

Knowledge on Diet and Physical Exercise among the Patients of Coronary Heart Disease Admitted in a Specialized Tertiary Level Hospital in Dhaka City

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Abstract: Coronary heart disease is the most frequent cause of death in the industrialized societies, and is showing an increasing trend in developing countries. This study was conducted to assess the level of Knowledge about diet and physical exercise among the patients of coronary heart disease. A cross-sectional study was conducted among 112 patients admitted at NICVD during the study period (January to May 2016). In this study the mean age of the respondents was 49.7± 11.8 years and almost two-thirds of the respondents (69.0%) were male. It has been found that 79.5% of the respondents were married and most of them (82.1%) were Muslims. About one-third of the respondents (28.6%) had HSC level of education and most of the respondents had a salaried job (38.8%). The mean monthly income of the respondents was 14566.0±1854.0 taka and the majority of respondents (76.8%) were aware of the addiction habits that are associated with heart disease. About 77.7% of the respondents were aware of the cardio-protective foods and the rest (22.3%) were still ignorant regarding the cardio-protective foods. It was reported that more than half of the respondents had poor level of knowledge regarding the role of dietary habit on heart disease. Nevertheless sixty percent of them had had poor level of knowledge about the cardio-protective role physical exercise in heart disease.

Keywords: Coronary Heart Disease, Exercise, Knowledge, Respondents, Dietary

Introduction

Coronary heart disease (CHD) is the most common form of heart disease and the single most important cause of premature death in the developed and developing countries. Throughout the world about 12 million people die from myocardial infarction (MI) each year. With the improvement of socio-economic status, urbanization and changes of dietary habits and lifestyle, the incidence of ischaemic heart disease (IHD) is also increasing in the developing countries, including Bangladesh¹. Regarding the affected persons, a concrete data in our country is not available. But from some epidemiological studies, it has been seen that trend of CHD amongst our population is increasing. Presently there are 2 million CHD patients in Bangladesh. Myocardial infarction is the leading cause of death and the most frequent cause of early invalidism. It affects middle-aged persons and one-fourth of them die within 24 hours. Those who have survived an attack, more than 80.0% live for a further year, about 75.0% for 5 years, 50.0% for 10 years and 25.0% for 20 years . So, MI is becoming a serious public health problem in Bangladesh. The way out for surviving MI patients are lifelong adherence to drugs and diet¹. Coronary heart disease (CHD), sometimes called ischemic heart disease, refers to atherosclerosis of the arteries that supply the heart muscle.

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Insufficiency of blood supply may result from a reduction of blood flow through one or more of these arteries. Heart cells are dependent on blood flow through these arteries to provide oxygen and to carry away metabolic products. Without an adequate flow of blood, these cells can become injured or die. When this occurs, immediate emergency treatment is necessary to stop the injury from widening, killing additional heart cells, and increasing the risk of complications or death².

Approximately 65.0% of all heart attacks and 85.0% of all CHD deaths occur to people aged 65 or older. CHD is the leading cause of death for people over 65 years of age and the second leading cause of disability. All throughout life, men have a much higher death rate from CHD compared to women. In the United States, the age-adjusted death rate for men is twice as high as it is for women. CHD risk increases with age. Major increases in the occurrence of heart disease begin for men at the age of 35. Women begin to display a marked increase after menopause. CHD death rates are higher among blacks than whites, until advanced age. In 1995, CHD death rates were 124.4 for white males and 133.1 for black males. Black females have a death rate 35.0% higher than white females, and in ages under 75, the black female death rate from CHD is more than 71.0% higher than that of white women. CHD incidence and mortality rates go up as socioeconomic status goes down. Historically, the greatest improvements in death rates have occurred for the highest levels of income and education and among workers in white-collar jobs. Although its role is not completely understood, family history can contribute to premature heart disease. Evidence seems to indicate that family history can predispose a person to premature CHD through a combination of genetics and a tendency for high levels of risk factors (e.g., smoking, poor diet) to cluster within families³.

There is a misperception that heart disease is a man's illness. Heart disease takes a considerable toll on women too. As women approach menopause, they lose the protective effect of oestrogen. After menopause, their risk of heart disease continues to rise with age. Recent surveys have shown that women are more concerned with breast cancer than with heart disease. However, the death rate for heart disease is nearly 3 times as high as that of breast cancer for both white and black women. Women need to be made aware of their risk for heart disease so that they can take steps to reduce its occurrence.³ In fact, smokers are twice as likely to have a heart attack than are non-smokers, and they are between 2 and 4 times more likely to experience sudden death. Exposure to environmental tobacco smoke in the home and at the workplace has also been shown to increase the risk for CHD⁴.

The American Heart Association presents evidence that eating a diet low in total fat, saturated fat, and cholesterol and rich in fruits and vegetables effectively lowers blood pressure⁵. Simple programs that promote increased use of nutritious foods high in fibre, low in fat, and high in nutrients are safe for most persons at any age. The Five-a-Day Program promotes consumption of at least five servings daily of fruits and/or vegetables. Encouraging the public to drink milk, but to choose lower fat varieties, is the target of the "One Percent or Less" campaign that has been successfully used in Bridgeport and Parkersburg. The use of the USDA Food Guide Pyramid encourages balanced eating and suggests target goals for consumption of different foods. The new food labelling requirements make much more information available to consumers who are interested in monitoring fat intake. Cooking schools and demonstrations of lower fat cooking techniques can show consumers how to improve on long-standing habits. The public could be encouraged to grow vegetables in containers or in small home gardens⁶. This study was conducted to assess the level of Knowledge about diet and physical exercise among the patients of coronary heart disease.

Material and Methods

A descriptive type of cross-sectional study was conducted to assess the level of Knowledge about diet and physical exercise among the patients of coronary heart disease among admitted patients at National Institute of Cardio-Vascular Diseases (NICVD). NICVD is one of the specialized tertiary level referral and teaching hospitals for cardiovascular patients in Bangladesh. NICVD with 700 beds is operating its outpatient and inpatient services in the field of cardiology, cardiac surgery, vascular surgery & cardiac rehabilitation for both adult & pediatrics patients. Duration of the study was January to May 2016 among the admitted patients from both male and female ward of NICVD. The study obtained permission from the Department of Public Health and Study Protocol was reviewed and approved by the Ethical Review Committee in the Faculty of Allied Health Sciences of Daffodil International University.

A systematic random sampling technique was followed in this study where admitted patients were selected with one digit gap on their patient entry number. Inclusion criteria were patients who were admitted in NICVD and those who agreed to participate in the study. Unconscious and coma patients were excluded from the study. A literature review of previous studies regarding CVD knowledge was conducted to identify potential items for the study instrument. Based on the literature search, the study questionnaire was adapted from validated surveys. The questionnaire was translated into Bangla and subjected to a process of forward and backward translation. The accuracy and meaning of the translated versions both forward and backward were checked, and suggested amendments where required were discussed before being confirmed. Content, design, readability, and comprehension were pretested. Each individual participant was thoroughly explained about the purpose of the study. They were free to refuse participation in the study. Data were collected anonymously through self-administered questionnaires. Those who agreed to take part in the study were given the questionnaires and collected after completion. They were assured for confidentiality and gave written consent to participate in the study. There were no incentives offered for completion of the questionnaire.

A pretested semi-structured questionnaire which included a range of close ended questions as well as some open questions and it had five sections. The first section included information about the demographic and clinical characteristics of the respondents (age, gender, marital status, educational level, monthly income). The second section consisted of questions regarding the participants' knowledge about the role of dietary habits of heart diseases. The third section included questions to determine the knowledge addiction habit associated with heart disease. The fourth section explored the knowledge on cardio-protective foods of the participants. The fifth section had questions to assess the knowledge about cardio-protective role of physical exercise. The Data was analyzed using statistical database software IBM SPSS Statistics 20.0. All the data collected were coded numerically and entered in the SPSS. The data were screened and checked for any missing value and discrepancy. Those with any discrepancies were sorted list wise. Descriptive statistical analysis was conducted to calculate the frequencies. The results were reported as percentage (95% confidence interval) and median (The descriptive analysis of data was presented as tables and graph format. Inferential statistical analysis approaches were used in order to analyze and assess the results of the study. Chi-square test was performed to find the association between variables; a p-value less than or 0.05 was considered statistically significant. An analysis was done on an educational level with the level of knowledge regarding the role of dietary habit on heart disease, addiction habits associated with heart disease, cardio-protective food, and cardio-protective role of exercise and level of knowledge about effect of physical exercise on body.

Results

Distribution of respondents by Socio-demographic Characteristics

Table 1 shows that about 34.9% of the respondents were within 40 – 50 years of age and little above a quarter were above 60 years of age. The mean age of the respondents was 49.7 ± 11.8 years. Almost two-thirds of the respondents (69.0%) were male, while 31.0% of them were female. It has been found that only 10.7% were single, while 9.8% of them were either widower or divorced and 79.5% were married. Most of them (82.1%) were Muslims, 15.2% were Hindus, 1.8% Christians and the rest Buddhists 0.9%. About one-third of the respondents (28.6%) had HSC level of education, followed by Graduates (19.6%), Post-graduates (19.5%). However, almost two-third of the respondents had formal education. According to occupational status most of the respondents had a salaried job (38.8%), followed by housewife (18.8%). Little below half (49.1%) of the respondent's families earned <10,000 BDT per month, while almost one-third of the family's monthly income was within 10,000 - 20,000 BDT. However, the mean monthly income of the respondents was $14,566.0 \pm 1,854.0$ BDT.

Table 1: Distribution of respondents by Socio-demographic Characteristics (n=112)

Socio-demographic	Frequency	Percent
Age group		
<40 years	19	17.0
40 – 49 years	39	34.8
50 – 59 years	25	22.3
>60 years	29	25.9
Sex		
Male	77	69.0
Female	35	31.0
Marital Status		
Unmarried	12	10.7
Married	89	79.5
Widowed	8	7.1
Divorced	3	2.7
Religion		
Muslim	92	82.1
Hindu	17	15.2
Christian	2	1.8
Buddhist	1	0.9
Education		
Illiterate	14	11.6
Can sign only	6	5.4
Primary	7	6.3
SSC	10	8.9
HSC	32	28.6
Graduate	22	19.6
Post-graduate	21	19.5
Occupation		
Housewife	21	18.8
Farmer	5	4.5
Day labourer	10	8.9
Unemployed	4	3.6
Small business	16	14.3
Service	43	38.4
Others	6	5.4
Overseas worker	3	2.7
Entrepreneur	4	3.6
Family Monthly Income		
<10000	55	49.1
10000-20000	37	33.0
>20000	20	17.9

Knowledge about Role of Dietary Habit on Heart Disease

Figure 1 reflects the level of knowledge of the respondents on role of dietary habit on heart disease. Little above half of the respondents (51.8%) had poor level of knowledge, 25.9% of the respondents had average level of knowledge and the rest (22.3%) of them had good level of knowledge regarding the role of dietary habit on heart disease.

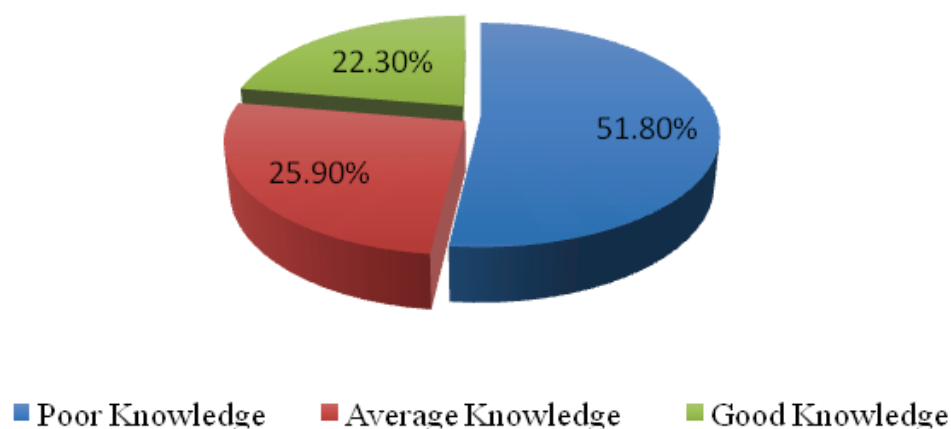


Figure 1: Level of knowledge about Role of Dietary Habit on Heart Disease (n=112)

Knowledge on Addiction Habits Associated with Heart Disease

Table 2 shows that the majority of respondents (76.8%) were aware of the addiction habits that are associated with heart disease and the rest (23.2%) didn't know the addiction habit that has any contributing role in causation of heart disease. According to the opinion for those that knows the addiction habit associated with heart disease, most of them mentioned that smoking is the most hazardous (29.5%), followed by alcohol (14.3%), Zarda (14.3%), raw tobacco leaf (11.6%) and coffee/tea (4.5%).

Table 2: Distribution of Respondents Based on Knowledge on Addiction Habits Associated with Heart Disease (n=112)

Variables	Frequency	Percent
Addiction Habit		
Don't know	26	23.2
Knew	86	76.8
Habits associated with heart disease		
No idea	26	23.2
Zarda	16	14.3
Raw tobacco leaf	13	11.6
Smoking	33	29.5
Coffee/tea	5	4.5
Alcohol	16	14.3
Gul	3	2.7

Knowledge about Cardio-Protective Foods

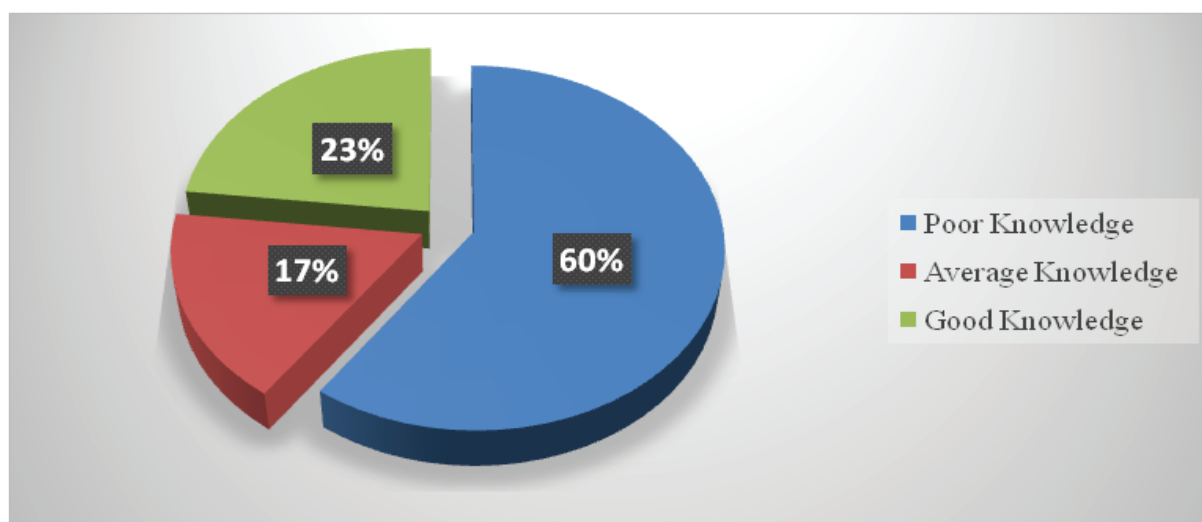
Table 3 shows that 77.7% of the respondents were aware of the cardio-protective foods and the rest (22.3%) were still ignorant regarding the cardio-protective foods. About 30.4% of the respondents thought that vegetables had a preventive role in heart disease, while 18.8% thought both fruits and fished had the same role. It was noted that 22.3% of the respondents had no idea whether any particular type of food proved to be preventive in heart disease.

Table 3: Knowledge about Cardio-Protective Foods (n= 112)

Variables	Frequency	Percent
Cardio-protective foods		
Don't know	25	22.3
Knew	87	77.7
Type of cardio-protective foods		
No idea	25	22.3
Vegetables	34	30.4
Fruits	21	18.8
Fishes	21	18.8
Vitamins	8	7.1
Garlic & other herbs	3	2.7

Knowledge about Cardio-Protective Role of Physical Exercise

Figure 2 shows the level of knowledge of the respondents about the role of physical exercise in prevention of heart disease. Majority of the respondents (60.0%) had poor level of knowledge, while 17.0% of the respondents had an average level of knowledge and 23.2% of them had good level of knowledge about the cardio-protective role of physical exercise in heart disease.

**Figure 2: Level of Knowledge about Cardio-Protective Role of Physical Exercise (n=112)**

Association between Level of Knowledge and Educational level of the Respondents

Table 4 shows that educational level of the respondents was found significantly associated with the level of knowledge regarding the role of dietary habit on heart disease, addiction habits associated with heart disease, cardio-protective food, cardio-protective role of exercise and level of knowledge about effect of physical exercise on body.

Table 4: Association between Level of Knowledge and Educational level of the Respondents (n=112)

Level of knowledge	Educational level	
	Chi-square	P-value
Role of dietary habit on heart disease	27.424	<0.01
Addiction Habits Associated with Heart Disease	33.043	<0.01
Cardio-protective food	22.771	<0.01
Cardio-protective role of exercise	53.952	<0.01
Effect of physical exercise on body	22.588	<0.05

In the present study the mean age of the respondents was 49.7 ± 11.8 years. This is somehow consistent with the findings of another study conducted among heart disease patients⁷. Almost two-thirds of the respondents (69.0%) were male and most of them (82.1%) were Muslims, 15.2% were Hindus, 1.8% Christians and the rest Buddhists 0.9%. However, almost two-third of the respondents had formal education. These findings are inconsistent with that of similar study conducted in Neighbouring country⁷.

Little above half of the respondents (51.8%) had poor level of knowledge regarding the role of dietary habit on heart disease. This finding is consistent with that of similar study conducted Sri Lanka among Ischaemic Heart Disease (IHD) patients⁷. According to the opinion of the respondents about the addiction habit associated with heart disease, most of them mentioned that smoking is the most hazardous (29.5%), followed by alcohol consumption (14.3%). A study reported that Smoking is associated with a number of physiological changes which increase the CHD risk⁸. About 77.7% of the respondents were aware of the cardio-protective foods and 30.4% of the respondents thought that vegetables had a preventive role in heart disease, while 18.8% thought both fruits and fished had the same role. There are many dietary patterns that can be adopted around the globe for both primary and secondary prevention of heart disease⁹. But the low fat high carbohydrate diet is recently implicated as the reason for escalation of diabetes and heart disease since the complex carbohydrates were substituted by refined cereals and sugar¹⁰.

Many studies had reported that a physical inactivity has been identified as an important risk factor in the development of CAD¹¹. However, in this study the majority of the respondents (60.0%) had poor level of knowledge about the cardio-protective role physical exercise has on heart disease. Habitual physical activity also prevents the development of coronary artery disease (CAD) and reduces symptoms in patients with established cardiovascular disease. Another evidence also stated that exercise reduces the risk of chronic diseases¹². A study reported that worldwide physical inactivity causes about 6.0% of the burden of Coronary Heart Disease and 9% of premature mortality¹³. The educational level of the respondents was found significantly associated with the level of knowledge regarding the role of dietary habit on heart disease, addiction habits associated with heart disease, cardio-protective food, cardio-protective role of exercise and level of knowledge about effect of physical exercise on body. A similar study reported that education level was also found to have a significant association with Coronary Heart Disease (CHD) knowledge¹⁴.

Conclusion

It was found that coronary heart disease is prevalent among older people i.e. among middle aged in particular and its' prevalence is not only restricted among the low socioeconomic group, the disease equally occurs among all income groups. Affluent and educated people are equally likely to suffer from the disease. It also reported that more than half of the respondents had poor level of knowledge regarding the role of dietary habit on heart disease. Likewise, sixty percent of them had poor level of knowledge about the cardio-protective role physical exercise in heart disease.

Recommendation

- Prospective study on large sample should be conducted to get a national picture of socio-demographic characteristics and risk factors of coronary heart disease, which is necessary for strengthening of the intervention program.
- Universal education is an effective parameter in prevention of heart disease. More emphasis should be provided to raise literacy level and it is recommended that in the educational curriculum, diet and physical exercise should be included and given priority.
- Awareness of certain very hazardous risk factors like smoking, alcohol consumption etc. should be built up to decrease the incidence of heart disease. Besides, physical inactivity is one of the other important risk factors contributing to the coronary heart disease.

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