

# Assessment of Risk Status for Coronary Artery Diseases among Type 2 Diabetes Mellitus

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**Abstract-** Diabetes mellitus (DM) is one of the most challenging health problems in the 21st century and the third major cause of death globally due to its complications. Among the complications of Coronary Artery Disease (CAD) are often asymptomatic in diabetic patients until onset of the myocardial infarction or sudden cardiac death. **Objectives** of the study were to identify the risk status for Coronary Artery Diseases among type 2 diabetes mellitus adults and to find the significant association between the risk status of coronary artery diseases with selected demographic variables like age, gender, BMI, duration of illness, blood pressure, RBS value **Methods:** A descriptive survey was done among 127 diabetic adults at selected villages of Udupi district. Purposive sampling method was used for selection of sample. Tools used were demographic proforma and risk status assessment tool for coronary artery diseases and data was obtained by interview method and using Bio-physiological tests. **Results:** Majority 94 (74%) of the sample were at moderate risk for CAD, only 4 (3.1%) of them at a low risk for CAD. There is significant association between risk status of coronary artery diseases and selected variables like age ( $\chi^2 = 10.46, p < 0.05$ ), gender ( $\chi^2 = 10.92, p < 0.05$ ), duration of illness ( $\chi^2 = 28.75, p < 0.05$ ), blood pressure ( $\chi^2 = 24.52, p < 0.05$ ), RBS value ( $\chi^2 = 11.50, p < 0.05$ ). **Conclusion:** In order to prevent risk for the coronary artery diseases among type 2 diabetic adults it is very important that creating awareness regarding various risk factors CAD and measures for prevention of CAD to maintain their health status well.

**Index Terms-** Risk status, coronary artery diseases, type 2 diabetes mellitus.

## I. BACKGROUND

Diabetes mellitus (DM) is one of the most challenging health problems in the 21st century and the third major cause of death globally. From year 2000 to 2012, 1.5 million deaths have been occurred due to diabetes mellitus and its complications. (World Health Organization [WHO], 2014)

Diabetes Mellitus is a serious condition with potentially devastating complications that affects all age groups worldwide. This typically includes macro vascular complications (cardiovascular morbidity such as coronary artery disease, cerebrovascular disease and peripheral vascular disease).

Among the complications Coronary Artery Disease (CAD) is often asymptomatic in those patients until onset of the myocardial infarction or sudden cardiac death. From year 2000 to

2012 it was estimated that 1.5 million deaths have occurred due to Ischemic heart diseases. (WHO, 2014)

## II. OBJECTIVES

To identify the risk status for coronary artery diseases among type 2 diabetes mellitus adults and find the significant association between the risk status of coronary artery diseases with selected demographic variables like age, gender, BMI, duration of illness, blood pressure, RBS.

## III. METHODS

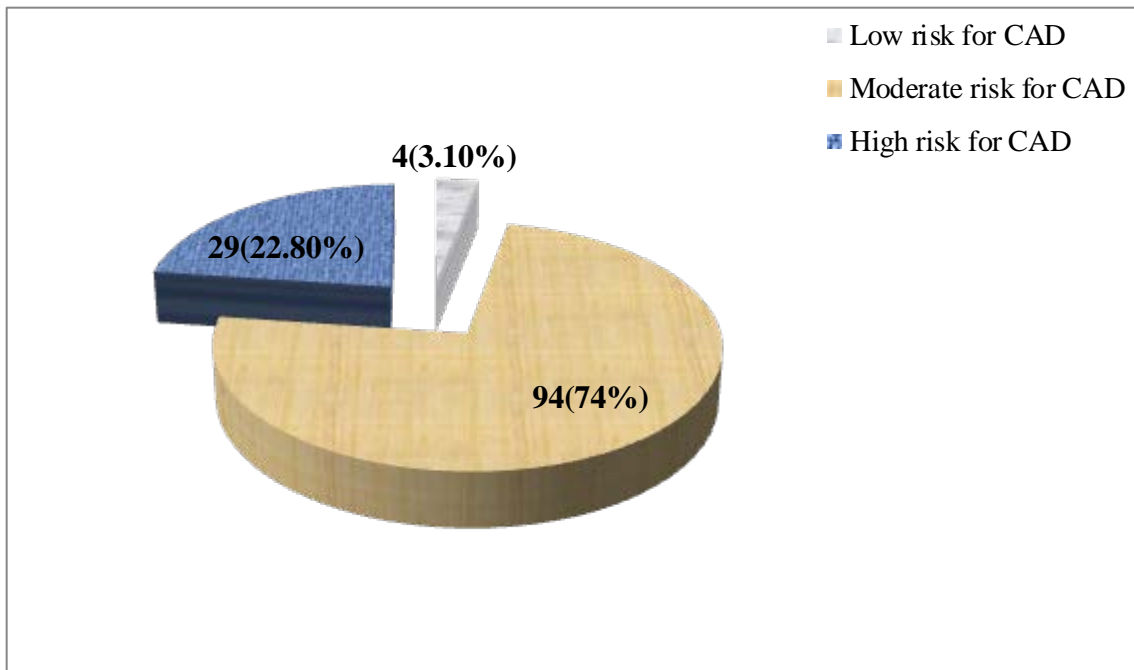
A descriptive survey was used in the study. The sample consist of 127 diabetic adults who were resided at selected villages namely Hirebettu, Athrady,80-Badagabettu, Herga-A, Herga-B, Alevoru, Malpe, Kadekar, Udyavara, Katapadi, Kapu of Udupi district. From all these villages 127 sample were selected based on purposive sampling method. Tools used were demographic proforma and risk status assessment tool for coronary artery disease and data was obtained by semi structured interview method and also Bio-physiological tests like Height, weight and Blood pressure and RBS was monitored by using Glucometer.

## IV. RESULTS

Most (35.4%) of the sample were in the age group of 56-65 years, majority 87 (68.5%) of them were females, most 46 (36.2%) of the sample had 5-10 years duration of illness (diabetes mellitus), around 62(48.8%) of sample had the history of hypertension, about 87 (68.5%) of them had high blood pressure, around 59 (40.2%) sample had the RBS values > 200 mg/dl, Only 17 (13.4%) were have the history of heredity of coronary artery diseases, most 75 (59.1%) of them had the normal BMI, only 10(7.9%) of them were overweight, around 44 (34.6%) of them had sedentary occupation and do not do regular exercises, most (92.5%) of them never smoked, only 6 (15%) sample takes alcohol and 4 ( 3.1%) sample were on irregular treatment.

**Figure-1:**

**Frequency and percentage distribution of sample based on risk status for coronary artery diseases (CAD)  
 (n = 127)**



The data presented in the figure 1 shows that, majority 94 (74%) of the sample were at moderate risk for coronary artery diseases, around 29 (22.80%) of them were at high risk for coronary artery diseases, only 4 (3.1%) of them at a low risk for

coronary artery diseases. (Score of 7-25 low risk for coronary artery diseases, 26-50 moderate risk for coronary artery diseases and 51-100 high risk for coronary artery diseases)

**Table – 1**  
**Mean, Median and Standard Deviation Scores of Coronary Artery Risk Status Score (n=127)**

Name of the variable	Maximum score	Mean	Median	SD
Coronary artery diseases	100	42	43	8.87

The data presented in table-2 revealed that Mean, median and standard deviation scores of coronary artery risk status scores. The maximum score for the coronary artery risk status was 62 and mean was 42 which shows majority of subjects were vulnerable for coronary artery diseases.

**Table – 2**

**Association between the risk status for CAD (coronary artery diseases) with selected demographic variables (n=127)**

Sample characteristics	Risk status for CAD			$\chi^2$	df	P value
	Low risk for CAD	Moderate risk for CAD	High risk for CAD			
<b>1. Age in years</b>						
>60	4	38	6	10.46	2	0.005*
60 and above	0	56	23			
<b>2. Gender</b>						
Male	0	24	16	10.92	2	0.004*
Female	4	70	13			
<b>3. Duration of illness (Diabetes mellitus)</b>						
< 15 years	4	81	12	25.92	2	0.001*
15 & above years	0	13	17			
<b>4. Blood Pressure (in mm of Hg)</b>						
120 < 80	3	30	7	24.52	6	0.001*
120-139 80-89	1	35	1			
140-159 90-99	0	18	16			
> 160 > 100	0	11	5			
<b>5. RBS mg /dl</b>						
<140 mg/dl	3	33	3	11.50	4	0.021*
140 – 200 mg/dl	0	24	37			
>200 mg/dl	1	37	13			
<b>6. BMI</b>						
Underweight	1	6	0	6.54	6	0.37
Normal	3	55	17			
Over weight	0	26	9			
Obese	0	7	3			

\* Significant association (  $p < 0.05$  )

Table -2 shows that there is significant association between risk status of coronary artery diseases and selected variables like age ( $\chi^2 = 10.46$ ,  $p < 0.05$ ), gender ( $\chi^2 = 10.92$ ,  $p < 0.05$ ), duration of illness ( $\chi^2 = 28.75$ ,  $p < 0.05$ ), blood pressure ( $\chi^2 = 24.52$ ,  $p < 0.05$ ), RBS value ( $\chi^2 = 11.50$ ,  $p < 0.05$ ) except for BMI.

## V. DISCUSSION

The overall findings of the study revealed that, out of 127 type 2 diabetic adults, 94 (74%) were at moderate risk for coronary artery diseases, 29 (22.8%) of the subjects were belong to high risk for coronary artery diseases, only 4 (3.1%) of the subjects were at a low risk for coronary artery diseases. It showed that majority of the diabetic adults were at risk for coronary artery diseases.

The present study supported by Rajina (2014) results showed that 37 (60%) sample had high risk status, 18 (29%) had moderate risk and 7(11%) had low risk status for coronary artery diseases.

There was a significant association between risk status of coronary artery diseases and selected variables like age, gender, duration of illness, blood pressure, RBS value.

The present study is supported by a study conducted by Bonakdaran et al. (2011) the reported that the prevalence of cardio vascular diseases (CVD) was 20.1% (156). This prevalence of CVD was significantly associated with age, duration of diabetes, hypertension. They concluded that there is high prevalence of CVD in patients with type 2 diabetes.

The present study is supported by a study conducted by Shah & Afzal (2013), it was reported that the prevalence of diabetes and hypertension was found to be 294 (16.63%) and

321(18.16%) respectively. The mean age of males was 55.68 and females was 49.90 who were suffering from diabetes. It was estimated that 244 (13.8%) individuals had prevalence of both diabetes mellitus and hypertension. There was a significant association ( $p=0.006$ ) found between diabetes mellitus with risk factors like age, consumption of alcohol and difference in physical activities.

## VI. CONCLUSION

In order to prevent the coronary artery diseases among type 2 diabetic adults it is very important to creating awareness regarding various risk factors for coronary artery diseases and measures to be taken in prevention of coronary artery diseases by following regular health checkups and healthy life style habits to maintain their health status.

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