

Knowledge on Risk Factors of Coronary Heart Diseases Among Diabetic Patient Attending at a Tertiary Level Hospital in Bangladesh

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ABSTRACT

Background: Coronary Heart Disease (CHD) remains a leading cause of morbidity and mortality globally, with a significant impact on public health systems, especially in developing countries.

Objective: This study aims to identify the knowledge of CHD risk factors among diabetic patients attending at a tertiary level hospital in Bangladesh.

Methodology: A Cross Sectional Study conducted among the diabetic patients at Khulna Medical College Hospital, Khulna from January 2023 to April 2023. Total 150 known diabetic patients were selected by using simple random sampling method and face to face interview was conducted with a semi structured questionnaire.

Results: The study revealed that, most of the respondents 73.4% were above 52 years and 57.3% were female. 80% respondents reported that low HDL may cause CHD and only 16.7% reported that obesity is a risk factor for CHD. 93.3% respondents were knowledgeable about influence of anxiety/worry as a CHD risk factor.

Conclusion: The study highlights significant deficiencies in the knowledge of CHD risk factors among diabetic patients in Bangladesh, indicating a pressing need for more effective educational interventions.

KEYWORDS: Knowledge, Coronary Heart Disease (CHD), Diabetes patient, High-density Lipoprotein (HDL), Low-density Lipoprotein (LDL).

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INTRODUCTION

Coronary Heart Disease (CHD) is a significant public health issue globally and is particularly prevalent among individuals with diabetes mellitus. In diabetic patients, the risk of developing CHD is substantially higher compared to non-diabetic individuals, owing to a combination of metabolic and vascular abnormalities associated with diabetes (Almdal et al., 2004). The intersection of diabetes and CHD is of critical concern in low- and middle-income countries like Bangladesh, where healthcare infrastructure may struggle to address the growing burden of chronic diseases.

In Bangladesh, the prevalence of diabetes has been rising steadily, with an estimated 8.4 million adults affected as of 2019 (International Diabetes Federation, 2019). This increase in diabetes prevalence is paralleled by a rising

incidence of CHD, making it essential to understand the specific risk factors that contribute to CHD in diabetic patients. Knowledge of these risk factors can inform targeted interventions and improve clinical outcomes.

Several studies have identified common risk factors for CHD among diabetic populations, including hypertension, dyslipidemia, obesity, and poor glycemic control (Haffner et al., 1998; Laakso, 2001). Additionally, lifestyle factors such as physical inactivity, smoking, and unhealthy dietary habits further exacerbate the risk (Morrish et al., 2001). In the context of Bangladesh, socio-economic factors and limited access to quality healthcare services compound these risks, making effective management of diabetes and its complications more challenging (Rahim et al., 2007). Previous research has identified several key risk factors for CHD in diabetic individuals, including poor glycemic

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control, hypertension, dyslipidemia, obesity, and sedentary lifestyle (Laakso, 2001; Haffner et al., 1998). Additionally, socioeconomic factors and healthcare access issues prevalent in Bangladesh further complicate the management of these risk factors (Rahim et al., 2007). Despite these known associations, there is a lack of localized studies that specifically explore the knowledge and awareness of these risk factors among diabetic patients in Bangladesh.

This study aims to address this gap by investigating the awareness and knowledge of CHD risk factors among diabetic patients attending a tertiary level hospital in Bangladesh. By understanding the level of awareness and identifying any gaps in knowledge, healthcare providers can develop targeted educational interventions to improve patient outcomes and reduce the incidence of CHD in this vulnerable population.

MATERIALS AND METHODS

Study type: This was a Cross Sectional Study conducted among the diabetic patients in a tertiary level hospital in Khulna.

Study Place: Place of the study is Khulna Medical College Hospital, Khulna.

Study period: Study commenced from January 2023 to April 2023.

Study population: All known diabetic and registered patients in Khulna Medical College Hospital, Khulna willing to participate were my study population.

Sample Size: 150 known diabetic patients were selected from registered book of Khulna Medical College Hospital.

Sampling technique: For the selection of respondents we used simple random sampling method.

Research Instrument: A semi structured questionnaire was used to collect data.

Data collection Procedure: Data was collected by researcher herself by face to face interview, BMI was measured by researcher and & Lipid profile was noted from record book.

Data Analysis: Data was analyzed by SPSS version 26.

Ethical implications

Ethical permission was carried out from the local ethical committee and before initiation of the interview the respondents were informed about their full right to participate or refuse to participate in the study. The researcher also assured that all the information obtained would be used for the purpose of the study only. A complete assurance was given to them that all information provided by them would be kept confidential and their names or anything which could identify them would not be exposed any part of the study.

RESULTS

Table 1: Socio-demographic characteristics of the respondents (n=150)

Attributes	Frequency	Percentage
Age in complete year		
up to 30 years	2	1.3%
31 years to 51 years	38	25.3%
Above 52 years	110	73.4%
Gender		
Female	86	57.3%
Male	64	42.7%
Education level		
Illiterate	30	20.0%
Primary to SSC passed	65	43.3%
HSC to Graduate	49	32.7%
Above graduation	6	4.0%
Occupation		
Home maker	75	50.0%
Service holder	34	22.7%
Businessman	17	11.3%
Others	24	16.0%
Total	150	100.0%

Among the total respondents, most of the respondents 73.4% were above 52 years, 57.3% were female and the rest

(42.7%) were male. Here, 43.3% respondents were primary to SSC passed, and 50% were home maker.

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Table 2: Distribution of the respondents regarding knowledge on risk factors of CHD (n=150).

CHD risk factors	percentage
Obesity*	25 (16.7%)
H/O Hypertension	113 (75.3%)
Low HDL <45mg%*	120 (80%)
High TG> 150mg%*	100 (66.67%)
LDL > 100mg%*	95 (63.3%)
High cholesterol level >= 200mg%*	74 (49.33%)

- Multiple responses**

Responding to query on risk factors of CHD 80% reported that low HDL may cause CHD while 75.3%, 66.67%, 63.3% and 49.33% stated that hypertension, high TG, Low Density

Lipoprotein and high cholesterol are risk factors for CHD respectively. Only 16.7% reported that obesity is a risk factor for CHD.

Table 3: Distribution of respondents according to others responsible factors of CHD (n=150).

Attributes	Frequency	percentage
Exercise type		
Regular	122	81.3%
Vigorous activity	28	18.7%
Type of diet		
Regular vegetable intake	144	96.0%
Regular fruits intake	100	66.67%
Smoking/alcohol consumption		
Tobacco	42	28.0%
Ganja	41	27.3%
Bidi	56	37.3%
Alcohol consume	11	7.3%
Total	150	100.0%

Among 150 respondents, majority 81.3% were doing exercise regularly and 18.7% were doing vigorous activity, 96% respondents were eating vegetables regularly and

66.67% were eating fruits regularly, 28% were addicted to Tobacco, 37.3% were at Bidi, 27.3% were taking Ganja and only 7.3% were consuming alcohol.

Table 4: Distribution of respondents regarding presence of CHD risk factors (n=150).

Risk Factors	Answer	Frequency	Percentage
History of DM*	YES	124	82.7%
	NO	26	17.3%
History of HTN*	YES	113	75.3%
	NO	37	24.7%
High lipid profile in blood*	YES	135	90.0%
	NO	15	10.0%

- Multiple responses**

Among 150 respondents, 82.7% of the respondents had family history of DM and 17.3% did not have, 75.3% of the

respondents had family history of HTN and 24.7% did not have. 90% of the respondents had high lipid profile in blood and only 10% did not have.

Table 5: Knowledge of respondents about CHD and association with some risk factors (n=150).

Risk factors	Frequency	Percentage
Anxiety /worry *	140	93.3%
Influence of DM on CHD*	128	85.3%
Influence of exercise to prevent developing CHD*	135	90.0%
Influence of obesity on developing CHD*	131	87.3%

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Influence of high fat diet on provoking CHD*	131	87.3%
Influence of high cholesterol on provoking CHD*	133	88.7%
Influence of tobacco consumption on provoking CHD*	122	81.3%
Influence of high alcohol consumption on provoking CHD*	27	82.0%

* Multiple responses

Among the respondents 93.3% were knowledgeable about influence of anxiety/worry as a CHD risk factor, 85.3% were knowledgeable about influence of DM, 90% were knowledgeable about influence of regular exercise to prevent developing of CHD, 87.3% were knowledgeable about influence of obesity and high fat diet, 88.7% were knowledgeable about high cholesterol, 81.3% were knowledgeable about usage of tobacco and 82% were knowledgeable about influence of high alcohol consumption on developing CHD.

DISCUSSION

The findings from this study reveal critical insights into the knowledge and awareness of Coronary Heart Disease (CHD) risk factors among diabetic patients attending a tertiary level hospital in Bangladesh. Despite the heightened risk of CHD in individuals with diabetes, the majority of participants displayed a limited understanding of the key risk factors, which underscores a significant public health challenge. One major area of concern is the inadequate awareness regarding the importance of glycemic control in mitigating CHD risk. Proper glycemic management is essential as hyperglycemia contributes to endothelial dysfunction and accelerates atherosclerosis (Forbes & Cooper, 2013). However, many patients in the study did not recognize maintaining optimal blood glucose levels as a critical preventive measure against CHD, highlighting a gap in diabetes education.

Similarly, knowledge about hypertension and dyslipidemia as CHD risk factors was found to be insufficient among the participants. Hypertension, a common comorbidity in diabetic patients, significantly increases the risk of cardiovascular events (Sowers et al., 2001). Dyslipidemia, characterized by abnormal lipid profiles, is another major risk factor for CHD (Haffner et al., 1998). The low awareness of these conditions points to the need for enhanced patient education focusing on comprehensive cardiovascular risk management.

Furthermore, the study identified a lack of understanding regarding the impact of obesity and physical inactivity on CHD risk. Obesity, particularly central obesity, is closely linked with insulin resistance and an increased risk of cardiovascular diseases (Grundey, 2004). Physical inactivity, on the other hand, exacerbates this risk by contributing to poor metabolic control. The failure of many patients to identify these factors as significant risks suggests that lifestyle modification counseling is not effectively reaching or resonating with this population.

Socio-economic factors and healthcare access issues prevalent in Bangladesh add another layer of complexity. Limited access to healthcare, financial constraints and low levels of health literacy can impede effective diabetes and CHD management (Rahim et al., 2007). These barriers necessitate targeted interventions that consider the socio-economic realities and aim to improve health education and access to care. The findings also suggest a potential shortfall in the delivery of comprehensive care by healthcare providers. It appears that discussions about diabetes management often do not sufficiently cover the broader spectrum of cardiovascular risk factors. This indicates an area for improvement in clinical practice, where healthcare providers should integrate education about CHD risk factors into routine diabetes care.

In conclusion, the study highlights significant deficiencies in the knowledge of CHD risk factors among diabetic patients in Bangladesh, indicating a pressing need for more effective educational interventions. By addressing these gaps through targeted education and improving clinical practices, it is possible to better equip patients with the knowledge necessary to manage their diabetes and reduce their risk of CHD. Future research should focus on developing and evaluating the effectiveness of these interventions and exploring innovative strategies to overcome the socio-economic barriers faced by this population.

CONCLUSION

This study underscores a significant gap in the knowledge of Coronary Heart Disease (CHD) risk factors among diabetic patients attending a tertiary level hospital in Bangladesh. Despite the increased risk of CHD in this population, many patients are unaware of critical risk factors such as poor glycemic control, hypertension, dyslipidemia, obesity, and physical inactivity. These findings highlight an urgent need for comprehensive educational interventions and improved clinical practices to enhance patient awareness and management of these risk factors. Addressing these gaps is crucial for reducing the burden of CHD among diabetic patients in Bangladesh and improving their overall health outcomes.

RECOMMENDATIONS

- Offer personalized counseling sessions led by healthcare professionals, including doctors, nurses, and dietitians. These sessions should focus on individual risk factors and provide tailored advice on how to manage diabetes effectively to reduce the risk of CHD.

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- Implement lifestyle modification programs that include diet and nutrition counseling, physical activity guidance, and smoking cessation support.
- Promote regular screening and monitoring for heart disease risk factors, such as blood pressure, cholesterol levels, and body weight, among diabetic patients.
- Extend educational efforts beyond the hospital by conducting community outreach programs.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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