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Research

Pharmacist Intervention in early detection and prevention of Mi Risk Among Adults

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	Abstract
Published on: 11 Feb 2025	<p>Background: In the modern competitive world, cardiovascular challenges are becoming common and becoming responsible for early deaths. Myocardial Infarction (MI) is a predominant cause of pre-mature deaths. Numerous Procedures have been applied to evaluate MI risk. For the evaluation of MI risk, a separately developed MIRAT is employed. Even though significant strides have been achieved to reduce mortality, coronary artery disorders (CAD) remain the leading cause of death in many nations, making it one of the major health issues facing the world. Therefore, one of the most crucial health concerns in many nations, including Iran, may be the need to investigate risk and effective factors for CAD.</p>
Published by: DrSriram Publications	<p>Objective: To evaluate the threat of Myocardial infarction among people in the middle age population using the MIRAT</p>
2025 All rights reserved.	<p>Method: This is a prospective interventional study carried out over a length of 24 weeks after obtaining the institutional Human Committee approval. MIRAT was used in this research which includes 16 self-reporting questions covering age, gender, diabetic history, smoking history, records of hypertension, and family records of coronary heart assault prior 55 years of age etc., This information helps to evaluate the hazard of Myocardial infraction based on danger score criteria. In case the resulting points are greater than 10, considered patients are at greater threat of getting MI.</p>
	<p>Results: Using the inclusion criteria, 100 subjects were involved in the research. 36 of them were women, while 64 of them were men. The ages 35 to 50 made up the bulk of the population, while 23% of people were from an agricultural background and 38% were from the business sector. Twenty-two (22%) of the 100 participants were found to possess a greater threat of developing MI.</p>
Creative Commons Attribution 4.0 International License.	<p>Conclusion: The study's findings showed that the MIRAT can be used to foretell the possibility of time ahead of Myocardial infarction.</p>
	<p>Keywords: Cardiovascular, coronary artery disease, hypertension, myocardial Infarction, Myocardial Infarction Risk Assessment Tool, self-reporting questionnaire.</p>

INTRODUCTION

Heart diseases are the major cause of fatality and global health concerns. Males exhibit it more frequently than females do globally. According to estimates, seventeen lakh ninety thousand individuals lost their lives due to heart disease in 2022, and 24.6 million people are expected to get harmed by the year 2024. Heart disease, stroke, hypertension, peripheral arterial disease, myocardial failure, DVT, Lung emboli, and diseases like lymphadenopathy, and aneurysms, etc. are all examples of CVD illness. [5][7]

CAD [coronary artery disease] is characterized by narrowing or blockage of the coronary artery resulting in reduced or complete interruption of blood flow. Various factors such as diet, and sedentary lifestyles contribute to this situation. Individuals in the age group of 40-60 are at greater threat, generally, predominant in the Southern part of Asia, normally more found in men than women. [1]

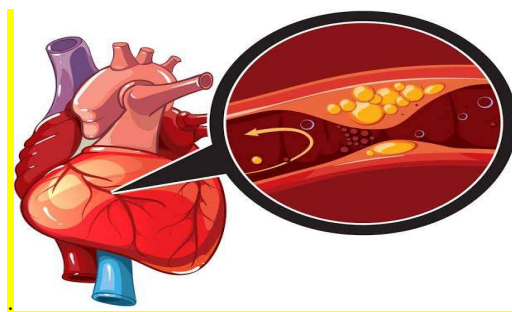


Fig 1: Coronary Artery Disease

Arrhythmias are characterized by divergence from normal heart rhythm. They include peculiarity of impulse formation, such as heart rate, rhythm, or side of impulse origin and conduction disturbances, which disrupt the normal sequence of atrial and ventricular activation. [8]

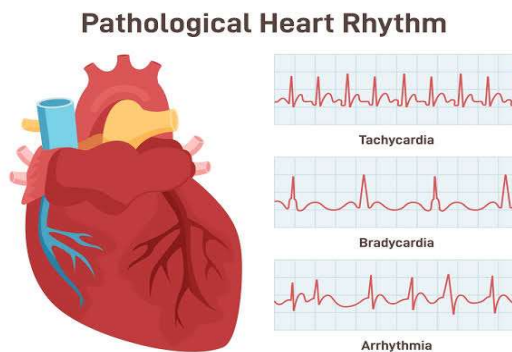


Fig 2: Arrhythmias

PAD [peripheral artery disease] is characterized as veins becoming limited prompting diminished blood stream to the appendages. It is normal with an expansion in age and various vascular factors. [5]

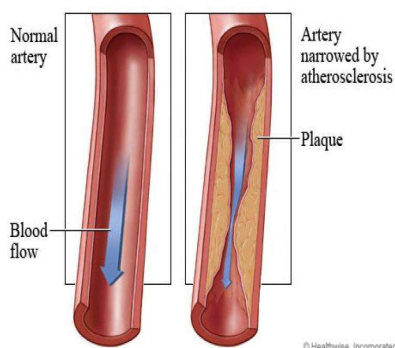


Fig 3: Peripheral Artery Disease

DVT [deep vein thrombosis] is characterized as a progression of blood coagulation in a profound vein. Generally seen in around 1 out of 1000 individuals annually. Pneumonic emboli are characterized as the closure of at least one conduit in the lungs.^{[6][1]}

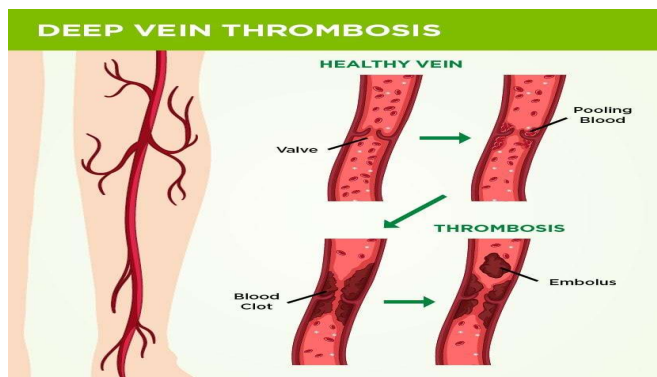


Fig 4: Deep Vein Thrombosis

MI is otherwise called coronary failure portrayed by long-lasting harm to the cardiac cells, MYO implies muscle CARDINAL which defines heart and heart failure, the demise of the cardiac cells because of the absence of blood flow. The dangerous condition includes blockage of at least one coronary course prompt in the thoracic region, which might keep going for a couple of moments and happen regularly. Different side effects incorporate windedness, perspiring, quick pulse, tension, sickness, and heaving.^[3]

Around the world, the death rate is assessed at 30% among 3,000,000 individuals. Consistently, in the U.S. alone cardiovascular failures, bring about more than 370000 passings. While in India, mortality is viewed as higher and is more than 10 million individuals. Throughout recent years, the pace of sickness increments from 2% to 6% in the provincial populace and 4% to 12% in the metropolitan populace.^[3]

The occurrence pace of MI was noticed fundamentally high among people of colour (75-84 years) contrasted with white among the two men (9.1%) and ladies (7.8%). The risk of MI is viewed as 10.62% high in male smokers and 7.38% in non-smokers while 5.88% in female smokers and 2.367% in non-smoker females. Concentrates directed by 52 nations have shown that men are more inclined to high gamble than ladies.^[7]

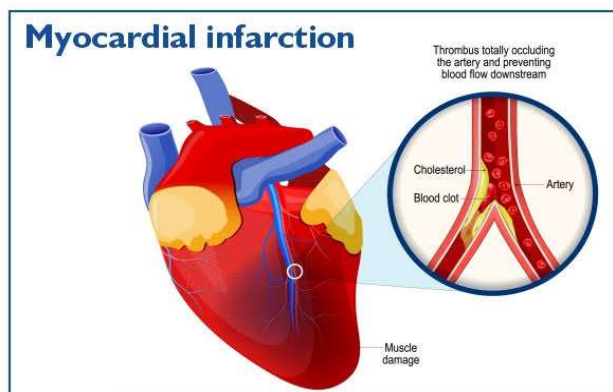


Fig 5: Myocardial Infarction

Methodology

This research was carried out to evaluate the peril of Heart attack in patients whose age is above 35 years. In this research, a survey was conducted which comprised 16 questions. By analyzing the answers, the estimation of threat in the person can be analyzed. The persons getting scores from 1-5 have been considered as low-risk individuals, similarly, 6-10 is moderate risk and > 11 will be considered as higher-risk individuals. The people with high-risk scores are advised to get connected to a cardiologist and have been followed up for a timeline of 24 weeks. The patients in this research are the people who are visiting pharmacies for medications and are the persons who are identified as high-risk individuals in an Individual home health survey. This study was carried out over a length of 24 weeks (September 2022 to February 2023).

Study Design: The study was a prospective interventional study.

Study Population

About a hundred participants were enlisted in this research, were stopping over nearby chemist's shops because of their own prescription necessities and their information was gathered during the review time frame. Among the enlisted, 36 {36%} were females and 64 {64%} were males, All the studied population age ranges between 35-50 years.^[4]

Inclusion Criteria

Over 35-year-old patients visiting medical stores with a valid prescription for hypertension medicine were asked to take part in this research. In order to enroll in this research, the participants were told of their goals and given signed consent.^[3]

Risk Assessment Tool

MIRAT [myocardial infarction risk assessment tool] was used in this research which includes 16 self-reporting questions covering age, gender, diabetic history, smoking history, records of hypertension, and family records of coronary heart assault before 55 years of age etc., This information helps to evaluate the hazard of MI based on danger score criteria. If the result points are greater than 10, considered patients are at higher threat of getting MI.

Data collection

Before beginning this research, the patient's composed informed assent was gotten, and then the subjects received the complete details of how everything worked. Participants who agreed to involve in this research had their pertinent data, including demographics, heart operations, mental state, obesity, alcohol use, smoking, cardiac disease, and other activities, obtained by personal interview and entered into the patient data collecting form.

The enlisted participants were given the MIRAT [myocardial infarction risk assessment tool - a 16-item questionnaire], to assess their risk using the self-given evaluation technique. These questions comprise his number of years, sex or race, diabetic records, elevated BP, smoking, and the bloodline of a cardiac arrest during the age of 55 or younger. According to the score points, the danger is evaluated. Patients are deemed to have a greater threat of increasing cardiovascular illness. So, they need to undergo the proper preventative therapy if their result is eleven or higher.

The patient counselling meetings were mediated by the pharmacists, and each individual or their own delegate received personalized counselling. The patient received counselling from the researchers regarding their health issues, disease, diet, and exercise. During their stay, additional subsequent meetups and directing were led at the cardiology short term division for additional consideration.

RESULTS

This research was carried out in Nalgonda and the surrounding villages' neighborhood pharmacies for six months. 100 participants were included over the duration of the research. 64 of them (or 64%) were men, while 36 (or 36%) were women. The following figure 1 displays the demographic information about the patients.

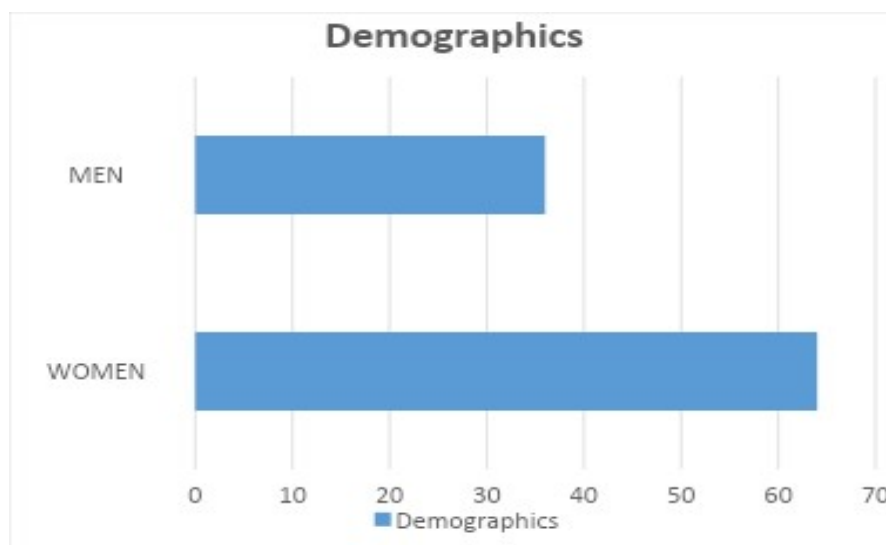


Fig 6: Demographic details of the participants.

The age groups of the enlisted persons are separated. About 23 patients (23%) were between the ages of 35 and 40, followed by 31 patients (31%) between the ages of 40 and 49, and 54 patients (54%) were beyond the age of 50-55. Figure 2 provides specifics on the patient's age distribution.

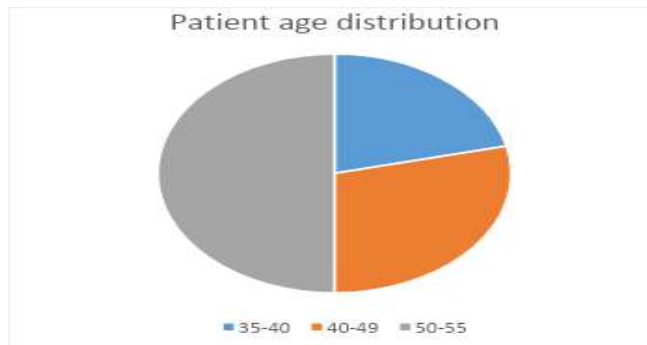


Fig 2: Details of the agedness of the participants

Among 100 individuals, 32 (32%) had hypertension alone, 51 (51%) had hypertension along with diabetes, 14 (14%) had diabetes alone, and 3 (3%) had diseases including asthma or ulcers. Figure 3 presents the specifics.

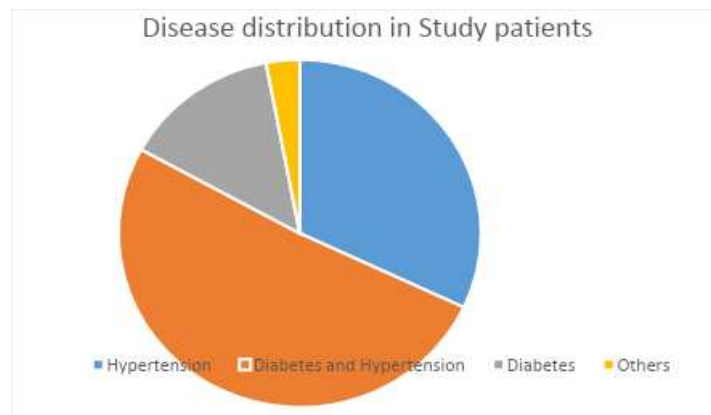


Fig 3: Disease Distribution of the Study Patients

Among the participants, 29% of the 100 subjects are housewives. Of the 100 participants, 30% works in agriculture, 16% are in employment, 12% in business, and 13% are in labor. Figure.4 presents the specifics.

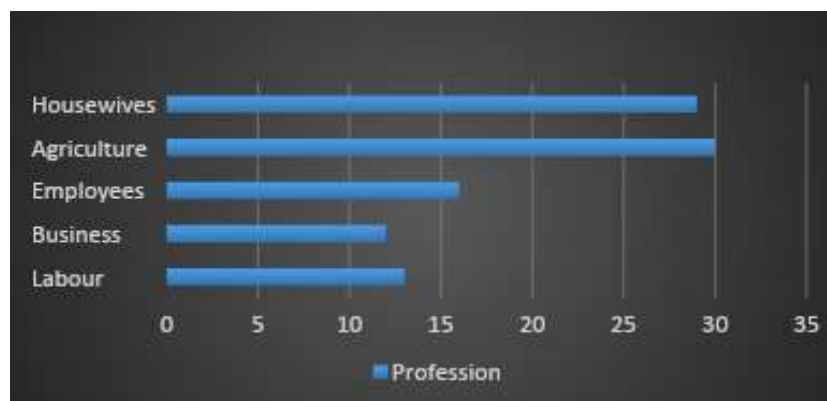


Fig 4: Profession distribution of the study patients

Of the 100 individuals who participated in the trial, 31% had a family background of heart attack at the time of 55 years or younger than that, 26% were who are addicted to smoking, 13% were ex-smokers, and 8% had never smoked. Table 1 lists the specific risk variables in detail.

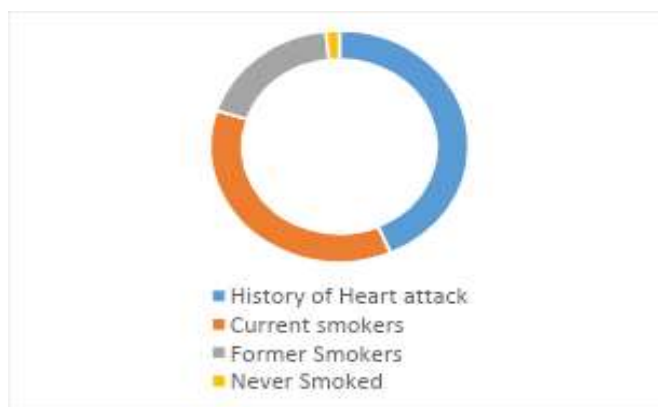


Fig 5: Threat elements recognized amongst the participants.

The estimated MI threat points are shown in Table 2 along with their results. Out of 100 patients, 21 (21%) had low MI risk, 22 individuals [22%] had moderate risk and 57 patients (57%) had high MI risk.

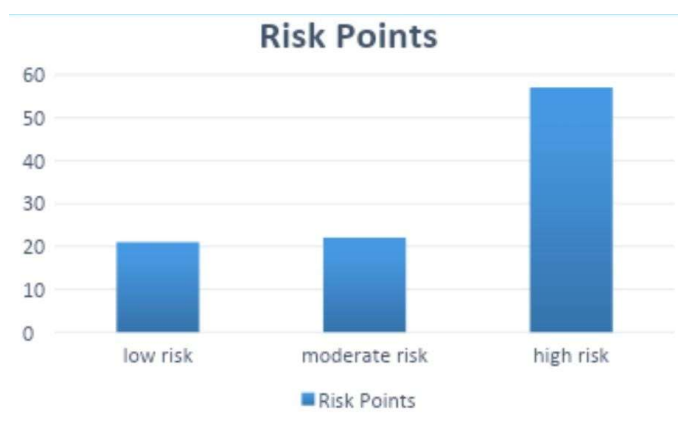


Fig 6: MI threat points among the enlisted people

DISCUSSIONS

Grounded on the proofs available in universal health data, the implicit threat elements that are prone to beget MI among middle-aged people. The ultimate outcome of this research is the development of a MIRAT questionnaire projecting to estimate the 10-year time heart attack threat among individuals in the productive age group. MI refers to the necrosis of cardiomyocytes ascribed to dragged ischemia (lean blood force), which results due to maintaining healthy lifestyles and inadequate precautions with social habits.

A frequently given reason for heart attacks is atherosclerosis that develops over a period i.e., further than 4- 7 times with certain threat factors. numerous cases are ignorant of their medical situation and reach a croaker for proper medical care. It would prompt an assault, also conceivable passing. Particularly among the distinctions in the middle age bunch, carry this trouble and becomes an unsupportable loss to their menage as well as to the society. So, palladium and early care must be taken to mitigate the death rate and ameliorate the health-related quality of life.

Studies have manifested that age has been identified as a major threat cause for heart attacks, along with gender, smoking, elevated BP, hypercholesterolemia, rotundity, alcohol consumption, diabetes mellitus, family history of heart attack, inactive lifestyle, stress factors etc. A methodical evaluation of both retrospective and prospective research recommends that age, race or sex, fat, rotundity, elevated BP, smoking, inactive style of life, CKD, cerebral stress factor, hypercholesterolemia and excessive drinking are probably going to add to 65- 75 of persons having MI threat and death rate. The typical age of the review case is 35- 55 times.

In the course of the research time frame, out of 100 cases, 21 cases (21) were set up to have an advanced threat of suffering from an unborn heart attack. According to the findings of the research, males are at an advanced threat of MI compared to females because of advanced threat elements comprising hypercholesterolemia and smoking, liquor consumption, elevated BP, and diabetes even before they attain 40.

There are many MI threat assessment instruments to detect the unanticipated threat of Myocardial Infarction among productive-age individuals. Among them, the Cochrane bias threat instrument, Thrombolysis in MI threat score

(TIMI), and Escalade Stratification are certified to offer the most effective and accurate results. Cochrane threat instrument will be used to evaluate the threat difference of RCTs, and the threat angle is evaluated using levels of threat: high, low threat and unclassified threat. TIMI threat is evaluated by low threat (1- 4), medium threat (5- 8), and high threat (9- 14) The new simple threat result is a simple instrument for prognostication of cardiovascular complaint events in grown-ups through tone-report information without the necessity of laboratory and tone- report examination data.

According to the results of the current investigation, hypertension and diabetes mellitus pose the greater threat elements for MI. In this course of the present investigation, roughly 51 (51), 14 (14) and 32 (32) participants had hypertension along with diabetes, only diabetes and only hypertension, respectively. A. Sujulsson's study revealed that elevated BP was associated with the threat of unborn MI. Other research findings also demonstrated a link between diabetes and a high threat of MI. Alongside these medical conditions, strong family history, and smoking are likewise connected with a high threat of MI. During this current investigation, we found that a family background of MI is present in 31(31) cases and a past of smoking in 26(26) cases.

In a WHO report, women who are maintaining body weight, taking nutritious food, and going to workouts are associated with an 83 lower threat of MI. Jun Jhu's study showed that being fat is correlated to the greater threat of MI. It is essential to maintain a healthy Body Mass Index which helps in the prevention of MI. O. Eleblom et al. indicated that higher physical activity in the 1st post-MI week is linked to a lower risk of MI death.

Limitation

The main motive of the MIRAT [myocardial infarction risk assessment tool] was to evaluate the future risk of heart attack. Few major threats of heart disease i.e., chronic renal disease and atrial fibrillation, are excluded from this tool.

Future Direction

So as to lower the threat of Myocardial infarction and decrease the fatal rates among people [above the age of Thirty-Five], This could be advantageous if we progressed the experiment. The major motive of this research was to estimate future cardiac attacks or MI 10 years in advance. The role and responsibility of the pharmacist here is to extensively counsel patients, increase their quality of life in terms of their health condition, prevent health-related problems in future, and lower their risk of MI or Cardiac attacks.

CONCLUSION

Adults can use the MIRAT to determine their own peril of increasing Myocardial Infarction in the future, regardless of the help of laboratory or physical examination data. Physicians may easily use this MIRAT as part of their routine treatment to determine the probability of heart attacks and also to mitigate mortality and other health-related problems. The study found that 21 (21%) participants were found to possess a greater threat of developing Myocardial Infarction or Heart attacks in the future after using the MIRAT.

REFERENCES

1. Chun CC, Chein HL, Cheng JL, et. al. Impact of Pharmacist Interventions on the Long-Term Clinical Outcomes in Patients with Myocardial Infarction. *Acta Cardiologica Sin.*2019; 35(3):290.
2. Garcia-OA, Sans-R, J., Ferrero-G, A., Alquezar-A, A., Sionis, A., & Ordóñez-L, J. Risk Assessment after ST-Segment Elevation Myocardial Infarction: Can Biomarkers Improve the Performance of Clinical Variables?. *J clini med.*2022;11(5):1266.
3. Peletidi A, Nabhani-GS, Kayyali R. The role of pharmacists in cardiovascular disease prevention: Qualitative studies from the United Kingdom and Greece. *J Res Pharm Pract.* 2019 [cited 2023 Mar 20];8:112-22
4. Alshehri AA, Jalal Z, Cheema E, Haque MS, Jenkins D, Yahyouche A. Impact of the pharmacist-led intervention on the control of medical cardiovascular risk factors for the primary prevention of cardiovascular disease in general practice: A systematic review and meta-analysis of randomised controlled trials. *Br J Clin Pharmacol.* 2020 Jan;86(1):29-38.
5. Vivan WL, Libby MC, Winky JW, Ho WC, Carman KNg & Franco WC. Pharmacist intervention in the prevention of heart failure for high-risk elderly patients in the community. *BMC cardiovascular disorders.* 2015;15: 178.
6. Azab AE, Elsayed ASI. Acute myocardial infarction risk factors and correlation of its markers with serum lipids. *J Appl Biotechnol Bioeng.* 2017;3(4):385-391.
7. Bhandari, Monika & Singh, Vikas & Venkatraman, Deepesh. A study of risk factors for acute myocardial infarction in patients below 35 years in eastern India. *Nigerian Journal of Cardiology.* 2017;14:84.
8. Zodpey, S. P., Shrikhande, S. N., Negandhi, H. N., Ughade, S. N., & Joshi, P. P. Risk factors for acute myocardial infarction in central India: a case-control study. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine.* 2015;40(1): 19–26.