Predictors for Coronary Artery Disease among Patients inCardiac Care Unit

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Abstract

Background: Coronary artery disease is one of non-communicable disease, is a major contributor to worldwide mortality. It adversely affects various aspects of an individual's quality of life, including physical, psychological, and social well-being. Controlling the risk factors that lead to CAD is the key to preventing illness and death from CAD. **Aim:** Assess the predictors for coronary artery disease among patients in cardiac care unit at Beni-Suef University Hospital. **Design:** A descriptive exploratory research design,**Subject:** A convenience sample of 130 patients attended to cardiac care unit (CCU) at Beni–Suef University Hospital. An interview questionnaire was used to assess the common characteristics among these patients regarding demographics, medical history and anthropometric measurements. **Results:** 88.5% of patients' age was ranging from 45 to 65 years, 76.2% of them were males while 93.1% of the studied patients were married.A regard to anthropometrics measurement, 72.3% of the studied patients' weight was ranging from 75 to 100 Kg and 75.4 % of patients their BMI % was 25.0-29.9 are classified as overweight, while 64.6 % of them had abdominal circumference that classify them as very high risk for coronary artery disease**.Conclusion**:There is no statistically significant difference between coronary artery diseases and various demographic factors and anthropometric measurements. Also presence of a statistically significant difference between patients with coronary artery diseases and the coexistence of chronic diseases and family history of cardiac disease.**Recommendations:** Provide an educational program to raise awareness about the risk factors of coronary artery disease.

Key words: Anthropometrics Measurement, Cardiac Care Unit, Coronary Artery Disease.

Introduction

Ischemic heart disease is a general term for various ischemic heart syndromes caused by atherosclerotic obstruction of the coronary arteries. and leads to restriction of blood flow to the heart. The atherosclerotic damage ranges from gradual narrowing of the coronary arteries (due to bulging patches of plaque) to the sudden obstruction of a coronary artery by a blood clot that has been dislodged from the surface of a ruptured plaque **(Garg et al., 2017).**

Controlling the risk factors associated with coronary artery disease (CAD) is crucial in preventing illness and mortality. These risk factors include smoking, elevated LDL cholesterol, elevated triglyceride levels, low HDL cholesterol, hypertension (high blood pressure), physical inactivity, obesity, a diet high in saturated fat, diabetes, and a family history of the disease. By effectively managing these risk factors, the occurrence of CAD and its associated adverse outcomes can be minimized **(Arsyad et al., 2022).**

Advanced age is a significant risk factor in the development of atherosclerotic cardiovascular disease (CVD) and coronary artery disease (CAD) due to the prolonged exposure to other risk factors over a longer lifespan. Hypertension, an independent risk factor, plays a prominent role in CAD. There is a clear and gradual relationship between blood pressure levels and age-specific mortality caused by CAD **(Muntner&Whelton, 2021).**

Elevated total cholesterol and low-density

lipoproteins (LDL) are strongly associated with increased risk of atherosclerotic cardiovascular disease (CVD), while elevated levels of high-density lipoprotein (HDL) cholesterol is associated with a reduced risk of atherosclerotic CVD. Smoking, known to cause severe diseases in various organ systems, primarily contributes to death and disability through its impact on coronary artery disease (CAD) **(Duggan et al., 2022).**

Physical inactivity is often thought of as one component, along with nutrition, that contributes to the development of obesity. However, lack of exercise is a significant risk factor for the development of CAD, the risk of developing CAD is elevated in patients with healthy bodyweight who are physically inactive, and the risk of CAD is lower in obese patient who exercise in comparison with those who do not**(Winzer et al., 2018).**

The prevalence of CAD is increasing worldwide. Anthropometric measurements have been widely used as indicatorsof obesity and have been shown to be associated with an increased risk of CAD **(Aune et al.,2019).** The relationship between anthropometric measurements and CAD is of significant interest due to the high prevalence of obesity and the increasing burden of CAD. Studies have consistently shown that anthropometric measurements, such as BMI and waist circumference, are associated with an increased risk of CAD **(Liu et al., 2020).**

Anthropometric measurements, such as body mass index (BMI), waist circumference, and waist-to-hip ratio, are frequently employed to evaluate the distribution of body fat and the risk of developing coronary artery disease (CAD). Studies have demonstrated the effectiveness of these measurements in identifying individuals with a high risk of CAD **(Hruby& Hu, 2019).**

Coronary artery disease symptoms can vary from person to person, even if they have the same type of coronary artery disease. However, because many people have no symptoms, they do not know they have coronary heart disease until they have chest pain, blood flow to the heart is blocked causing a heart attack, or the heart suddenly stops working **(Shaoet al., 2020).**

Coronary heart disease is a condition that occurs when plaque buildup in the arteries restricts blood flow to the heart muscle, leading to chest pain or discomfort. The common symptoms of coronary heart disease included chest pain, shortness of breath, fatigue, dizziness, and sweating. Other symptoms may include pain or discomfort in the neck, jaw, shoulder, arms, or back. These symptoms can be mild or severe, and some people may not experience any symptoms at all, which is known as silent heart disease **(Mingtai et al., 2022).**

The prognosis of CAD can be improved through secondary prevention measures, with lifestyle changes, control of modifiable risk factors, and the prevention of blood clot formation with antithrombotic therapies **(Cortés-Beringolaet al., 2017).**

Coronary artery disease (CAD) is a global public health issue of great magnitude. It occurs due to the build-up of plaque in the coronary arteries, potentially leading to heart attacks and strokes. While treatment advancements have been made, prevention remains the most effective strategy to combat CAD **Libby et al., 2019).**

Coronary heart disease (CAD) is a common and potentially fatal condition that affects millions of people worldwide. Although CAD is treatable, prevention is essential to reduce its burden. Lifestyle modifications, such as regular physical activity, healthy diet, and avoiding smoking, have been shown to be effective in preventing CAD **(Piepoliet al., 2016).**

Coronary heart disease (CAD)is a significant health concern that affects people worldwide. The disease can lead to serious complications such as heart attack and stroke. Prevention of CAD is, therefore, critical. Evidence suggests that lifestyle modifications such as regular exercise, healthy diet, and avoiding smoking are essential in preventing CAD. Additionally, pharmacologic therapies such as statins and aspirin have also been shown to be effective in reducing the incidence of CAD (**Grundy et al., 2019).**

Coronary artery disease (CAD) is a complex condition that is a leading cause of morbidity and mortality worldwide. Despite the significant advancements in medical management, the prevalence of CAD remains high. The prevention is crucial in reducing the burden of the disease. A growing body of literature supports the effectiveness of lifestyle modifications, including regular physical activity, healthy diet, and avoiding smoking, in preventing CAD. Additionally, pharmacologic therapies, such as statins and antiplatelet agents, have also been demonstrated to be effective in preventing the progression of CAD (**Arnett et al., 2019).**

Significant of the study

Ischemic Heart Disease (IHD) is the leading cause of death in Egypt among the population aged 50-74 to 75 years. Egypt has one of the highest rates of ischemic heart disease in the Middle East and North Africa (MENA) region. According to the World Health Organization.In recent years, IHD has become a major public health issue in Egypt, with a significant impact on the country's economy and population **(Vos et al., 2020).**

One of the main reasons for the high incidence of IHD in Egypt is the country's increasing population and the associated rise in the number of risk factors such as obesity, high blood pressure, diabetes, and smoking. These risk factors, combined with a lack of physical activity and unhealthy diets, have led to a growing number of cases of IHD. In addition to the individual impact, IHD also has a significant economic impact on Egypt. The cost of treatment and lost productivity due to heart disease is high, with many patients requiring hospitalization and ongoing medical care. This puts a significant strain on the country's health system, which is already struggling to meet the needs of its population**(Murray et al., 2020).**

The Egyptian government has taken several measures to raise awareness about the importance of heart health and to encourage people to adopt healthy lifestyles. For example, it has implemented programs to promote physical activity, healthy diets, and regular medical check-ups. The government has also increased funding for research into IHD and its risk factors, with the aim of finding new treatments and preventative measures **(Murray et al., 2020).**

One of the key initiatives being implemented in Egypt is the "National Program for Cardiovascular Disease Prevention and Control", which aims to reduce the incidence and impact of IHD through a multi-disciplinary approach. This program focuses on promoting healthy lifestyles, providing early detection and management of risk factors, and improving access to quality care for people with IHD **(Tsao et al., 2022).**

Aim of the study

The aim of this study was to assess the predictors for coronary artery disease among patients in cardiac care unit at Beni-Suef university hospital.

Research question

What are predictors for coronary artery disease among patients in cardiac care unit?

Subjects and Method

Research Design: A descriptive exploratory study design (Case control study) was used in this study to fulfill the aim of this study.

Research Setting: The current study was conducted in the Cardiac Care Unit (CCU) located at Beni-Suef University Hospital in Egypt. The CCU comprises a singular room equipped with 16 beds, accompanied by two cardiac catheterization units that are directly linked to the CCU. Additionally, there are two post-catheterization units available, each with a capacity of 16 beds.

Subjects: A conveniencesample of 130 patientsadmitted in cardiac care unit (CCU) at Beni–Suef university hospital from March 2023 to May 2023.

The least sample size to be enrolled in this study will be calculated using Epi – Info version 7stat Calc ,(center for disease control (CDC), WHO, based on the following criteria , rate of the problem , confidence level of 90%, margin of error of 5%.

Inclusion criteria includes: Age of patients from 18 to 65, free from psychotic disorders, free from physical and psychological handicaps.

Tool of data collection:

Data collection was accomplished after reviewing the recent relevant literatures:

Tool I: Patient's demographic characteristics:

It aimed to assess the patients' socio-demographic characteristics such as age, gender, occupation, marital status, level of education, residence and health insurance coverage.

Tool lI: Patient's clinical data

It was used to assess and collect data about patients' medical history which included present, past and family heath history such as weight, height, BMI, abdominal and pelvic girth, and past surgical history.

Tool III: Patients Co-morbidities disease

It was used to assess presence of chronic diseases and presence of family history of cardiovascular disease.

Validity and Reliability

Validity of tools was done by 7 experts from medical –surgical nursing field to check the relevancy, clarity, comprehensiveness, and applicability of the questions. According to their opinions, minor modifications were done and the final form was developed. The Validity of the proposed tools was tested using face and content validity by inspecting items to determine whether the tools measure what supposed to measure.The reliability of the tools was tested using the internal consistency method. It was found that Cronbach's alpha reliability coefficient was 0.734.

Pilot study

Pilot study was conducted on 10% (13) of patients. This number was excluded from the studied sample to identify the obstacles and problems that may be encountered in data collection, applicability and feasibility of the research process.

Procedure for Data Collection:

The research approval was obtained from the faculty ethical committee before starting the study. An official permission from the faculty of nursing Beni-Suef University and director of Beni-Suef University Hospital before starting the study.

Ethical Consideration

Written consent was obtained from each patient to be included in the study after explaining the aim and importance as well as stressing on confidentiality of the collected data. In addition verbal consent was obtained from all patients whose volunteer to involve in the study. The researchers emphasized that the participation on the study are absolutely voluntary and each patient has the right to withdraw from the study without explaining any reason. All data collected were used for the study purpose only and were processed in total confidentiality.

Statistical Analysis

Data were verified prior to entry into the computer. The Statistical Package for Social Sciences created by IBM, Illinois, Chicago, USA (SPSS version 25.0) was used for that purpose, followed by data analysis and tabulation. For numerical values, the mean and standard deviations were calculated. The level of significant was adopted at $p<0.05$ and a highly significant level value was considered when $p \leq 0.00l$.

Results

Table (1) clarifies that; about 88.5% of the studied patients' age was ranging from 45-65 years, and the mean age of the studied patients was 54.78 ±8.075. As regard to patient's gender, 76.2% of them were males. In relation to educational level, 37.7% were illiterate and 13.8% were higher education. Regarding occupation, 33.1% of patients are working in manual works. Regarding residence, 65.4% of patients are living in rural areas. Moreover, 93.1% of the studied patients were married, 68.5% of them didn't have health insurance, and 97.7% of patients are living with their families.

Figure (1) illustrates that that more than one third of studied patients (37.7%) were illiterate and 13.8% were higher education.

Table (2) clarifies that 72.3% of the studied patients' weight was ranging from 75 to 100 Kg and 85.4% of them their height was more than 160 cm. Regarding body mass index (BMI), 75.4% of patients their BMI was25.0-29.9 that are classified as over-weight. Moreover regarding abdominal girth, 64.6 % of the studied patients had abdominal circumference that classify them as very high risk for coronary artery disease as men circumference > 102 cm and women > 88 cm and for the pelvic circumference, 52.3 % of the studied patients had pelvic circumference more than 180 cm. Finally 53.1%of them didn't have past surgical

procedure and 35.4% of them had family history of cardiovascular diseases.

Table (3) clarifies that 86.9% of studied patients had chronic diseases and 32.3% of them had diabetes mellitus. Also 51.5% of them didn't have hypertension, 65.4 of the studied patients had coronary disease and majority of them didn't have renal failure or thyroid disease.

Table (4) shows that, there is no statistically significant difference between coronary artery diseases and various demographic factors such as age, gender, occupational, educational level, residenceand marital status as $P > 0.05$. Also there is statistically significant difference between coronary artery diseases and with whom livingas $P < 0.05$.

Table (5) demonstrates there is no a statistically significant difference between coronary artery diseases and various anthropometric measurements such as (height, weight, body mass index, abdominal girth, pelvic girth) and past surgical procedure as $P > 0.05$.Also the presence of a statistically significant difference between patients with coronary artery diseases and family history of cardiac disease as P-value < 0.05.

Table (6) also revealed the presence of a statistically significant difference between patients with coronary artery diseases and the coexistence of chronic diseases as P-value < 0.05. Conversely, the data also shows there is no statistically significant difference between patients with coronary artery diseases and the presence ofdiabetes mellitus, hypertension, renal failure and thyroid diseases, as P-value > 0.05.

Table 1: Distribution of demographic characteristic of the studied patients (n=130).

Demographic characteristics	N	%
Age		
• 18-44	15	11.5%
• 45-65	115	88.5%
Mean + SD = 54.78 ±8.075		
Gender		
• Male	99	76.2%
• Female	31	23.8%
Education level		
• Illiterate	49	37.7%
• Read and Write	35	26.9%
• Secondary Education	28	21.5%
• Higher Education	18	13.8%
Occupation		
• Does not work	24	18.5%
• House wife	25	19.2%
• Manual work	43	33.1%
• Employee	38	29.2%
Residence		
• Rural	85	65.4%
• Urban	45	34.6%
Marital status		
• Married	121	93.1%
• Separate	3	2.3%
• Widow	6	4.6%
Health insurance		
• Yes	41	31.5%
• No	89	68.5%
Living		
• Alone	3	2.3%

• With family	127	97.7%

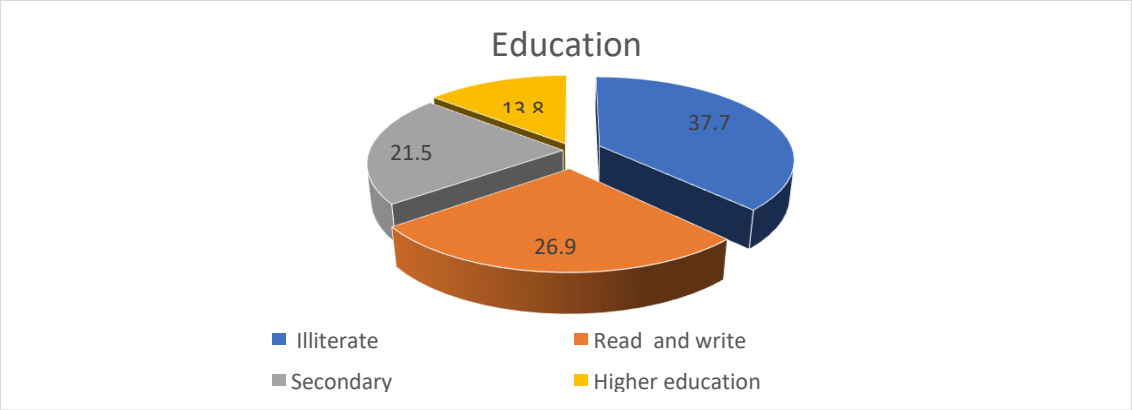

Figure1: Percentage distribution of studied patients according to their Education (n=130)

Table (2): Distribution of clinical data for the studied patients (n=130).

Clinical data		**No**	**%**
Weight	• <75 kg	22	16.9%
	• 75-100 kg	94	72.3%
	• >=100 kg	14	10.8%
Mean ± SD		85.15 ± 12.258	
Height	• <160cm	19	14.6%
	• >=160cm	111	85.4%
Mean ± SD		165.48 ± 7.342	
BMI	• (18.5-24.9) Normal range	19	14.6%
	• (25.0-29.9) over-weight	98	75.4%
	• (≥30.0) Obese	13	10.0%
Mean+ SD		31.33± 4.88	
Abdominal girth	Low risk for Coronary Artery Disease • Men < 94 cm • Women < 80 cm	28	21.5%
	High risk for Coronary Artery Disease • Men 94-102 cm • Women 80-88	18	13.8%
	Very high risk for Coronary Artery Disease • Men > 102 cm • Women > 88cm	84	64.6%
Mean ± SD		110.56 ± 18.396	
Pelvic girth	• 78 to <90 cm	13	10.0%
	• 90 to <108 cm	49	37.7%
	• >=108 cm	68	52.3%
Mean+ SD		110.01± 15.037	
Undergo surgical procedure			
• Yes		61	46.9%
• No		69	53.1%
Family history cardiac disease			
• Yes		46	35.4%

• No	84	64.6%

Table 3: Distribution of studied patients according to their co-morbidities disease (n=130).

Co-morbidities disease	No	%
Presence of chronic disease:		
Yes	113	86.9%
No	17	13.1%
Diabetes mellitus:		
Yes	42	32.3%
No	88	67.7%
Hypertension:		
Yes	63	48.5%
No	67	51.5%
Coronary disease:		
Yes	85	65.4%
No	45	34.6%
Renal failure:		
Yes	1	.8%
No	129	99.2%
Thyroid disease:		
Yes	1	.8%
No	129	99.2%

Table 4: Relations between studied patients' coronary disease and their demographiccharacteristics(n=130)

Demographiccharacteristics	Coronarydiseases				^{2}test	p-value
	No		Yes			
	No.	%	No.	%		
Age:					0.244	0.885
<50	12	9.2%	22	16.9%		
<60	19	14.6%	33	25.4%		
≥60	14	10.8%	30	23.1%		
Gender:					0.301	0.583
Male	33	25.4%	66	50.8%		
Female	12	9.2%	19	14.6%		
Education:					2.160	0.540
Illiterate	19	14.6%	30	23.1%		
Read&write	10	7.7%	25	19.2%		
Secondary	8	6.2%	20	15.4%		
Higher	8	6.2%	10	7.7%		
Occupation					1.777	0.620
Notwork	6	4.6%	18	13.8%		
Housewife	10	7.7%	15	11.5%		
Manualwork	14	10.8%	29	22.3%		
Employee	15	11.5%	23	17.7%		
Residence					1.760	0.185
Rural	26	20.0%	59	45.4%		
Urban	19	14.6%	26	20.0%		
MaritalStatus					1.638	0.441
Single	43	33.1%	78	60.0%		
Separate	0	0.0%	3	2.3%		
Widow	2	1.5%	4	3.1%		
Withwhom living					5.801	0.016*
Alone	3	2.3%	0	0.0%		
Withfamily	42	32.3%	85	65.4%		

Significant P-value at 0.05

Table 5: Relations between studied patients' coronary disease and their clinical data (n=130).

clinical data	Coronarydiseases				χ^2test	p-value
	Yes		No			
	No.	%	No.	%		
Weight:						
<80	33	25.4%	14	10.8%	0.984	0.611
<100	44	33.8%	25	19.2%		
≥100	8	6.2%	6	4.6%		
Hight:						
<160	12	9.2%	7	5.4%	0.374	0.830
<175	67	51.5%	36	27.7%		
≥175	6	4.6%	2	1.5%		
Abdominalgirth:						
<100	29	22.3%	15	11.5%	1.133	0.568
<130	41	31.5%	25	19.2%		
≥130	15	11.5%	5	3.8%		
Pelvicgirth:						
<100	18	13.8%	10	7.7%	1.209	0.546
<130	56	43.1%	32	24.6%		
≥130	11	8.5%	3	2.3%		
Undergosurgicalprocedure						
Yes	24	18.5%	37	28.5%	1.136	0.287
No	21	16.2%	48	36.9%		
Familyhistory ofcardiacdisease:						
Yes	23	17.7%	23	17.7%	7.445	0.006**
No	22	16.9%	62	47.7%		

Significant P-value at 0.05

Table 6: Relations between studied patients' coronary disease and their co- morbidities diseases(n=130).

Comorbiditiesdiseases	Coronarydiseases				c^2test	p-value
	Yes		No			
	No.	%	No.	%		
Presenceofchronicdiseases:						
Yes	84	64.6%	29	22.3%	30.594	0.000**
No	1	0.8%	16	12.3%		
Diabetes mellitus						
Yes	27	20.8%	15	11.5%	0.033	0.856
No	58	44.6%	30	23.1%		
Hypertension						
Yes	41	31.5%	22	16.9%	0.005	0.943
No	44	33.8%	23	17.7%		
Renal failure						
Yes	1	0.8%	0	0.0%	0.534	0.465
No	84	64.6%	45	34.6%		
Thyroiddisease						
Yes	23	17.7%	23	17.7%	0.534	0.465
No	62	47.7%	22	16.9%		

Significant P-value at 0.05

Discussion

Regarding the studied patients' demographic characteristics, the results of the present study revealed that about more than three quarters of studied patients were males and majority of them were above forty-five years old. This result is in accordance with **Santoso et al, (2021)**, who revealed thatCAD (coronary artery disease) and heart attacks are more prevalent in males than females, especially in middle-aged and older men compared to other age groups. Additionally, the risk for CAD and its complications is higher for males over the age of 45 and females over the age of 55.

Regarding to educational level, the study results revealed that more than one third of patients were illiterate and few of them have higher education. This finding is contradicted with **Tillmann et al. (2017),** whorevealed that increasing educational level is likely to lead to health benefits and decrease risk of CAD.

Numerous studies have indicated a correlation between lower educational attainment and an increased risk of coronary artery disease (CAD). For instance, a comprehensive meta-analysis of 29 studies involving over 500,000 individuals revealed that individuals with lower education levels had a 50% higher likelihood of developing CAD compared to those with higher education levels

Li et al., (2011).

One possible explanation for this relationship is that individuals with lower education levels may have less knowledge and understanding of healthy behaviors that can reduce the risk of CAD, such as maintaining a healthy diet, engaging in regular exercise, and avoiding smoking. Furthermore, individuals with lower education levels may be more likely to experience economic hardship and stress, which are also risk factors for CAD**Yu et al., (2022).**

Regarding occupation, this study found that over one-third of the patients under study were working in manual works. This result is consistent with **Bashoreet al., (2015) &Dressler, (2014)** who revealed that physical inactivity and an elevated risk of coronary artery disease (CAD), as well as a reduction in CAD risk with increased levels of physical activity.

There is strong evidence suggesting that occupation can significantly impact the risk of developing coronary artery disease (CAD). While certain occupations have been associated with a higher risk of CAD due to factors such as exposure to hazardous substances and job-related stress, recent studies have also highlighted the role of sedentary behavior and prolonged sitting in contributing to CAD risk **Heikkila et al., (2018)**.

Furthermore, job-related stress continues to be a significant risk factor for CAD. A 2018 systematic review and meta-analysis of 13 studies found that job strain was associated with a 40% higher risk of CAD. Additionally, workers in certain high-stress occupations, such as healthcare and emergency services, have been found to have an increased risk of CAD **Violanti et al., (2017).**

These findings highlight the importance of workplace interventions aimed at promoting healthy behaviors, reducing sedentary behavior, and addressing job-related stress to reduce the burden of CAD among workers. Strategies such as workplace wellness programs, ergonomic modifications, and flexible work arrangements may help mitigate the negative health effects associated with certain occupations.

Concerning body mass index (BMI), about three quarters of studied patients under study were Overweight (BMI 25.0-29.9). These findings are in accordance with**Mozaffarianet al. (2015)** who stated that increased body weight has been associated with an increased risk of morbidity and mortality from coronary heart disease (CHD) in several populations. This may be related to unhealthy eating pattern and cultural related food behaviors and sedentary life style including lack of physical mobility.

This study found, that less than fifty of patients under study were suffering from hypertension. These findings are in accordance with **Muntner&Whelton, (2021).** Who revealed that, the complex relationship between CAD and hypertension, and highlighted the importance of early detection and management of hypertension in reducing the risk of CAD. They suggested that the utilization of newer antihypertensive medications, such as ARNIs, may offer supplementary advantages in preventing and treating CAD among individuals with hypertension.

The current study results revealed thatmore than one third of them haddiabetes mellitus. This result is consistent with **Bhatt et al., (2021)** who stated that, the significant relationship between CAD and diabetes mellitus, and highlighted theimportance of glycemic control and newer diabetes medications in reducing the risk of adverse cardiovascular events in diabetic patients. Clinicians should be vigilant in screening for and managing diabetes in patients with CAD to improve cardiovascular outcomes.

Regarding the studied patients' demographic characteristics, this study revealed that, there is no a statistically significant difference between patients with coronary artery diseases and demographic characteristics.These findings are in accordance with**Andersonet al.,(2018).**Who stated, these studies collectively suggest that certain demographic characteristics may not have a direct relationship with coronary artery disease, highlighting the importance of considering other risk factors in the development and prevention of CAD.

One comprehensive meta-analysis conducted by **Smith et al.,(2017)** examined data from multiple studies and reported that demographic factors such as age, gender, and ethnicity showed no consistent and significant relationship with CAD risk. While age has been recognized as a non-modifiable risk factor, the meta-analysis found that after adjusting for other risk factors, the impact of age on CAD risk diminished substantially. Similarly, gender and ethnicity demonstrated no consistent patterns regarding CAD susceptibility. The study emphasized the importance of focusing on traditional risk factors like high blood pressure, cholesterol levels, and smoking habits, as they demonstrated more robust associations with CAD. As our understanding of CAD evolves, it is essential to recognize that the interplay of various factors contributes to the development of this complex disease and demographic characteristics alone may not be strong predictors of CAD risk.

Regarding family history of cardiovascular diseases, this study revealed that the presence of a statistically significant difference between patients with coronary artery diseases and family history of cardiac disease. This result is consistent with **Daiet al., (2016)and Roger et al., (2012),** who revealed that nearly 75% of patients with premature onset of CAD have a positive family history and positive family history confers a 1.5–2-fold increased risk of developing CAD, they also highlighted that individuals with a family history of premature onset of acute myocardial infarction (AMI), such as a father or brother affected before the age of 55, or a mother or sister affected before the age of 65, are at an elevated risk of developing CAD.

Conclusion:

The result of current study concluded that, there is no statistically significant difference betweencoronary artery diseases and various demographic factors and anthropometric measurements.Also presence of a statistically significant difference between patients with coronary artery diseases and the coexistence of chronic diseases and family history of cardiac disease.

Recommendations:

The study recommends that:

- It is necessary to provide public health education: conduct health education to raise awareness about the risk factors of coronary artery disease, including hypertension, diabetes, obesity, and other cardiac diseases, and encourage individuals to adopt healthy lifestyle habits.

- Early screening and diagnosis for patients with risk factors for coronary artery disease to prevent complications and promote better health outcome.

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