

Evaluation of Drug Utilization in Patients with Coronary Artery Disease: Prevalence, Predisposing Factors and Prescribing Patterns in Tertiary Care Hospital in Punjab

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ABSTRACT

Background and Objectives: The medication regimens used by patients declared with Coronary Artery Disease (CAD) vary greatly. Our goal was to assess the clinical traits and usage trends in CAD. Assess the factors that influence the occurrence of CAD which ultimately affect the administration of medication in people who have CAD. **Materials and Methods:** The present prospective research was conducted at the Guru Gobind Singh Medical College and Hospital in Faridkot, Punjab, India, from October 2022 to March 2023 over a six-month period. consent in writing wasn't required from the participants as no direct interaction with the patient was required. The information was gathered using a unique data gathering form, as well as SPSS by IBM Version 26 was used for analysis. **Results:** The vast majority of the 152 patients were males, accounting for 82 of them as opposed to the 70 female patients. The study's sample's median age ranged from 58 to 69 years. 62.5% of the patients came from rural areas. Only 2% of patients received just one medication, while 68.4% received polypharmacy. The most frequent comorbidity is diabetes and hypertension. Men who drink alcoholic beverages as well as use tobacco products such as cigarettes are more likely to develop CAD. however, most women who refrain from drinking or smoking have been impacted by CAD. **Conclusion:** The population under study was determined to be inclined to be males, to live in a rural area, as well as be between the ages of 58 and 69. A large proportion of patients received the use of multiple medications (polypharmacy).

Keywords: Coronary artery disease, Drug prescribing pattern, Prevalence, Punjab.

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INTRODUCTION

With nations that are underdeveloped contributing to eighty percent of cardiovascular fatalities, Cardiovascular Diseases (CVDs) have grown to be the most prevalent cause of death rates. According to the mortality data gathered during the Thousands Death Study's initial phase, cardiovascular diseases are the main reason for death among Indians, accounting for 1.7-2 million fatalities each year.^{1,2} In nations like India, Coronary Artery Disease (CAD) has become widespread. Among the most significant reasons for death as well as morbidity in the nation is coronary artery disease It additionally results in a tremendous financial strain.³ India is another nation with serious drug abuse issues, Resistance to antibiotics is pervasive, frequently prescribed irrationally, and has become a serious health

concern.⁴ To assess current trends in drug utilization as well as the proper use of prescriptions, drug utilization pattern studies are a potent descriptive tool. This method of gathering data is descriptive and analytical. To advance current therapy along with improving the safety of patients, measurement, understanding as well as assessment of the prescribing pattern, in addition to distribution and usage.⁵ One of the fundamental steps in raising safety for patients as well as treatment effectiveness is to identify along with evaluate the prescribing pattern which is necessary for safeguarding patients as well as drug quality.

Avoiding illicit, unsafe, or irrational methods of prescribing medications.⁶ Numerous studies carried out in both rural as well as urban India over the past thirty years have revealed a rise in the number of cases of CVD (coronary artery disease) in Indians.⁷⁻¹⁰ The most significant current investigation into the prevalence of CAD in India was conducted by the country's NSSO (National Statistical Survey Organization). The responses of a total of 390 913 participants were assessed for the 60th NSSO meetings survey (2004-2005). CAD is 7% prevalent in urban areas while 3% is



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prevalent in rural areas.¹¹ In the Punjab region, there have been few drug utilization research studies on cardiovascular disease such as coronary artery disease, so there is little information on this subject that the current study aimed to produce.

The main aim of our study was to study prescription patterns in CAD. and assess various predisposing factors that lead to coronary heart disease along with the prevalence study of disease in patients suffering from CAD.

MATERIALS AND METHODS

This was the prospective observational study conducted in the Department of Cardiology at a Tertiary Care Hospital “Guru Gobind Singh Medical College and Hospital” in Faridkot district of Punjab, INDIA. Before starting the study, approval from the institutional ethics committee was obligatory. Beginning with the medical Inpatient departments, the intensive care unit, along with medical wards, an overall of 152 patients with illnesses such as CAD were included. The research study was carried out from October 2022 to March 2023 over a six-month period. It is a prospective observational study. The institutional ethical committee gave its approval to the project work. Given that there has been no contact with the person being treated, informed consent had been waived. The research project comprised patients of the inpatient department as well as medical wards who were diagnosed by the doctor for having coronary artery disease.

Inclusion criteria

Patients of both genders will be included. they can be of any age group. Patients must be admitted to various in-patient departments, medical wards, and cardiology departments. Our patient must be willing to participate in the study and last only patients suffering from CAD will be considered in our study

Exclusion criteria

Patients who are not willing to participate in the study along with patients who do not complete the inclusion criteria of selection under the study and at last patients from the outpatient department should be excluded from the study.

Data Collection

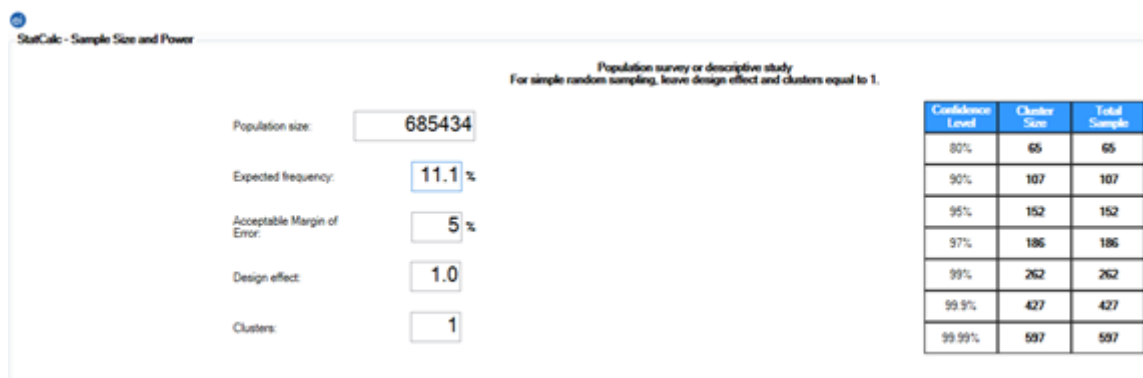
The ultimate evaluation comprised 152 prescriptions from patients in all together. Doctors weren't asked to alter their customary prescribing practices. From the inpatient prescription sheet, the demographic information (including gender, age, work, education, as well as annual financial status), evaluation, and personal behaviors, alongside the existence of any other co-morbid illnesses were noted. The identification number of the drug (brand identity or generic name), dosage form, strength, frequency of dosing, therapy duration, as well as the price of the medication were all documented as information about the drugs that were prescribed. Likewise, data has been collected about the concurrent drugs, and results of physical tests such as cardiac rate, blood pressure, along with electrocardiogram. Additional lab investigations performed within the previous six months included the profiles of lipids, electrolytes in the serum, prothrombin time as well as serum creatinine, as well as blood sugar levels (fasting blood along with post-prandial).

Statistical analysis

The entry and analysis of the data was done using the statistical program SPSS version 26. Descriptive analysis was done to calculate the results of this study and test such as chi-square was used to compare two categories such as predisposing factors and gender to find out which gender is more likely to get affected by these risk factors and ultimately lead to CAD. ($p < 0.05$) was used to define statistical significance. The sample size was calculated by assuming a 95% confidence interval or 5% level of significance and margin of error as per the literature. The sample size was calculated through the software “epi info” designed by the CDC, U.S. Department of Health and Human service. here population of faridkot district in Punjab is 685434 in 2021 according to the population census by Indian government and expected frequency is considered from one of the previous study conducted by Chauhan Shradha *et al.*¹²

RESULTS

According to the criteria for inclusion as well as exclusion, 152 patients overall were selected for the study as shown in Figure 1, and 53.9 percent of the participants turned out to be male,



in contrast to females that were 46.1 percent. merely 37.5% of patients happened to be from urban localities, with 62.5% of patients hailing from remote(rural) regions as shown in Table 1. Patients stayed in hospitals for a normal period of 3-5 days. During the study, among 152 patients belonging to the age category 59-68 years that was about 51(33.6%) and 43(28.3%) patients were found to be in the 69-78 years of age group which was the second highest category of age. The study population's average age was determined to be 65.6 years. Test of normality was applied to age to check the normal distribution of the age of the patient. With the help of Kolmogorov-Smirnov^a and Shapiro-Wilk, we find the age of patients normally distributed as we find p-value 0.200 and 0.118 respectively. It was observed that out of 152 study participants, the majority of them were males 53.9% as compared to females, which comprised 46.1% of the study participants,

and the majority of them were from rural areas 62.5%, and up to 37.5% from urban area. Tests for habits among the population were carried out and 51.3% of the study population were found to be non-smoker and non-alcoholic followed by 11.8% smokers and alcoholics then 9.2% are the study population with substance abuse as shown in Figure 2. Along with these factors Punjabi diet that include diet ghee and dairy products also lead to an increased incidence of CAD in patients in Punjab. Out of the total study participants, it was found that the majority of them up to 50% suffered from Diabetes Mellitus with Hypertension as comorbidity, followed by Hypertension 27%, Diabetes Mellitus 16.4%, and CKD with Diabetes and Hypertension 2.6%.

We have applied the chi-square test to find out the comparison between gender and habits. Smoking and alcohol drinking leads to a high incidence of CAD in males whereas women who don't

Table 1: Socio-demographic profile of the population.

Variables	Parameter	Frequency (152)	Percentage (%)
Gender	Male	82	53.9
	Female	70	46.1
Age in years	39-48	7	4.6
	49-58	34	22.4
	59-68	51	33.6
	69-79	43	28.3
	79-88	17	11.2
Locality	Urban	57	37.5
	Rural	95	62.5

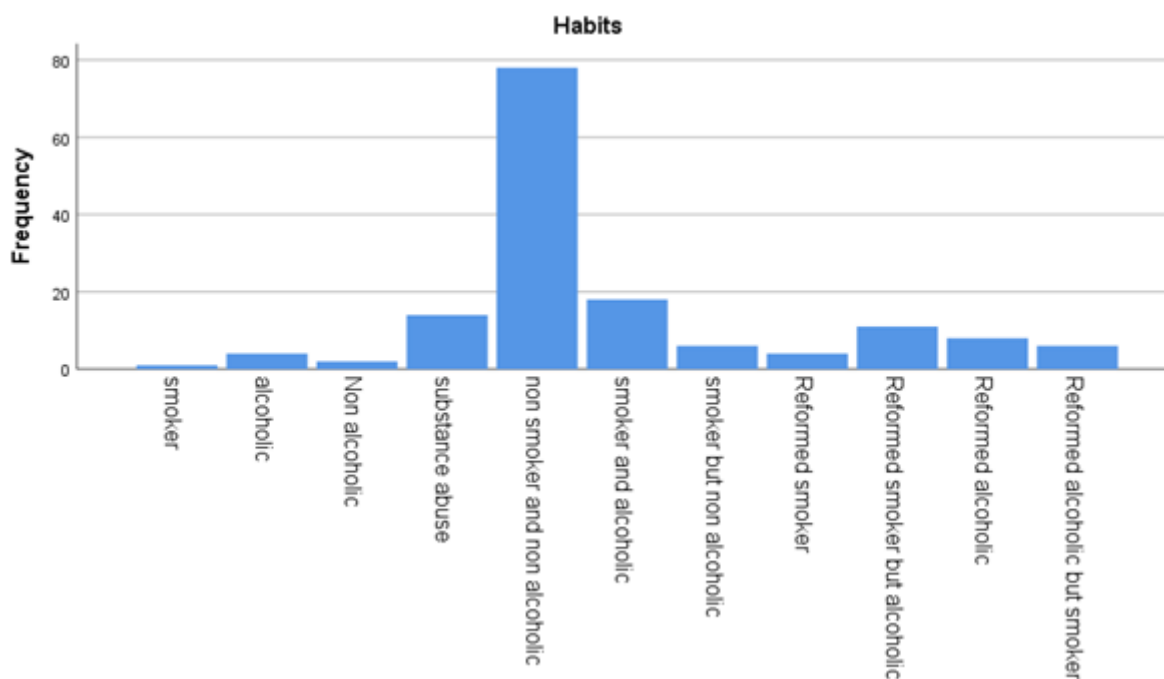


Figure 1: Habits that leads to CAD.

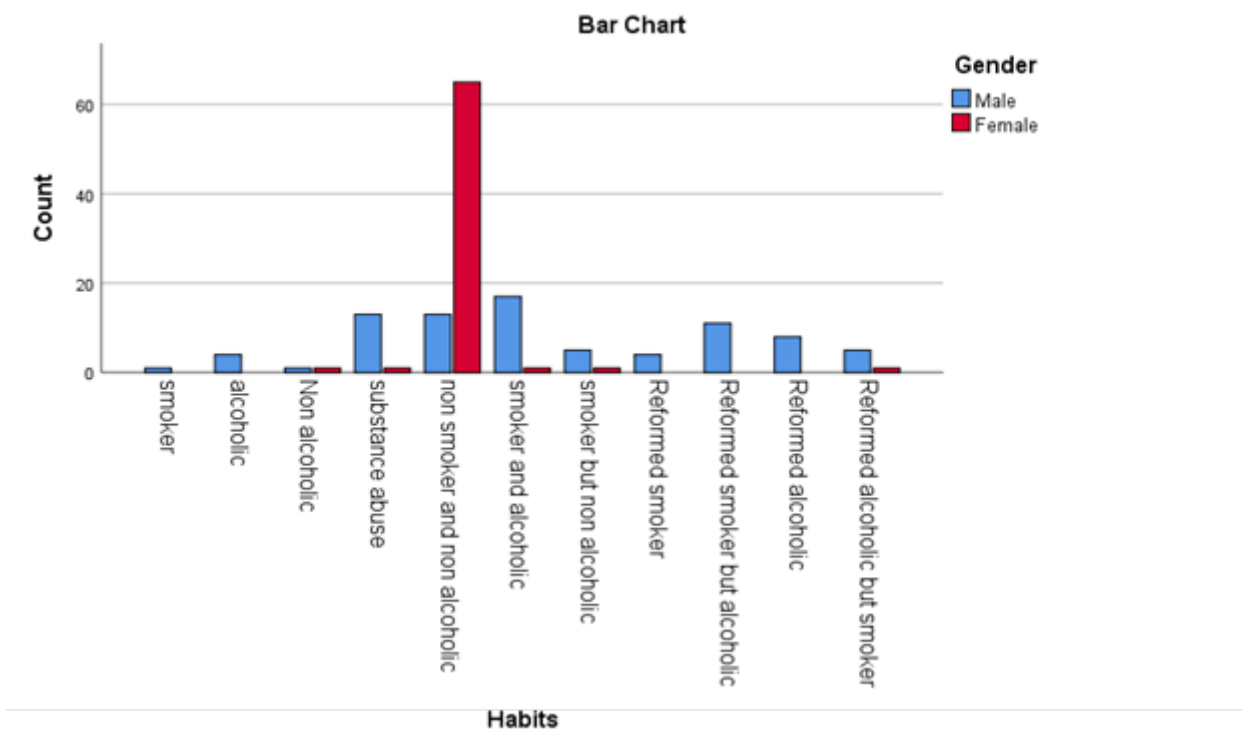


Figure 2: Gender and habit-wise distribution of patients.

smoke or drink alcohol are at more risk of developing CAD as shown in Figure 3. Only 2% of patients received just one medication, while 68.4% received polypharmacy that is multiple drugs as shown in Table 2 and Figure 4.

We had analyzed the drug utilization pattern of different classes of drugs, including anti-platelets, P2Y12 inhibitors, statins, anti-coagulants, nitrates, beta-blockers, calcium channel blockers, and ACE inhibitors.

Anti-platelet drugs are commonly used to prevent blood clotting in patients with cardiovascular disease. Aspirin was the most commonly prescribed anti-platelet drug (40.1%), followed by the combination of aspirin and clopidogrel (30.3%) and clopidogrel (30%). Tirofiban was the least prescribed drug in the anti-platelet class (9.9%). The high utilization of aspirin is consistent with the guidelines for the prevention of cardiovascular disease, which recommend the use of aspirin as a first-line therapy for secondary prevention.

P2Y12 inhibitors are another class of drugs used to prevent blood clotting. Among P2Y12 inhibitors, prasugrel was the most commonly prescribed drug (53.9%), followed by ticagrelor (16.4%). Nearly one-third of patients have not been prescribed any P2Y12 inhibitor drug. The high utilization of prasugrel is consistent with the results of clinical trials, which have shown that prasugrel is more effective than other P2Y12 inhibitors in reducing the risk of cardiovascular events.

Statins are used to lower cholesterol levels in patients with cardiovascular disease. Atorvastatin was the most commonly

Table 2: Drug therapy prescribed to the patients.

Drug Therapy Prescribed	Frequency	Percent (%)
Single	3	2.0
Double	4	2.6
Triple	4	2.6
Quadruple	37	24.3
Polypharmacy	104	68.4
Total	152	100.0

prescribed statin (75.7%), followed by rosuvastatin (24.3%). The high utilization of atorvastatin is consistent with the guidelines for the prevention of cardiovascular disease, which recommend atorvastatin as a first-line therapy for the reduction of LDL cholesterol levels.

Anticoagulants are used to prevent blood clotting in patients with cardiovascular disease. Among anti-coagulants, enoxaparin was the most commonly prescribed drug (44.7%), followed by low molecular weight heparin (37.5%). Nicoumalone was the least prescribed drug in the anti-coagulant class (9.9%). A significant proportion of patients (15%) were not prescribed any anti-coagulant drug, which raises concerns about the adequacy of anticoagulation therapy in these patients as shown in Table 3 and Figure 5.

Nitrates are used to relieve angina symptoms in patients with cardiovascular disease. Nitro-glycerine was the most commonly

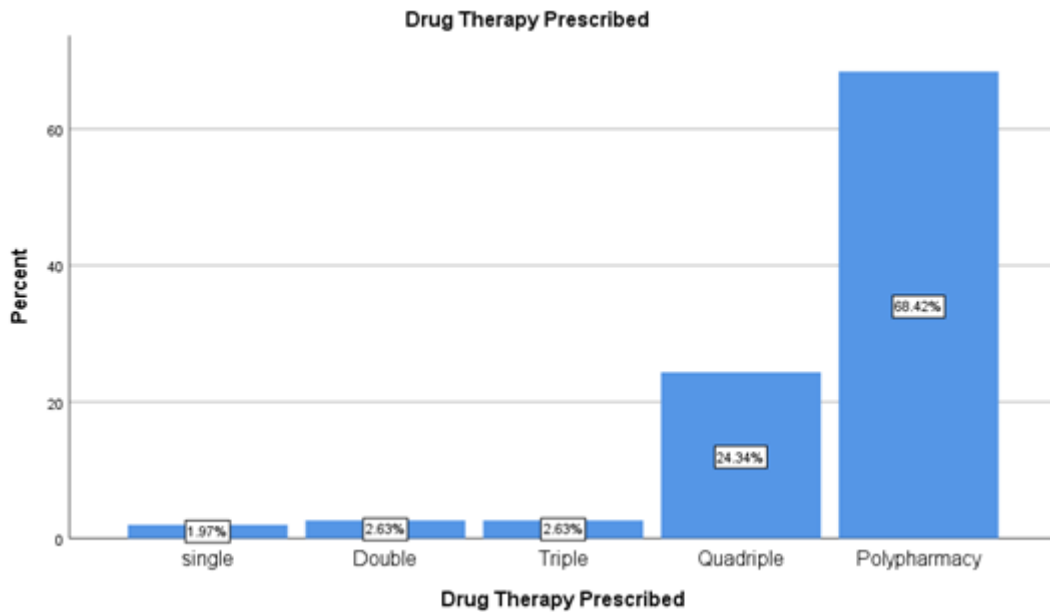


Figure 3: Drug therapy prescribed.

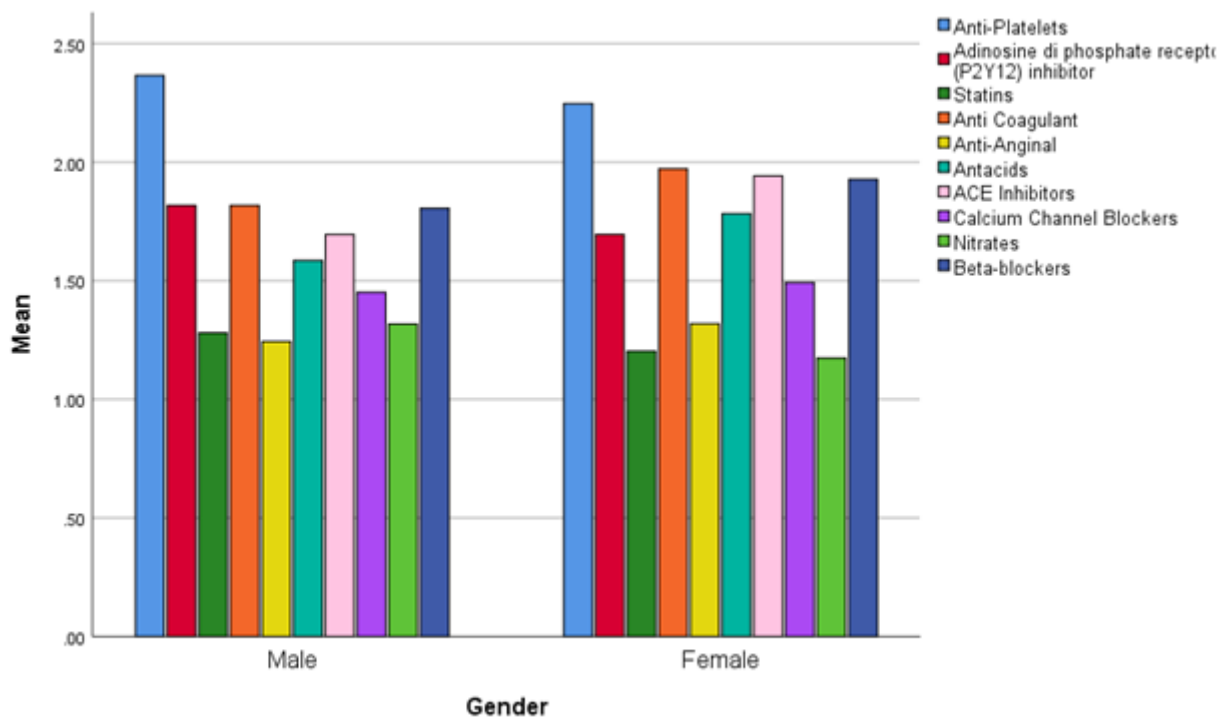


Figure 4: Gender-wise distribution of drugs.

prescribed nitrate drug (75%), followed by isosorbide dinitrate (25%). The high utilization of nitroglycerine is consistent with the guidelines for the management of angina, which recommend nitroglycerine as a first-line therapy for the relief of angina symptoms.

Beta-blockers are used to reduce the heart rate and blood pressure in patients with cardiovascular disease. Metoprolol was the most commonly prescribed beta-blocker (50%), followed by atenolol

(27.6%), carvedilol (13.8%), and bisoprolol (8.6%). The high utilization of metoprolol is consistent with the guidelines for the management of hypertension, which recommend metoprolol as a first-line therapy for the reduction of blood pressure.

Calcium channel blockers are used to reduce blood pressure and dilate blood vessels in patients with cardiovascular disease. Amlodipine was the most commonly prescribed calcium channel blocker (66.4%), followed by diltiazem (20.4%) and clonidine

Table 3: Medication prescribed.

Medication	No. of times in Prescriptions	Percentage or prescription rate (%)
Anti-Platelets		
Aspirin	61	40.1
Clopidogrel	30	19.7
Tirofiban	15	9.9
Aspirin+Clopidogrel (P2Y12) inhibitor	46	30.3
Prasugrel	82	53.9
Ticagrelor	25	16.4
Statins		
Atorvastatin	115	75.7
Rosuvastatin	37	24.3
Anti-Coagulants		
LMWH	57	37.5
Enoxaparin	68	44.7
Nicoumalone	15	9.9
Nitrates		
Nitro-glycerine	114	75
Isosorbide Dinitrate	38	25
Beta-Blockers		
Metoprolol	76	50.0
Atenolol	42	27.6
Bisoprolol	13	8.6
Carvedilol	21	13.8
Calcium Channel Blockers		
Amlodipine	101	66.4
Diltiazem	31	20.4
Clonidine	20	13.2
ACE- Inhibitors		
Captopril	67	44.1
Enalapril	48	31.6
Ramipril	37	24.3
Anti-anginal		
Ivabradine	110	72.4
Ranolazine	42	27.6
Antacids		
Ranitidine	78	51.3
Omeprazole	44	28.9
Pantoprazole	30	19.7

(13.2%). The high utilization of amlodipine is consistent. gender-wise distribution of drugs is shown below.

The prevalence of disease in patients suffering from CAD: Based on the given data, we concluded that the prevalence of CAD (coronary artery disease) in the population under consideration is 3.03%. This indicates that out of the total population, 3.03% are currently affected by CAD in only the Faridkot district of Punjab. The calculation for prevalence was based on the number of people with the disease, which was determined by the average number of CAD patients per day over six months. This number was then compared to the total population, as represented by the average number of IPD (In-Patient Department) admissions per day over the same six-month period.

It is important to note that this calculation only provides a snapshot of the prevalence of CAD at a specific point in time. It does not account for changes in the prevalence of the disease over time or in response to different interventions or treatments. Therefore, further monitoring and evaluation may be necessary to fully understand the dynamics of CAD in this population.

DISCUSSION

According to the findings of a population-centered cross-sectional survey conducted in the year 2003, the prevalence of CAD (coronary artery disease) was calculated to be 3-4% in remote or rural regions along with 8-10% in urban regions.¹³ Our research also revealed that CAD is highly prevalent in Punjab. The prevalence of CAD within these 6 months is found to be 3.03%.

Comparable results when it comes to the age group were identified in research carried out by Al-Junid *et al.* (2007), Farhana Afroj *et al.* (2012),¹⁴ along with George *et al.* (2013).¹⁵ The distribution of ages among patients demonstrated that patients of age group 59-68 years established the greatest number 37.5% in the urban population alongside 62.5% among the rural population size, for that matter. However, Raj Kumar Venisetty *et al.*'s (2014) research showed that patients in the 60-66 age range had higher rates of quantity. Patients in the research we conducted were almost identical (aged 59-68) compared to those who participated in developed countries' observational research (aged 63-69).^{16,17} Males (53.9%) more frequently had an impact on the research we conducted than females (46.1%). In our research, there is, nevertheless, less of a gender gap in the percentage of men and women with coronary artery disease. Investigations by Farhana Afroj *et al.* (2012),¹⁴ George *et al.* (2013),¹⁵ Abdul Muhit *et al.* (2012), and Pranay Wal *et al.* (2013)¹⁸ all came to similar conclusions. However, the research carried out by Fahad Jibrán Siyal *et al.* (2014) found that women were more frequently affected than men.¹⁹ In this specific research, rural residents (37.5%) were less frequently impacted than urban residents (62.5%). Yet, a comparable study by Ravishankar M, and Vinodkumar *et al.* (2015) revealed that the rural community (57%) suffers from CAD at a higher rate than the urban population because

financially disadvantaged people have much more fatalities from cardiovascular illnesses due to problems with medical care costs, availability, as well as the level of quality. Because of their lack of availability of medical care, high costs of medication, societal judgment, as well as inadequate awareness, they frequently overlook the illness.²⁰ In a similar way to us, it was reported in a different study by Abdul Muhit *et al.* (2012) along with Zubair Khalid Labu *et al.* (2013) that the urban population suffers from more CAD. The two most popular antiplatelet medications are aspirin (40.1%) as well as aspirin+clopidogrel (30.3%). Research by Pranay Wal *et al.* (2013), Shazia *et al.* (2015), Md. Abdul Muhit *et al.* (2012), and Md. Zubair Khalid Labu *et al.* (2013) all reported similar results, and they all indicated that clopidogrel was utilized less frequently than aspirin.²¹ Metoprolol was the most widely used beta-blocker (50%) followed by atenolol (27.6%). Similar results were found in the Prasanna Kumar *et al.* (2015) study.²² Captopril (44%) and enalapril (31.6%) were the two most widely used AChE inhibitors. The most frequently recommended Calcium channel blocker remained amlodipine (66.4%). According to the results of our study, isosorbide dinitrate (25%) and nitroglycerine (75%) are the two most commonly used nitrates. Zubair Khalid Labu *et al.* (2013) and Abdul Muhit *et al.* (2012) both carried out comparable studies.²² Most frequently, nitroglycerine was recommended. However, Raj Kumar Venisetty *et al.* (2014) reported that Isosorbide dinitrate (50.6%) was the most widely used nitrate.²³

LIMITATION

The major limitation of the study was the small sample size and there might be the presence of some confounding factors because of this the results cannot be generalized to the whole population. However, it should closely relate the approximate relationship between risk factors that are leading to the development of coronary artery disease in the case of the scenario in the Punjab region.

CONCLUSION

In conclusion this prospective observational study sheds light on the socio-demographic profile, personal and social history, drug utilization pattern, and dietary habits of CAD patients in Punjab, India. The study reveals that CAD patients in India are mostly elderly, male, from rural areas, and have comorbidities such as diabetes mellitus and hypertension. The study found that lifestyle modifications, medications, and medical interventions such as angioplasty and bypass surgery are the mainstay of CAD management. The drug utilization pattern reveals that anti-platelets, P2Y12 inhibitors, statins, anti-coagulants, nitrates, beta-blockers, calcium channel blockers, and ACE inhibitors are commonly prescribed drugs for CAD patients. The study highlights the importance of public health efforts to raise awareness of CAD and its associated risk factors, particularly in countries where the incidence of CAD is increasing.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

CAD: Coronary artery disease; **NSSO:** National Statistical Survey Organization; **CVD:** Cardiovascular disease; **CKD:** Chronic kidney disease.

AUTHORS' CONTRIBUTION

Riya Sharma did the major writing part along with the literature review; Aman Thakur made Tables and figures for this manuscript; Dr. Mandeep Kaur guided us all along; Dr. Amit Sharma is the corresponding author and guided us with the complete manuscript.

STATEMENT OF ETHICS

Informed consent was obtained from all the patients. All procedures performed in studies involving human participants followed the institutional and national research committee's ethical standards, the 1964 Helsinki Declaration, and its later amendments or comparable ethical standards. The present study was approved by the IEC of ISF College of Pharmacy, Moga Punjab (Ref. No. ECR/296/INDT/PB/2023/ISFCP/15).

SUMMARY

The study included 152 patients, with 53.9% males and 46.1% females. Most patients (62.5%) came from rural areas, while 37.5% were from urban areas. The majority of patients were aged 59-68 years (33.6%), followed by those aged 69-78 years (28.3%), with an average age of 65.6 years.

REFERENCES

1. Sreenivas Kumar A, Sinha N. Cardiovascular disease in India: A 360 degree overview. *Med J Armed Forces India.* 2020;76(1):1-3. doi: 10.1016/j.mjafi.2019.12.005, PMID 32020960.
2. Prabhakaran D, Jeemon P, Roy A. Cardiovascular diseases in India: current epidemiology and future directions. *Circulation.* 2016;133(16):1605-20. doi: 10.1161/CIRCULATIONAHA.114.008729, PMID 27142605.
3. Gupta R, Mohan I, Narula J. Trends in coronary heart disease epidemiology in India. *Ann Glob Health.* 2016;82(2):307-15. doi: 10.1016/j.aogh.2016.04.002.
4. Porter G, Grills N. Medication misuse in India: a major public health issue in India. *J Public Health (Oxf).* 2016;38(2):e150-7. doi: 10.1093/pubmed/fdv072, PMID 26060236.
5. Bergman U. The history of the Drug Utilization Research Group in Europe. *Pharmacoepidemiol Drug Saf.* 2006;15(2):95-8. doi: 10.1002/pds.1171, PMID 16329154.
6. Al-Junid SM, Ezat WP, Surianti S. Prescribing patterns and drug cost among cardiovascular patients in Hospital Universiti Kebangsaan Malaysia. *Med J Malaysia.* 2007;62(1):59-65. PMID 17682574.

7. Kutty VR, Balakrishnan KG, Jayasree AK, Thomas J. Prevalence of coronary heart disease in the rural population of Thiruvananthapuram district, Kerala, India. *Int J Cardiol.* 1993;39(1):59-70. doi: 10.1016/0167-5273(93)90297-t, PMID 8407009.
8. Dewan BD, Malhotra KC, Gupta SP. Epidemiological study of coronary heart disease in rural community in Haryana. *Indian Heart J.* 1974;26(2):68-78. PMID 4419665.
9. Wander GS, Khurana SB, Gulati R, Sachar RK, Gupta RK, Khurana S, *et al.* Epidemiology of coronary heart disease in a rural Punjab population—prevalence and correlation with various risk factors. *Indian Heart J.* 1994;46(6):319-23. PMID 7797219.
10. Gupta R, Gupta VP, Ahluwalia NS. Educational status, coronary heart disease, and coronary risk factor prevalence in a rural population of India. *BMJ.* 1994;309(6965):1332-6. doi: 10.1136/bmj.309.6965.1332, PMID 7866081.
11. Rao KD, Bhatnagar A, Murphy A. Socio-economic inequalities in the financing of cardiovascular and diabetes inpatient treatment in India. *Indian J Med Res.* 2011;133(1):57-63. PMID 21321420.
12. Aeri B, Chauhan S. The rising incidence of cardiovascular diseases in India: assessing its economic impact. *Eur J Prev Cardiol.* 2015;4:735-40.
13. Gupta R. Burden of coronary heart disease in India. *Indian Heart J.* 2005;57(6):632-8. PMID 16521628.
14. Afroj F, Parveen F, Ara F, Iqbal MJU, Saha RR, Rozario RJ. Patterns of drug utilization in cardiology department of a Tertiary Level Hospital in Bangladesh. *Bangladesh J Physiol Pharmacol.* 2014;28(1-2):1-4. doi: 10.3329/bjpp.v28i1-2.20072.
15. George J, Devi P, Kamath DY, Anthony N, Kunnoor NS, Sanil SS. Patterns and determinants of cardiovascular drug utilization in coronary care unit patients of a tertiary care hospital. *J Cardiovasc Dis Res.* 2013;4(4):214-21. doi: 10.1016/j.jcdr.2013.12.001, PMID 24653584.
16. Goodman SG, Huang W, Yan AT, Budaj A, Kennelly BM, Gore JM, *et al.* The expanded Global Registry of Acute Coronary Events: baseline characteristics, management practices, and hospital outcomes of patients with acute coronary syndromes. *Am Heart J.* 2009;158(2):193-201.e1.e1-5. doi: 10.1016/j.ahj.2009.06.003, PMID 19619694.
17. Mandelzweig L, Battler A, Boyko V, Bueno H, Danchin N, Filippatos G, *et al.* The second euro Heart Survey on acute coronary syndromes: characteristics, treatment, and outcome of patients with ACS in Europe and the Mediterranean Basin in 2004. *Eur Heart J.* 2006;27(19):2285-93. doi: 10.1093/eurheartj/ehl196, PMID 16908490.
18. Wal P, Wal A, Nair VR, Rai AK, Pandey U. Management of coronary artery disease in a Tertiary Care Hospital. *J Basic Clin Pharm.* 2013;4(2):31-5. doi: 10.4103/0976-0105.113605, PMID 24808667.
19. Ahmed A, Saqlain M, Tanveer M, Nawaz MS, Rehman K, Safdar A, *et al.* Prescribing patterns of antihypertensive drugs in patients attending tertiary care hospitals in Pakistan. *SN Compr Clin Med.* 2021;3(1):176-82. doi: 10.1007/s42399-020-00696-0.
20. Mugada V. Drug utilization evaluation of cardiovascular drugs in outpatient department in a tertiary Care Hospital: a descriptive observational study. *Int J Curr Res.* 2015;7:20693-7.
21. Bake M, Labu Z. Surveillance on prescribed cardiovascular drugs by generic names in Dhaka city of Bangladesh. *Int J Pharm Life Sci.* 2013;4:2511-20.
22. Kumar PV, Jewargi B, Mala RD. Drug utilization study in congestive heart failure at a tertiary Care Hospital; 2015.
23. Dawalji S, *et al.* Prescribing pattern in coronary artery disease: A prospective study. *Int J Pharm Res Rev.* 2014;3(3):24-33.

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