## Knowledge and Practice Regarding Prevention of Myocardial Infarction among People above 40 Years of Age

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**ABSTRACT**

**Background:** Myocardial infarction (MI), also known as a heart attack, occurs when blood flow decreases or stops to a part of the heart, causing damage to the heart muscle. The most common symptom is chest pain or discomfort which may travel into the shoulder, arm, back, neck or jaw.

**Methods**: A simple descriptive cross sectional study design was used for the studies on the topic of Knowledge and Practice regarding prevention of Myocardial infarction among people above 40 years of age which was conducted in the Siddhartha nagar Municipality,-09 no-ward with a sample of 138 and were selected by Non-probability purposive sampling technique. The participants were asked semi structured questionnaire for socio demographic information, knowledge and practice.

**Results**: The study found out that majority (61.6%) were age 40-50 years, majority (60.9%) were male. Madeshi were in majorities (52.2%) and highest number (81.9%) of Hindu were found. Majority were literate (60.9%); out of them, highest number (30.4%) had secondary level education. Majority (100%) do physical exercise (54.3%) household work while 30 min to 1 hrs (68.8%). Highest number (92%), (60.2%) believed that blood pressure and cholesterol were necessary to check for MI and the majority (76.8%) of respondents intake salt in daily basis through Individual test.

**Conclusion**: Most of the respondents were aware about MI, It is curable and controllable, if hospitalized them immediately. Almost the respondents were good knowledge and practice on MI. Various awareness programs, campaigns are carried out each year, There still need to aware and make Nepalese to practice to prevent such life threatening diseases.

**Keywords:** myocardial infarction, MI, Nepal, knowledge

## INTRODUCTION

Myocardial infarction (MI), also known as a heart attack, occurs when blood flow decreases or stops to a part of the heart, causing damage to the heart muscle. The most common symptom is chest pain or discomfort which may travel into the shoulder, arm, back, neck or jaw. Often it occurs in the center or left side of the chest and lasts for more than a few minutes. The discomfort may occasionally feel like heartburn. Other symptoms may include shortness of breath, nausea, feeling faint, a cold sweat or feeling tired. About 30% of people have atypical symptoms. Women more often present without chest pain and instead have neck pain, arm pain or feel tired. Among those over 75 years old, about 5% have had an MI with little or no history of symptoms. An MI may cause heart failure, an irregular heartbeat, cardiogenic shock or cardiac arrest.[1] The Task Force for the Universal Definition of Myocardial Infarction, recently classified myocardial infarction to five different subtypes.[2]

## METHODS

A Descriptive cross sectional study design was used to identify the knowledge and practice regarding prevention of myocardial infarction among people above 40 years of age, study population where the population of this study was consists of all the people residing in Siddhartha Municipatity, Rupandehi and setting of study consists of people residing in Bhairahawa, ward no. 9. The required sample size is calculate by using formula; $n= Z^2 \alpha pq/d^2$, where, n= Sample size requirement Zα= Level of statistical significant (0.5) standard normal deviate usually set 1.96 corresponds to 95 % confidence interval (value for α error)p= Anticipated population proportion (assumed to be 10% or 0.1)q= 1-p=0.9, d= Absolute precision (level of error as 5% =0.05). Calculation, n= (1.96)²* 0.1* 0.9⁄ 0.05², n=3.8416* 0.09/0.0025, n= 138. Thus, the required sample size of the study was 138. First of all, the data was collected using pre-defined questionnaire. And

then collected data was be check for completeness, accuracy and then entered and analyzed using SPSS 20. Data was analyzed using descriptive and inferential statistics. In the descriptive statistics for categorical variables frequency and percentage was calculate. While for continuous variable mean and standard deviation was calculated. In the inferential statistics to find the association between categorical variable chi-square test was used.

### RESULTS

In this study, the number of Male participation (60.9%) were more than number of Female participation (39.1%). The majority (61.6%) of peoples belonged to the age group of 40-50 years followed by (21.7%) were of age group 50-60 years ,whereas (16.7%) were of less than 60 and above years age group. Most of the respondents were Madeshi (52.2%) followed by Janajati (18.8%) were of Muslim (15.2%) and Brahmin/Chhetri (13.8%). Likewise, the majority of the respondent were Hindusim i.e, (81.9%) followed by Islam (15.2%) and Buddhism (2.9%) (Table 1).

| Table 1. Socio-Demographic Information of the Respondents. | |
|---|---|
| **Characteristics** | **n(%)** |
| **Age** | |
| 40-50 years | 85(61.6) |
| 50-60 years | 30(21.7) |
| 60 and above years | 23(16.7) |
| **Sex** | |
| Male | 84(60.9) |
| Female | 54(39.1) |
| **Ethnicity** | |
| Bharmin/Chhetri | 19(13.8) |
| Muslim | 21(15.2) |
| Janajati | 26(18.8) |
| Madeshi | 72(52.17) |
| **Religion** | |
| Hindusim | 113(81.9) |
| Buddhism | 4(2.9) |
| Islam | 21(15.2) |
| **Type of Family** | |
| Nuclear | 72(52.2) |
| Joint | 66(47.8) |
| **Educational level** | |
| Illiterate | 54(39.1) |
| Literate | 84(60.9) |
| **Occupational level** | |
| Farmer | 83(60.1) |
| Service | 17(12.3) |
| Abroad | 7(5.1) |
| Others | 31(22.5) |

Among 138 respondents almost all (100%) Heard about Heart attack (MI). The majority of respondents (50.0%) received information through Media\TV, (37.7%) received information from Others, (8.7%) received information through Internet and (3.6%%) received information from Education\Institution. Less than half percent (41.3%) participants believed that MI is curable and (30.4) of participants believed that MI is controllable and (18.8%) of participants believed that MI is recurrent and (9.4%) of participants had no idea about MI. (95.7%) of the respondents unknown about anyone who had heart attack before and (4.3%) know about heart attack before.

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More than half of participations (54.3%) performed household work as a exercise while (36.2%, 5.1% and 4.3%) do jogging, cycling and yoga respectively. Majority of the respondents (68.8%) done 30 min to 1 hrs physical exercise whereas (21.0%) respondents done less than 30 min and (10.1%) done more than 2 hrs respectively. (92%) of respondents said that necessary to check the blood pressure and (6.5%) and (1.4%) of respondents

**Table 2.** Knowledge and Practice related Myocardial Infarction.

| Characteristics | n(%) |
|---|---|
| **Any information related to heart attack** | |
| Yes | 28(20.3) |
| No | 110(79.7) |
| **Identification the symptoms of heart attack,** | |
| Sudden pain or discomfort in jaw, neck or back | 6 (4.3) |
| Sudden pain or discomfort in arms or shoulders | 12(8.7) |
| Sudden pain or discomfort able in the chest | 97(70.3) |
| Weakness or dizziness | 23(16.7) |
| **Common characteristics symptoms of MI** | |
| Chest pain | 89(64.5) |
| Shortness of breath | 30(21.7) |
| Neck pain | 19(13.8) |
| **Risk factors of heart attack (MI)** | |
| Smoking | 65(47.1) |
| Obesity | 7(5.1) |
| Diabetes | 3(2.2) |
| Alcohol | 15(10.9) |
| High blood pressure | 42(30.4) |
| Unhealthy diet | 6(4.3) |
| **Causes of heart attack** | |
| Obese | 17(12.3) |
| Stress | 54(39.1) |
| High intake of salt | 32(23.2) |
| Physical inactive | 4(2.9) |
| Hypertension | 31(22.5) |
| Others | |
| **Sudden heart attack (MI) requires a prompt treatment** | |
| No | 138(100.0) |
| **If, someone shows sign and symptoms of heart attack, what do you think should do first** | |
| Take them to hospital | 98(71.0) |
| Call an ambulance | 4(2.9) |
| Contact family | 34(24.6) |
| Don't know | 2(1.4) |
| **High cholesterol is the major factors of heart attack (MI)** | |
| Yes | 82(59.4) |
| No | 56(40.6) |

**Table 3.** Knowledge and Practice related Myocardial Infarction.

| Characteristics | n(%) |
|---|---|
| **Lack of exercise is the major factors of heart attack** | |
| Yes | 107(77.5) |
| No | 31(22.5) |
| **Heart disease is the major factor of heart attack** | |
| Yes | 113(81.9) |
| No | 25(18.1) |
| **Hypertension is risk for heart attack(MI)** | |
| Yes | 126(91.3) |
| No | 25(8.7) |
| **In your opinion, how can you prevent the MI** | |
| Avoid stress | 83(60.1) |
| Avoid high intake of salt | 42(30.4) |
| Daily exercise | 8(5.8) |
| Eat well balance diet | 5(3.6) |
| **Physical exercise needed** | |
| Yes | 138(100.0) |
| **Type of exercise you does** | |
| Jogging | 50(36.2) |
| Yoga | 6(4.3) |
| Cycling | 7(5.1) |
| Household work | 75(54.3) |
| **Duration of physical exercise** | |
| Less than 30 min | 29(21.0) |
| 30 min to 1 hrs | 95(68.8) |
| More than 2 years | 14(10.1) |
| **Necessary to check blood pressure** | |
| Yes | 127(92.0) |
| No | 9(6.5) |
| Don't know | 2(1.4) |
| **How often check blood pressure** | |
| Daily | 2(1.4) |
| Once a week | 23(16.7) |
| Once a month | 102(73.9) |
| Never | 11(8.0) |
| **Necessary to check blood sugar** | |
| Yes | 121(67.7) |
| No | 12(10.9) |
| Don't know | 2(1.4) |
| **Important to check cholesterol level** | |
| Yes | 84(60.9) |
| No | 50(36.2) |
| Don't know | 4(2.9) |

said that it was not necessary to check blood pressure and others were unknown about it respectively. The majority (60.2%) of participants believed that it is important to check cholesterol level and (36.2%) participants said that it is not necessary to check and (2.9%) were unaware about it. About (37.7%) of respondents were never check cholesterol and (35.5%) of respondents check cholesterol once a six month whereas (17.4%, 9.4%) of respondents check cholesterol once a year and once a month respectively. More than half percent (89.1%) of participants consume Chicken and (8.7%, 2.2%) of respondents consume mutton and Fish. The majority (76.8%) of respondents intake salt in daily basis through

Individual test, (13.0%) and (7.2%) of respondents intake salt in less than 4 gram and less than 8 gram in daily basis whereas (2.9%) of respondents consume salt in more than 10 gram in daily basis (Table 3).

## DISCUSSION

The present study was conducted in Siddharthanagar Municipality 9 no ward office on "Knowledge and Practice regarding Prevention of Myocardial Infarction among people above 40 years of age" with 138 participation. Household were selected using Non- probability purposive sampling technique and respondents were interviewed using semi - structured questionnaire. Worldwide, about 15.9 million myocardial infarctions occurred in 2015. Myocardial infarction is an important cause of premature death. According to American Heart Association Coronary artery disease mortality rates will double from 1990 to 2020, with approximately 82% of the increase attributable to the developing world.[3,11-15] Demographic findings of the study revealed that the number of Male participation (60.9%) were more than number of Female participation (39.1%). The majority (61.6%) of peoples belonged to the age group of 40-50 years followed by (21.7%) were of age group 50-60 years ,whereas (16.7%) were of less than 60 and above years age group. Most of the respondents were Madeshi (52.2%) followed by Janajati (18.8%) were of Muslim (15.2%) and Bharmin/Chhetri (13.8%). Likewise, the majority of the respondent were Hindusim i.e, (81.9%) followed by Islam (15.2%) and Buddhism (2.9%). Among the 138 respondents. Regarding the types of family Nuclear (52.2%) and Joint (47.8%).  Only (60.9%) people found Literate and (39.1%) and found Illiterate. Regarding the majority respondents (30.4%) had studied Secondary, (18.8%) had studied Primary, (8.0%) had studied Bachelor and (3.6%)Had studied Master and Above level. Regarding the Occupational level most of the respondents were (60.1%) Farmer, (22.5%) Others, (12.3%) Services and (5.1%) Abroad. In this study (100%) 138 respondents had heard about Heart attack (MI. In the study conducted by   Limbu YR, Malla R, Regmi SR, et al found 862 respondents who had heard of heart attack.[9] In the present study, Less than half percent (41.3%)

participants believed that MI is curable and (30.4) of participants believed that MI is controllable and (18.8%) of participants believed that MI is recurrent and (9.4%) of participants had no idea about MI. In the study conducted by Dahal P, Karki R. had found less than half percent (38.6%) participants believed at MI is curable and 7.9% of participant had no idea about MI.[3,16-19] In the study, (47.1%) of respondents told that smoking is the risk factors of Heart attack (MI), (30.4%) and (10.9%) of participations said that High blood pressure and Alcohol is risk factor for MI, (5.1%) and (4.3%) and (2.2%) of respondents said that Obesity and Unhealthy diet and Diabetes is risk factors of heart attack (MI). In contrast to this study Sinha SK, Krishna V, Thakur R, et al said Risk factors were smoking (78.5%), family history of premature coronary artery disease (CAD) (46.8%), obesity (39.1%), physical inactivity (38.7%) and stressful life events (29.6%).[10,20]

## CONCLUSION

Most of the respondents were aware about MI, It is curable and controllable, if hospitalized them immediately. Almost the respondents were good knowledge and practice about the symptoms, cause and risk factors of Myocardial infarction. The (100%) majority of the respondents do exercise for their health.  (87.7%) of participants believed that less fat more fruits and vegetables should be consumed on daily basis whereas only (12.3%) of participants believed that fatty food should be consumed on daily basis. The majority of the (76.8%) respondents intake salt in  daily basis through Individual test but all respondents should be strongly encouraged to reduce daily salt intake by atleast one third and if possible to <g gram or 90mmol per day. In general participants were aware of the information and practices related to MI prevention. There are numerous awareness programs and campaigns run every year, but the government of Nepal should organize a health awareness program on cardiovascular illness, especially MI. This is because there is still a need to educate and encourage Nepalese to practice prevention of such life-threatening diseases.

## REFERENCES

1. Lumsden K. Myocardial infarction. Emergency nurse: the journal of the RCN Accident and Emergency Nursing Association. 2011 Jul 1;19 (4):11.
2. Kingma JG. Myocardial Infarction: An Overview of STEMI and NSTEMI Physiopathology and Treatment. *World J Cardiovasc Dis*. 2018;08 (11):498-517. doi:10.4236/wjcd.2018.811049
3. Dahal P, Karki R. Knowledge and practice regarding prevention of myocardial infarction among visitors of Sahid Gangalal national heart center, Kathmandu, Nepal. *Diabetes Manag*. 2017;7 (2):240-246.
4. Shames AB, Ivanov VA. Comparative Effectiveness of Conservative and Invasive Treatment of Myocardial Infarction in Elderly and

Old. 2011:22-24.

5. Adhikari A, Bhandari B. Awareness and Practice of Prevention of Myocardial Infarction among Hypertensive Patients: Cross Sectional Study in a Tertiary Cardiac Centre of Nepal. *Nepal Hear J*. 2017;14(1):25-28. doi:10.3126/njh.v14i1.17192

6. Elosua R, Vega G, Rohlfs I, et al. Smoking and myocardial infarction case-fatality: Hospital and population approach. *Eur J Cardiovasc Prev Rehabil*. 2007;14(4):561-567. doi:10.1097/ HJR.0b013e32804955b3

7. Oliveira GBF, Avezum A, Roever L. Cardiovascular Disease Burden: Evolving Knowledge of Risk Factors in Myocardial Infarction and Stroke through Population-Based Research and Perspectives in Global Prevention. *Front Cardiovasc Med*. 2015;2 (August):1-4. doi:10.3389/fcvm.2015.00032

8. Ahmed AAA, Al-Shami AM, Jamshed S, Fata Nahas AR. Development of questionnaire on awareness and action towards symptoms and risk factors of heart attack and stroke among a Malaysian population. *BMC Public Health*. 2019;19(1):1-10. doi:10.1186/s12889-019-7596-1

9. Limbu YR, Malla R, Regmi SR, et al. Public knowledge of heart attack in a Nepalese population survey. *Hear Lung J Acute Crit Care*. 2006;35 (3):164-169. doi:10.1016/j.hrtlng.2005.12.003

10. Sinha SK, Krishna V, Thakur R, et al. Acute myocardial infarction in very young adults: A clinical presentation, risk factors, hospital outcome index, and their angiographic characteristics in north India-AMIYA study. *ARYA Atheroscler*. 2017;13 (2):79-87.

11. Pandey RA, Khadka I. Knowledge regarding preventive measures of heart disease among the adult population in Kathmandu. 2012;(June 2015). doi:10.4236/health.2012.49094

12. Adhikari CM, Prajapati D, Baniya B, Regmi S, Bogati A, Thapaliya S. Prevalence of conventional risk factors in ST segment elevation myocardial infarction patients in shahid gangalal national heart centre, Nepal. *J Nepal Med Assoc*. 2014;52 (195):914-919. doi:10.31729/jnma.2716

13. Hertz JT, Madut DB, Tesha RA, et al. Knowledge of myocardial infarction symptoms and perceptions of self-risk in Tanzania. *Am Heart J*. 2019;210:69-74. doi:10.1016/j.ahj.2019.01.003

14. Khan MS, Jafary FH, Jafar TH, et al. Knowledge of modifiable risk factors of heart disease among patients with acute myocardial infarction in Karachi, Pakistan: A cross sectional study. *BMC Cardiovasc Disord*. 2006;6:1-9. doi:10.1186/1471-2261-6-18

15. Elsayed Azab A. Acute Myocardial Infarction Risk Factors and Correlation of its Markers with Serum Lipids. *J Appl Biotechnol Bioeng*. 2017;3(4). doi:10.15406/jabb.2017.03.00075

16. Verma A, Mehta S, Mehta A, Patyal A. Knowledge , attitude and practices toward health behavior and cardiovascular disease risk factors among the patients of metabolic syndrome in a teaching hospital in India. 2019:178-183. doi:10.4103/jfmpc.jfmpc

17. Fong P, Boss D, Yap T, Tutt A, Wu P, Mergui-Roelvink M. New England Journal CREST. *Science (80- )*. 2010:609-619. doi:10.1056/ NEJMoa1109071

18. Whitaker S, Baldwin T, Tahir M, Choudhry O, Senior A, Greenfield S. Public knowledge of the symptoms of myocardial infarction: A street survey in Birmingham, England. *Fam Pract*. 2012;29 (2):168-173. doi:10.1093/fampra/cmr079

19. Press V, Freestone I, George CF. Physical activity: The evidence of benefit in the prevention of coronary heart disease. *QJM - Mon J Assoc Physicians*. 2003;96(4):245-251. doi:10.1093/ qjmed/hcg041

20. 20. Schettler G. Prevention of cardiovascular disease. *Lebensversicherungsmedizin*. 1984;36 (8):170-173.