomes in Kashmir.

Materials and Methods

Statement of the Problem

A study to assess the effectiveness of structured teaching Programme on knowledge regarding early signs and immediate management of myocardial infarction among secondary students of selected schools of Pulwama Kashmir

Objectives of the Study

- To assess the pre-test level of knowledge regarding early signs and immediate management of myocardial infraction among secondary school students.
- To assess the post-test level of knowledge regarding early signs and immediate management of myocardial infraction among secondary school students.
- To evaluate the effectiveness of structured Teaching program by comparing pretest and Posttest level of knowledge regarding early signs and immediate management of myocardial infraction among secondary school students.
- To find out the association between pre-test level of knowledge regarding early signs and immediate management of myocardial infraction with selected sociodemographic variables.

- Study Design: A pre-experimental one-group pre-test post-test design was adopted. This design involves measuring outcomes before and after an intervention in the same group without a control group.
- Study Setting: The study was conducted at Selected Schools of District Pulwama Kashmir.
- Study Population Secondary School students enrolled in Selected Schools of Pulwama Kashmir.
- Sample Size and Sampling Technique: A sample size of 60 participants was selected using non-probability purposive sampling based on feasibility and availability during the study period.

Inclusion Criteria

- Students enrolled in classes 9th, 10th, 11th and 12th
- Willingness to participate in the study
- Ability to read and write in English or Urdu for responding to questionnaires.

Exclusion criteria include

- Students who are not willing to participate.
- Absentees on the days of intervention or testing.

Data Collection Tool

A self-structured questionnaire was developed based on literature review and expert validation. It consisted of:

Section I

It includes demographic data such as age, gender, occupation and education.

Section II

It is intern divided into two sections

Section A includes early signs and symptoms and Section B includes immediate management. It contains structured questionnaire with thirty questions based on secondary school students' knowledge about MI. Each correct response was awarded one mark. Total score ranged from 0 to 30.

Scoring Criteria

- Inadequate knowledge: (0–9) Marks
- Moderately adequate: (10–19) Marks
- Adequate: > (20–30) Marks

Reliability

The tool demonstrated good internal consistency (Cronbach's alpha = 0.85).

Intervention (Structured Teaching Programme)

The STP was developed using standard nursing literature and expert consultation. It included:

- Concept and importance of Identifying Early signs of MI like Chest Pain Shortness of Breath, Excessive sweating etc.
- Risk factors and Immediate Management
- Step-by-step MI management

The Programme was delivered through lecture-cum-discussion and demonstration using visual aids. Duration was 30–45 minutes.

Data Collection Procedure

Participants were approached in classrooms after obtaining institutional permission. Written informed consent was obtained. Pre-test was conducted, followed by STP, and post-test after 7 days.

Ethical Considerations

Ethical approval was obtained from the institutional authority. Confidentiality and anonymity were ensured. Participation was voluntary.

Statistical Analysis

The data were analysed using both descriptive statistics (frequency, percentage, mean, median, standard deviation, and range) and inferential statistics (paired t test, Fisher Exact test). All statistical analyses were performed using SPSS version 26, with inferences drawn at a significance level of $p < 0.05$.

Results

Interpretation: The majority of participants were aged 17-18 (55%) years, followed by age group 15-16 years as 33.3%, followed by age of 13-14 years as 11.7%. Above data reveals that male to female are in equal proportion i.e 50% each Class Half of students (50%) were students of 9^{th} class, followed by 30% students studied in grade 11^{th} & the remaining 20% students were student of 12^{th} class Majority of fathers (43.3%) were working in other profession, followed by health profession as 33.3%, followed by farmer as 13.3% & the remaining 10% fathers were businessman .Majority of mothers 91.7% were working in other profession, followed by health profession as 5% & the remaining 3.3% mothers were housewife Majority of fathers 36.7% have studied up to secondary level, followed by primary education as 25%, followed by graduate as 21.7% & the remaining 16.7 fathers were illiterate Majority of mothers 53.3% have studied up to primary level, followed by illiterate as 21.7%, followed by secondary education as 15% & the remaining 10% mothers were graduate.

Interpretation: Most participants. (86.66%) have moderately adequate knowledge regarding the aforesaid subject, followed by inadequate knowledge as 11.67% & the remaining 1.67% have adequate knowledge.

Table 1.Frequency and Percentage Distribution of Secondary School Students According to Their Demographic Variables

Characteristics	Socio-demographic variables		
	Content	f	%
Age(years)	11-12	0	0%
	13-14	7	11..7%
	15-16	20	33.3%
	17-18	33	55%
Gender	Male	30	50%
	Female	30	50%
Grade/ Class	Prefer not to say	0	0%
	Grade 9th	30	50%
	Grade 10th	0	0%
	Grade 11th	18	30%
	Grade 12th	12	20%
Occupation of father	Health professional	20	33.3%
	Businessman	6	10%
	Farmer	8	13.3%
	Other	26	43.3%
Occupation of mother	Health professional	3	5%
	Housewife	2	3.3%
	Other	55	91.7%
Fathers qualification	Primary education	15	25%
	Secondary education	22	36.7%
	Graduate	13	21.7%
	Illiterate	10	16.7%
Mothers qualification	Primary education	32	53.3%
	Secondary education	9	15%
	Graduate	6	10%
	Illiterate	13	21.7%

Table 2.Frequency and Percentage Distribution of Pre-Test Level of Knowledge Regarding the Early Signs and Immediate Management of Myocardial Infraction Among Secondary School Students

Scoring criteria	Pre-test Knowledge(n=60)	
	Frequency	Percentage
Inadequate Knowledge (0-9)	7	11.67%
Moderately adequate Knowledge (10-18)	52	86.66%
Adequate Knowledge (19-30)	1	1.67%

Minimum Score = 0 Maximum Score = 30

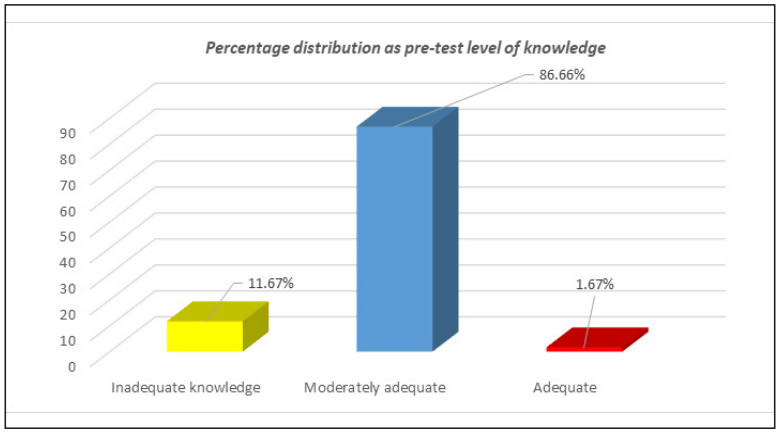

Figure 1.Bar Diagram Showing Pre-Test Level of Knowledge Among Secondary School Students

Table 3.Descriptive Statistics of Pre-Test Level of Knowledge Regarding the Early Signs and Immediate Management of Myocardial Infraction Among Secondary School Students

Descriptive	(Mean±SD)	Mode	Median	Minimum	Maximum	Range
Statistics Pre-test knowledge (N=60)	(13.46±3.22)	17	14	5	22	17

Interpretation: The mean+-13.46 indicates moderate knowledge, with a wide range (5–22) suggesting variability among participants.

Interpretation: After the intervention 91.67% of participants achieved adequate knowledge indicating a marked improvement and the remaining 8.33% were having moderately adequate knowledge.

Interpretation: The high mean score (22.46+-3.09) with low variability indicates consistent and excellent knowledge after the intervention.

Interpretation: The comparison of pre-test and post-test knowledge levels shows a remarkable improvement in participants' knowledge regarding Early signs and immediate management of myocardial infarction following the structured teaching programme. The mean pre-test knowledge score was (13.46 ± 3.22) which increased markedly to a mean post-test score of (22.46 ±3.09)

The calculated Paied t-Value (t=22.83) is much higher than the table value at 0.05 level of significance and the p-value is P=0.00 <0.05 indicating that the difference is highly statistically significant.

This clearly demonstrates that the structured teaching programme was highly effective in improving the knowledge of participants regarding regarding Early signs and immediate management of myocardial infarction following the structured teaching programme.

Fisher Exact Test Was used to determine the Association between pre-test level of knowledge score with their demographic variables The findings reveal that there was no statistically significant association between pre-test knowledge scores and most of the selected variables, including Gender (p=1.66&0.861),Class (p=2.463&0.72),Occupation of Father (p=3.01&0.618)

Table 4.Frequency and Percentage Distribution of Post-Test Level of Knowledge Regarding the Early Signs and Immediate Management of Myocardial Infraction Among Secondary School Students

Scoring criteria	Post-test Knowledge(n=60)	
	Frequency	Percentage
Inadequate Knowledge (0-9)	0	0%
Moderately adequate (10-18)	5	8.33%
Adequate Knowledge (19-30)	55	91.67%

Minimum Score = 0 Maximum Score = 30

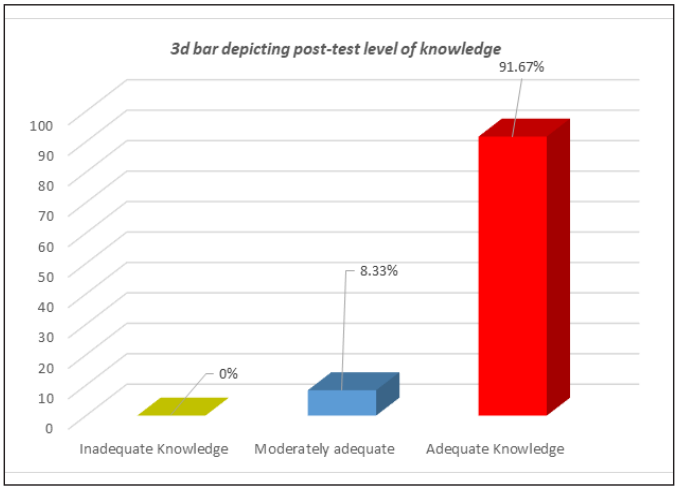

Figure 2.Bar Diagram showing post-test level knowledge among secondary school students

Table 5.Descriptive Statistics of Post-Test Level of Knowledge Regarding the Early Signs and Immediate Management of Myocardial Infraction Among Secondary School Students

Descriptive	(Mean±SD)	Mode	Median	Minimum	Maximum	Range
Statistics Post-test knowledge (N=60)	(22.46±3.09)	21	23	14	27	13

Maximum=30 Minimum=0

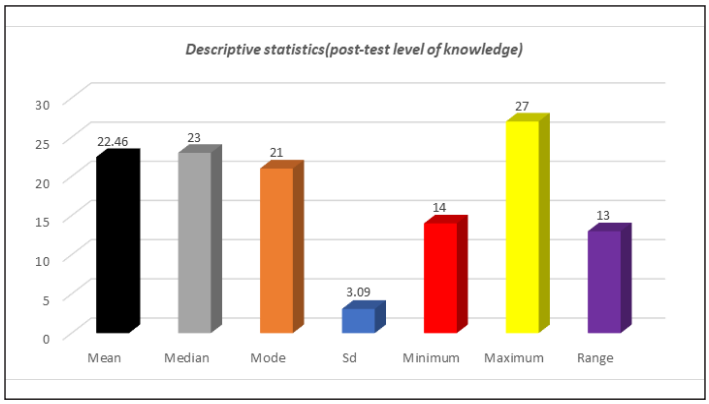

Figure 3.Bar Diagram Showing Post-Test Level Knowledge Among Secondary School Students

Table 6.Comparison of Mean Pre-Test and Post-Test Knowledge Scores and Sd of Mothers of Both Experimental and Control Group

Effectiveness between pre and posttest knowledge using paired t-test(N=60)			
Group	**Mean ±SD**	**df**	**Paired t test**
Pretest	13.46±3.22	59	22.83 S P=0.00 <0.05
Posttest	22.46±3.09		

S Significant, P<0.05
NS Non-Significant, P>0.05
Maximum Score=30 Minimum Score=0

Table 7.Association Between Pre-Test Level of Knowledge Score With Their Demographic Variables Using Fisher Exact Test

Variables	Options	Inadequate Knowledge	Moderately adequate	Adequate Knowledge	Fisher Exact Test	df	P value	Interpretation
Age	11-12	0	4	0	29.77	6	0.01	S**
	13-14	3	25	0				
	15-16	2	12	1				
	17-18	6	7	0				
Gender	Male	6	10	0	1.66	2	0.861	NS
	Female	5	38	1				
Grade/ Class	Grade 9th	1	20	1	2.463	6	0.72	NS
	Grade 10th	4	10	0				
	Grade 11th	3	9	0				
	Grade 12th	3	8	1				
Occupation of father	Health professional	1	21	1	3.01	6	0.618	NS
	Businessman	3	18	0				
	Farmer	5	4	0				
	Other	1	6	0				
Occupation of mother	Health professional	5	20	0	24.82	6	0.00	S**
	Housewife	1	20	1				
	Other	3	5	0				
Fathers qualification	Primary education	1	20	1	7.91	6	0.77	NS
	Secondary education	4	10	0				
	Graduate	3	9	0				
	Illiterate	3	8	1				
Mothers qualification	Primary education	3	18	1	22.71	6	0.01	S***
	Secondary education	5	7	0				
	Graduate	4	9	0				
	Illiterate	4	8	1				

S Significant, P<0.05
NS Non-Significant, P>0.05

Discussion

Pretest knowledge scores are significantly correlated with some sociodemographic variables including age, fathers qualification mothers qualification While as, there is no significant correlation between the pretest knowledge levels and other sociodemographic characteristics, including mother's and husband's occupations and monthly income of the family.

The present study demonstrated a statistically significant improvement in knowledge regarding early signs and immediate management of Myocardial infarction following the structured teaching programme. The findings are consistent with previous studies, which have reported that structured educational interventions significantly enhance awareness and understanding of early signs and immediate management of myocardial infarction

among secondary school students of Pulwama Kashmir. The substantial increase in post-test scores highlights the effectiveness of interactive teaching methods, including demonstration and discussion. These approaches facilitate better comprehension and retention of information compared to passive learning methods.

Conclusion

The study concludes that the structured teaching programme was highly effective in improving knowledge regarding early signs and immediate management of Myocardial infarction following the structured teaching programme. Integrating such programmes into academic curriculam can enhance early detection practices and reduce burden of myocardial infarction cases.

Recommendations

- Practical Training and Demonstrations
- Community Awareness Initiatives
- Involvement of Health Professionals
- Use of Multimedia and Digital Platforms
- Continuous Evaluation and Feedback

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