

KNOWLEDGE AND PRACTICE REGARDING MYOCARDIAL INFARCTION PREVENTION AMONG THE VISITORS OF MANMOHAN CARDIO-THORACIC VASCULAR AND TRANSPLANT CENTER, KATHMANDU, NEPAL

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ABSTRACT

Myocardial infarction the most common form of coronary heart disease is a growing health issue in developing countries. The number and magnitude of the disease is expected to grow without awareness and preventive interventions. Therefore, this study was carried out to find out knowledge and practice regarding myocardial infarction prevention among the visitors of cardiac center. A descriptive cross sectional study was conducted among 278 patient's visitors attending Manmohan Cardio-Thoracic Vascular and Transplant Centre from June 2021-August 2021. The selection of the study area and data collection was done using Convenient sampling technique. SPSS version 16 was used for data entry and analysis. Descriptive statistics such as median, frequency and inferential statistics such as chi-square tests were used. The study revealed over 2/5th (42.8%) of respondents were between age group of 41-50 years. Majority (92.1%) were literate among which over a third (37.5%) had secondary level of education. The practice of blood pressure measurement, blood sugar and blood cholesterol measurement was reported by 76.1%, 59.1% and 31.4% respectively. Level of knowledge was adequate in 24.2% of respondents. Significant association was found between level of knowledge and sex (P=0.015), religion (P=0.009), occupation (P=0.017), and literacy status (P=0.001). Level of knowledge was found to be adequate in low percentage of the respondents. As myocardial infarction is a trending non-communicable disease, nationally there is the necessity of conducting extensive health awareness program, campaigns regarding its prevention.

KEYWORDS

Knowledge, practice, myocardial infarction, visitors

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INTRODUCTION

Coronary heart disease is the leading cause of death globally and one of the major health burdens worldwide.¹ Four out of 5 cardiovascular diseases (CVD) deaths are due to heart attacks, strokes and more people die annually from CVDs than from any other cause.² The most common form of coronary heart disease i.e. myocardial infarction is the irreversible necrosis of heart muscle secondary to prolonged lack of oxygen supply (ischemia).³⁻⁴ About 25% of deaths in USA, are associated with heart disease each year. The findings of self-reported national survey of the UK, reported the prevalence of MI as 640,000 in men and 275,000 in women in 2014.⁵⁻⁶ South Asian countries (India, China, Pakistan, Sri Lanka, Bangladesh and Nepal) have the highest prevalence of MI.⁷ In China, acute myocardial infarction (AMI) mortality increased between 2002 and 2016 and with nearly a quarter (24.8%) of all deaths is attributable to CVD in 2010 in India.⁸⁻⁹ The findings of the study in different hospitals of Kathmandu, concludes that 5% of adult population in Kathmandu suffer from Coronary Artery Disease (CAD). Hence, Coronary artery disease is emerging as epidemic in Kathmandu, Nepal.¹⁰ The rapid change in life style, unhealthy habits (smoking, sedentary life style etc), economic development are considered to be responsible for the increase of CAD.¹¹

Prevention is the most effective way of combating the epidemic in the resource poor nations. Knowledge on preventive measures of heart diseases has been identified as a prerequisite for change in behavior. Attention need to be paid more in the intensive planning of educational programme on deficient areas of knowledge for prevention of heart disease.

MATERIALS AND METHODS

A descriptive cross sectional study was conducted among 278 visitors attending Manmohan Cardio-Thoracic Vascular and Transplant Centre where data were collected from June 2021-August 2021. Visitors attending at OPD or ward of Manmohan Cardio-Thoracic Vascular and Transplant Centre were selected as study participants. Ethical approval (Ref 3216) was taken from Ethical Review Board of Nepal Health Research Council. Formal permission for data collection was taken from Manmohan Cardio-Thoracic Vascular and Transplant Centre, Maharajgunj. Visitors aged 18 years and above who were not diagnosed with MI, non-health personnel and those who

were willing to participate were included in the study. Non-probability convenient sampling technique was used in this study. Sample size was calculated by using the prevalence of the adequate level of knowledge on myocardial infarction (20.8%) from the study done in Sahid Gangalal Hospital.² Assuming 95% confidence level that is 1.96 and allowable error of 5%, sample size is calculated as $n = z^2pq/d^2$ $n = (1.96)^2 * 0.208 * 0.792 / (0.05)^2$ $n = 253$. Assuming 95% confidence level and allowable error of 5%, total number of sample were estimated to be 278 by adding non response rate, 10%. Research instrument consisted of section A, B, C and D Section A: questions related to socio-demographic and economic characteristics Section B: questionnaire related to knowledge on myocardial infarction. Section C: questionnaire related to knowledge on myocardial infarction prevention Section D: questionnaire related to practice on myocardial infarction prevention. Section A was self-constructed by the researchers, while section B, C and D were constructed by modifying the tool used by Dahal *et al*² to assess the knowledge and practice regarding myocardial infarction prevention among the visitors of Sahid Gangalal Hospital after taking the permission from author. The total knowledge score were 32 which was calculated by adding the score on knowledge on myocardial infarction and knowledge on myocardial infarction prevention. The levels of knowledge were further grouped as; inadequate level: below 50%; moderate level: 50-75%; adequate level: Above 75% and information on practice were presented in descriptive form. Pretesting was done in 10% of the total sample in Manmohan Cardio-Thoracic Vascular and Transplant Centre and that sample were excluded in actual data collection.

Both verbal and written consent was taken from the participants who were under the inclusion criteria and only after explaining the purpose of the study, face-to-face interview was done with each respondent using interview schedule. Approximately 15- 20 mins was taken to collect data from each participant. Confidentiality and anonymity of the data was maintained. Data was analyzed using the SPSS version 16.0.

RESULTS

Table 1 shows that, Out of 278 respondents 76.6% of respondents were above 30 years regarding sex 58.3% were male. As regards to ethnicity of the respondents, 59% belonged to Brahmin/chettri. Concerning the religion of respondents most of them 77% were Hindu.

Table 1: Socio-demographic characteristics of the respondents (n=278)		
Variables	n	%
Age (years)		
≤30	65	23.4
>30	213	76.6
Mean± SD=37.95±8.605		
Sex		
Male	162	58.3
Female	116	41.7
Ethnicity		
Brahmin/chettri	164	59.0
Others	114	41.0
Religion		
Hindu	214	77.0
Non-Hindu	64	23.0
Educational Status(n=278)		
Literate	256	92.1
Illiterate	22	7.9
Education level (n=256)		
Up to secondary level	211	82.4
Higher than secondary level	45	17.6
Occupation		
Home maker	37	13.3
Non-home maker	241	86.7
Place of residence		
Urban	174	62.6
Rural	104	37.4
Types of family		
Nuclear	125	45.0
Non-Nuclear	153	55.0

Regarding the literacy status, Out of the 278 respondents, 92.1% were literate. Among 256 literate respondents, 82.4% of respondents had secondary level of education. Concerning the occupation of the respondents, out of 278 respondents 86.7% were non-home maker. Similarly, 62.6% were from urban areas and 55% were having non-nuclear family.

Table 2 depicts that out Of 278 respondents when asked for whether the respondent had heard about myocardial infarction before or not, majority 95.0% responded as “yes”.

Among those 95% who have heard about Myocardial infarction before most of the source were from mass media 78.8%. Out of 264 respondents, 75% answered alcohol intake, 73.5% answered obesity as risk factors for myocardial infarction. Similarly, 98.9% answered hypertension is a risk factor for myocardial infarction regarding the time to check blood pressure out of 94.3% answered it should be checked on regular basis and also

Table 2: Respondents' knowledge regarding myocardial infarction (n=278)		
Variables	n	%
Heard about Myocardial infarction		
Yes	264	95.0
No	14	5
If yes, Sources of information ** (n=264)		
Books	90	34.1
Health personnel	164	62.1
Mass medias	208	78.8
Newspaper/articles	199	75.4
Knowledge on risk factors** (n=264)		
Smoking	182	68.9
Alcohol intake	198	75.0
Lack of exercise	184	69.7
Obesity	194	73.5
Stress	173	65.5
Age	51	19.3
Family History	96	36.4
Hypertension is risk factor (n=264)		
Yes	261	98.9
No	3	1.1
If yes, time to check BP (n=261)		
Regular basis	246	94.3
Only in emergency	6	2.3
Don't know	9	3.4
Necessary to take hypertension medicine regularly (n=261)		
Yes	38	14.6
No	223	85.4
Diabetes is risk factor (n=264)		
Yes	210	79.5
No	54	20.5
If yes, time to check blood sugar level (n=210)		
Regular basis	125	59.2
Only in emergency	68	32.2
Don't know	18	8.5
High Cholesterol is risk factor (n=264)		
Regular basis	125	59.2
Only in emergency	68	32.2
Don't know	18	8.5
High cholesterol is risk factor (n=264)		
Yes	220	83.3
No	44	16.7
If yes, time to check blood sugar level (n=220)		
Regular basis	142	64.5
Only in emergency	60	27.3
Don't know	18	8.2
Sign/Symptoms ** (n=264)		
Chest tightness / Pain	185	70.1
Pain in chest radiating to arms, jaw, back	149	56.4
Dizziness	174	65.9
Nausea	108	40.9
Vomiting	102	38.6

**Multiple response

Table 3: Respondent's knowledge regarding myocardial infarction prevention (n=264)

Variables	n	%
Knowledge on whether Myocardial infarction is preventable or not		
Yes	264	100
No	-	
Knowledge on necessity of exercise		
Yes	262	99.2
No	2	0.8
If yes, minimum exercise time needed per day (n=262)		
1/2hr	139	53.1
1hr	120	45.8
2hr	3	1.1
If yes, types of exercises needed (n=262)**		
Brisk walking	127	48.5
Jogging	258	98.5
Cycling	166	63.3
Swimming	157	59.9
Food to be taken on daily basis**(n=264)		
Fatty foods	13	4.9
Whole grains	255	96.6
Fruits and vegetables	253	95.8
Sugar rich diet	65	24.6
Red meat risk for developing Myocardial infarction		
Yes	243	92
No	21	8
Ways of stress prevention**		
Yoga	235	89
Meditation	172	65.1
Sleeping	100	38.0
Doing heavy exercise	46	17.4

**Multiple responses

Table 4: Respondent's level of knowledge regarding myocardial infarction prevention (n=264)

Level of knowledge	n	%
Inadequate knowledge	109	41.3
Moderate knowledge	91	34.5
Adequate knowledge	64	24.2
Total	131	100.0

**Multiple response

among 261, 85.4% answered that hypertension medicine should be taken in regular basis. Out of 264 respondents 79.5% answered diabetes is a risk factor for developing myocardial infarction among which 59.2% said blood sugar level should be checked in regular basis and 27.3% said it can be checked only in emergency basis. Similarly, out of 264 respondents 83.3% answered high cholesterol is a risk factor for developing myocardial infarction among which

64.5% answered it can be checked in regular basis whereas 27.35% said it can be checked only in emergency basis.

Regarding the sign/symptoms of myocardial infarction over 2/3rd of respondents (70.1%) answered chest tightness followed by 65.9% as dizziness and 56.4% answered pain in chest, radiating to jaw back as sign and symptoms

Table 3 illustrates knowledge of respondents on myocardial infarction prevention, where all the respondents answered that myocardial infarction can be prevented if taken preventable measures.

Regarding the knowledge on necessity of exercise, majority (99.2%) answered that exercise is necessary, where more than half (53.1%) answered 1/2hr is necessary minimally and among them 98.5% answered jogging as appropriate exercise and only 48.5% answered brisk walking as appropriate exercise. Similarly out of 264 respondents, 96.6% respondents

Table 5: Respondent's practices regarding myocardial infarction prevention (n=264)		
Variables	n	%
Perform exercise		
Yes	154	58.3
No	110	41.7
If yes, minimum hrs spent(n=154)		
1/2hr	116	75.3
1hr	38	24.7
Types of exercises (n=154)		
Morning walk	99	64.3
Cardiac exercise	11	7.1
Jogging	28	18.2
Yoga	16	10.4
Food prefer in daily basis (n=264)**		
Fatty foods	36	13.6
Fruits and vegetables	258	97.7
Whole grains	264	100
Vegetarian/non-vegetarian (n=264)		
Vegetarian	18	6.8
Non-vegetarian	246	93.2
If non-vegetarian (n=246)**		
Red meat	225	91.5
Chicken	243	98.8
Fish	229	93.1
Habit of checking Bp(n=264)		
Yes	201	76.1
No	63	23.9
If yes, time of checking (n=201)		
Regular basis	136	67.7
Only in emergency	65	32.3
Habit of checking blood sugar level (n=264)		
Yes	156	59.1
No	108	40.9
If yes, time of checking (n= 156)		
Regular basis	52	33.3
Emergency basis	105	66.7
Habit of checking blood cholesterol level (n=264)		
Yes	83	31.4
No	181	68.6
If yes, time of checking (n=83)		
Regular basis	24	28.9
Emergency basis	59	71.1
Ways of stress reduction** (n=264)		
Keeping quiet	55	20.8
Doing meditation	116	44.0
Engaging self in work	155	58.7
Playing mobiles, listening music, television	201	76.1
Sharing with family, friends	66	25
Duration of sleeping hours (n=264)		
6hrs	15	5.7
7hrs	19	7.2
8hrs	230	87.1
History of hypertension (n=264)		
Yes	64	24.2
No	200	75.8
If yes, take medicine regularly (n=64)		
Take medicine regularly	64	100

answered whole grains should be taken for the prevention of myocardial infarction. Similarly 92% answered that taking red meat is risk for developing myocardial infarction. Concerning the ways of relieving stress to prevent myocardial infarction 89% answered that yoga would be the best option

Table 8 shows that out of 264 respondents, 41.3% have inadequate level of knowledge, 34.5% have moderate level of knowledge and only 24.2% of respondents have adequate level of knowledge regarding the myocardial infarction

Table 5 shows that, Out of 264 respondents for the prevention of myocardial infarction 58.35% of respondents performed exercise. Out of 154 respondents 75.3% performed exercise for 1/2hr. Regarding the types of exercises more than half 64.3% performed morning walk and only 7.1% performed cardiac exercise. Similarly regarding the food all the respondents i.e 100% preferred whole grains in daily basis whereas 13.6% preferred fatty foods also out of 264 respondents 93.2% were non-vegetarian in diet who prefer chicken 98.8%, followed by red meat 91.5%.

Out of 264 respondents, 76.1% of the respondents have the habit of checking of blood pressure. Among those who have habit of checking blood pressure 67.7% have habit of checking in regular basis. Similarly, 59.1% have the habit of checking blood sugar level and among those who have habit of checking blood sugar level, 33.3% have habit of checking regularly. Also 31.4% have the habit of checking blood cholesterol level and among those who have the habit, of checking blood cholesterol level, 28.9% have the habit of checking in regular basis.

Concerning the ways of stress reduction 76.1% uses mobile, television, listens music whereas 20.8% keeps quiet for certain time period. Similarly regarding duration of sleeping hours, 87.1% had 8hrs of sleeping time. Regarding the history of hypertension out of 264, 24.2% have the positive history where all 100% of having history of hypertension takes medicine in regular basis.

Table 6 shows the association of level of knowledge with selected socio-demographic variables. The above table shows that there is significant association of level of knowledge with Sex ($p=0.015$), Religion ($p=0.009$), Place of residence ($p=0.005$), occupation ($p=0.017$), and literacy status ($p=0.001$) whereas there is no association of level of knowledge with Age group.

Table 6: Association of Respondents' Selected Socio-demographic Variables with Level of Knowledge (n=264)

Socio-demographic characteristics	Total	Knowledge on antenatal exercise				P value
		Inadequate n	%	Moderate and above n	%	
Age						
≤40 (years)	177	67	37.9	110	62.1	0.106
>40 (years)	87	42	48.3	45	51.7	
Sex						
Male	154	54	35.1	100	64.9	0.015
Female	110	55	50.0	55	50.0	
Religion						
Hindu	203	75	36.9	128	63.1	0.009
Non-Hindu	61	34	55.7	27	44.3	
Occupation						
Home- maker	36	8	22.2	28	77.8	0.017
Non-home maker	222	96	43.2	126	56.8	
Literacy status						
Illiterate	14	12	85.7	2	14.3	0.001*
Literate	250	97	38.8	157	61.2	

*Fisher's Exact Test, Level of significance $P \leq 0.05$

DISCUSSION

In this study alcohol, obesity, lack of exercise, smoking and family history were identified as risk factor for myocardial infarction by 75%, 73.5%, 69.7%, 68.9% and 34.5%, respectively which is contrast with the findings done in Saudi Arabia where 87.9% identified smoking, 78.4% identified lack of exercise and 74.7% identified family history as risk factors.¹² In our study, hypertension 98.9% diabetes, 79% and high cholesterol 83.3% were identified as the risk factors for developing MI. The findings is in line with the study done in Gangalal hospital where hypertension 95%, diabetes 90.1%, high cholesterol 90% were identified as the risk factors of MI.² Majority of the respondents 70.1% identified chest pain as the symptoms of Myocardial infarction which is in contrast with the study done in Tanzania where only few 3.3% participants identified chest pain as a symptom.¹³ The current study revealed 59.2%, 94.3%, and 64.5% of participants had knowledge about importance of regularly checking blood sugar, blood pressure blood cholesterol level respectively which is contrast with the study done in Pokhara¹⁴ where 48.5% were aware of the role of cholesterol in pathogenesis of heart

disease. In the current study, all most all 99.2% had knowledge about the necessity of the exercise and 97.7% had knowledge that green leafy vegetables and fruits should be taken in daily basis for prevention of MI which is supported by the study conducted in Jhaukhel-Duwakot where 94.6% identified green-leafy vegetables and fruit.¹⁵ Similarly most of the respondent 89% reported yoga is the best option for stress management. In our study all most all respondents 92% answered avoidance of red meat as dietary changes for prevention of CVD which is not supported with the study findings of Nepalgunj where 66.7% answered avoid red meat as dietary changes for prevention of CVD. Similarly, in our study 45.8% of respondent answered 1 hour exercise is needed to prevent the CVDs, which is contrast to the finding of study done in Nepalgunj where most of the respondents 80.7% answered 1 hour.¹⁶

In this study 24.2% of the respondent had the adequate level of knowledge. This finding is supported by the study conducted at Sahid Gangalal Hospital which showed that 28% of respondent had adequate level of knowledge.² Other studies done in Jhaukhel-Duwakot Bhaktapur, and Nepalgunj also

have the similar findings which supports this study findings where less than 20% had highly satisfactory knowledge and 23.3% have adequate knowledge.^{15,16} Similarly this finding is in contrast with the study conducted at tertiary care hospital in Karachi Pakistan and the study conducted in Sahid Gangalal National Heart Centre, Nepal which showed 42% study population had a good level of knowledge and 60.4% had high level of knowledge of prevention of myocardial infarction respectively.^{17,18}

Regarding the practice in this study more than half of respondents 58.35% performed exercise. Majority of respondents 75.3% performed exercise for 30 mins. This finding is contrast with the study conducted in Kuwait where 13.0% indicated that they used to exercise for 30 minutes.¹⁹ regarding the types of exercises more than half 64.3% performed morning walk, and only 7.1% performed cardiac exercise. Similarly regarding the food all the respondents' i.e 100% preferred whole grains in daily basis whereas 13.6% preferred fatty foods also 93.2% were non-vegetarian in diet. In the present study less than half of respondents 23.9%, 40.9% have never checked the blood pressure, blood sugar level and bold cholesterol level respectively. The findings were nearly consistent with the study done in Kuwait where one fifth 19.3% had never checked their blood pressure, and 24.4% have not checked the blood glucose level.¹⁹ The study reported that for the stress reduction 76.1% uses mobile, television, listened music whereas 20.8% kept quiet for certain time period.

In this study, 41.3% of respondents have inadequate levels of knowledge regarding the prevention of the myocardial infarction despite 62.6% were from urban areas. The level of knowledge was statistically significant with sex, religion, occupation and literacy status. i.e (P=0.015), (P=0.009), (P=0.017), and (P=0.001) respectively. This finding is supported by the study done in Sahid Gangalal Hospital where education status and occupation were statistically significant with level of knowledge (P=0.02) and (P=0.02) respectively.² Similarly this finding is similar to another study done in Sahid Gangalal Hospital where there is significant association of knowledge with gender, education.¹⁶ This might be due to similar socio demographics characteristics of participants in both studies and the study setting and also somehow similarities of the tools used. The study finding concluded that 41.3% of respondents have inadequate level of knowledge regarding the myocardial infarction despite the high literacy level

92.1% among which less than half 17.6% had higher than secondary level education. There was significant association of sex, religion, occupation and literacy status. i.e (p=0.015), (p=0.009), (p=0.017), and (p=0.001), respectively. Most of the respondents still lack the proper practice of checking blood pressure, blood sugar and blood cholesterol level. There is still lack of knowledge and lack of practice regarding the risk factors, and preventive measures to be taken for myocardial infarction prevention. As myocardial infarction is a trending non-communicable disease, nationally there is the necessity of conducting extensive health awareness program, campaigns regarding its prevention. Awareness programs conducted on myocardial infarction prevention should focus more on risk factors and healthy life style practices so as to promote the health.

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