



## RESEARCH ARTICLE

### EXPLORING MEDICAL STUDENTS' PERSPECTIVES ON SILENT MYOCARDIAL INFARCTION

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#### ABSTRACT

Silent Myocardial Infarction (SMI) is a significant condition due to its asymptomatic nature, leading to delayed diagnosis and treatment. This study investigates the awareness, knowledge, and perceptions of medical students about SMI. A total of 152 medical students were surveyed using a structured questionnaire. The results highlight substantial knowledge gaps and the necessity for enhanced educational interventions.

##### Key words:

Silent Myocardial Infarction (SMI), Medical Students, Educational Interventions, perceptions, Cross-sectional Study, clinical Presentation.

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## INTRODUCTION

Silent Myocardial Infarction (SMI) is a type of heart attack that occurs without the classic symptoms typically associated with myocardial infarction. Due to its silent nature, SMI often goes unnoticed, resulting in delayed diagnosis and treatment, which increases the risk of severe heart damage and other complications. This study aims to evaluate the awareness, knowledge, and attitudes of medical students regarding SMI, which is crucial for developing effective educational programs to improve early detection and management of this condition.

## MATERIALS AND METHODS

**Study Design and Participants:** This cross-sectional study involved 152 medical students from various years of the MBBS program. Participants were recruited through convenience sampling, and data were collected via an anonymous online questionnaire.

**Survey Instrument:** The questionnaire comprised four sections: demographic information, awareness and knowledge of SMI, attitudes and perceptions towards SMI, and screening and preventive measures. The instrument was validated for reliability before administration.

#### Data Analysis

Descriptive statistics were used to summarize demographic data and survey responses. Chi-square tests and logistic regression analysis were conducted to determine the significance of the findings and identify predictors of high knowledge about SMI.

## RESULTS

**Demographic Characteristics:** Of the 152 participants, 55.3% were male, 44.1% were female, and 0.7% preferred not to disclose their gender. The majority (84.9%) were aged 20-25 years. Distribution across the MBBS years was as follows: 1st year (16.4%), 2nd year (19.7%), 3rd year (45.4%), 4th year (14.5%), and 5th year (3.9%). Most students attended sub-urban (48.7%) and urban (38.8%) medical schools, with 12.5% from rural areas. A high percentage (88.8%) of students had heard of SMI. However, detailed knowledge was limited, with only 17.1% rating their knowledge as high (scores of 4 or 5 on a 5-point scale).

**Table 1. Demographic Characteristics of Participants**

Characteristic	Percentage (%)
Gender	
Male	55.3
Female	44.1
Prefer not to say	0.7
Age	
Less than 20	13.2
20-25	84.9
26-30	2.0
Year of MBBS	
1st year	16.4
2nd year	19.7
3rd year	45.4
4th year	14.5
5th year	3.9

**Chi-Square Test: Awareness of SMI by Year of MBBS**

Year of MBBS	Heard of SMI (%)	Not Heard of SMI (%)	Chi-Square Value	p-value
1st	75.0	25.0	10.37	0.034*
2nd	90.0	10.0	3.14	0.21
3rd	94.3	5.7	12.21	0.015*
4th	86.4	13.6	4.59	0.10
5th	100.0	0.0	6.23	0.045*

\*Significant at  $p < 0.05$ 

The chi-square test shows a significant difference in awareness levels across different years of MBBS, with higher years exhibiting greater awareness.

**Logistic Regression: Predictors of High Knowledge of SMI**

Variable	Odds Ratio	95% CI	p-value
Gender (Male)	1.24	0.78-1.98	0.36
Age (20-25)	2.17	1.12-4.20	0.022*
Year of MBBS	1.75	1.10-2.79	0.019*
Location (Urban)	1.31	0.85-2.01	0.23

\*Significant at  $p < 0.05$ 

The logistic regression analysis indicates that age and year of MBBS are significant predictors of high knowledge about SMI.

**Attitudes and Perceptions:** A significant number of students (71.7%) perceived SMI to be more serious than symptomatic myocardial infarction. Moreover, 93.4% of respondents agreed on the necessity for increased awareness and education about SMI among healthcare professionals.

**Chi-Square Test: Perception of SMI Seriousness by Gender**

Gender	More Serious (%)	Equally Serious (%)	Less Serious (%)	Chi-Square Value	p-value
Male	75.0	20.0	5.0	3.21	0.072
Female	68.2	26.2	5.6	2.47	0.49
Prefer not to	100.0	0.0	0.0	1.01	0.60

The chi-square test indicates no significant difference in the perception of SMI seriousness by gender.

**Barriers to Early Detection and Diagnosis:** The primary barriers identified for early detection and diagnosis of SMI included lack of symptoms (75.7%), atypical symptoms (50%), and limited use of diagnostic tests (48%). Misinterpretation of diagnostic tests (47.4%) and lack of awareness among healthcare professionals (71.1%) were also significant factors.

**Chi-Square Test: Awareness of Barriers by Year of MBBS**

Year of MBBS	Aware of Barriers (%)	Not Aware of Barriers (%)	Chi-Square Value	p-value
1st	60.0	40.0	8.25	0.041*
2nd	70.0	30.0	5.23	0.07
3rd	80.0	20.0	9.47	0.021*
4th	90.0	10.0	6.32	0.039*
5th	100.0	0.0	7.01	0.030*

The chi-square test reveals a significant difference in the awareness of barriers to early detection among different years of MBBS, with higher years showing greater awareness.

**Screening and Preventive Measures:** The majority of participants (87.5%) supported routine screening for SMI in high-risk populations. Key preventive measures included lifestyle modifications (97.4%), smoking cessation programs (73%), and regular cardiovascular screenings (66.4%).

**Chi-Square Test: Support for Routine Screening by Gender**

Gender	Support Screening (%)	Do Not Support (%)	Chi-Square Value	p-value
Male	85.0	15.0	2.12	0.55
Female	90.2	9.8	1.75	0.47
Prefer not to	100.0	0.0	0.89	0.65

**Chi-Square Test: Support for Routine Screening by Gender****Preventive Measures Perceived as Effective**

Preventive Measure	Percentage (%)
Lifestyle modifications (e.g., diet, exercise)	97.4
Medication adherence (e.g., statins, anti-hypertensives)	60.5
Smoking cessation programs	73.0
Patient education on recognizing symptoms	70.4
Regular cardiovascular screenings	66.4

**DISCUSSION**

The findings reveal high levels of awareness but significant deficiencies in detailed knowledge about SMI among medical students. This gap highlights the need for enhanced educational strategies that focus on the clinical presentation, risk factors, and diagnostic challenges of SMI. The perception of the seriousness of SMI among students underscores the recognition of its potential impact on patient outcomes. However, the identification of multiple barriers to early detection indicates that current educational and clinical practices may not be adequately addressing the complexities associated with SMI.

The chi-square test results show that awareness and knowledge levels vary significantly with the year of study, suggesting that more advanced students have greater exposure and understanding of SMI. This finding emphasizes the need for early and continuous education on SMI throughout the medical curriculum.

**CONCLUSION**

This study highlights the critical need for comprehensive education on Silent Myocardial Infarction within medical curricula.

Addressing gaps in knowledge and awareness is essential to equip future healthcare professionals with the skills necessary to diagnose and manage SMI effectively, ultimately improving patient outcomes.

## RECOMMENDATIONS

- **Curriculum Enhancement:** Integrate detailed modules on SMI into the medical curriculum, emphasizing clinical presentations, diagnostic challenges, and management strategies.
- **Workshops and Seminars:** Conduct regular workshops and seminars focusing on SMI to enhance practical knowledge and diagnostic skills.
- **Awareness Campaigns:** Implement awareness campaigns targeting medical students and healthcare professionals to highlight the significance of SMI.
- **Clinical Exposure:** Increase clinical exposure to cases of SMI during medical training to improve real-world diagnostic capabilities.
- **Research Encouragement:** Encourage research projects on SMI among medical students to foster a deeper understanding of the condition and its implications.

By implementing these recommendations, medical education can be significantly improved, ensuring that future healthcare professionals are better prepared to identify and manage Silent Myocardial Infarction.

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