

A Two-Year Retrospective Analysis of the Pattern of Cardiac Diseases at the Cardiac Clinic at Jimma University Specialized Hospital

Kalkidan Birhanu Amare ^{1*}, Yonatan Gashaw Ayalew ^{2*}, Nahom Getachew Mulatu ², Abel Melaku Tefera ², Kirubel Adrissie Barkneh ³, Mathias Amare Sendeku ³, Gebeyehu Fassil Gebeyehu ³, Kalkidan Kassahun Aweke ³, Mikiyas Birhanu Ejigu ⁷, Weys Nesru Neda ⁶, Brook Fanuel Lesanowerk ⁴, Kebra Tadesse Berhe ⁴, Berzeda Nebiyu Eshetu ¹, Selahadin Awel Jamal ⁴, Betelhem Asmerom Debesay ⁵, Ebenezer Negusu Mitslale ⁴, Yohannes Adane Dersseh ⁶.

¹ Department of Medicine, Jimma University School of Medicine, Jimma, Ethiopia.

² Department of Medicine, University of Gondar, College of Medicine and Health Sciences, Amhara, Ethiopia.

³ Department of Medicine, College of Medicine and Health Sciences, Bahir Dar University

⁴ Department of Medicine Sante Medical College Addis Ababa Ethiopia

⁵ Department of Medicine, Hawassa University, College of Medicine and Health Science, Hawassa, Ethiopia

⁶ Department of Medicine, Addis Ababa University, College of Medicine and Health Science, Addis Ababa, Ethiopia

⁷ Department of Medicine Debre Tabor University, College of Health Sciences, School of Medicine, Ethiopia

ARTICLE INFO

ABSTRACT

2024 Volume 1

<https://www.doi.org/jom.2024.tgc.0328>

Article History:

Received: Sept 10, 2024

Accepted: Sept 28, 2024

Published: Oct 03, 2024

Citation: Amare K. B., Ayalew Y. G., Mulatu N. G., Tefera A. M. et al. (2024). A Two-Year Retrospective Analysis of the Pattern of Cardiac Diseases at the Cardiac Clinic at Jimma University Specialized Hospital. TGC Journal of Open Medicine., *The Geek Chronicles*, 1, 1-11

Copyright: © 2024 Kalkidan Birhanu Amare, this is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Keywords: cardiac diseases, comorbidity, pattern, referral clinic

Introduction: Worldwide, non-communicable diseases (N.C.D.s) are the leading cause of death, accounting for 73.4% of all deaths, while communicable, maternal, neonatal, and nutritional (CMNN) causes accounted for 18.6% and injuries 8.0%. In high-income Western countries, N.C.D.s are the leading cause of morbidity and mortality and account for 90% of all deaths, with the leading N.C.D.s being CVDs. N.C.D.s are the second most common cause of death in sub-Saharan Africa (S.S.A.), accounting for 2.6 million deaths, equivalent to about 35% of all deaths, after a composite of communicable, maternal, neonatal, and nutritional diseases (CMNNDs). In the S.S.A., cardiovascular diseases (CVDs) are the most frequent causes of N.C.D. deaths. Due to the increasing burden of N.C.D.s globally, the 2011 U.N. High-Level Meeting made a political declaration aimed at achieving the goal of a 25% reduction in premature N.C.D. mortality by 2025 (the 25 by 25 goal).

Objective: This study aimed to determine the pattern of heart disease among newly enrolled cardiac patients in the Jimma University Specialized Hospital cardiac clinic from September 14-2020, to September 14, 2022, G.C.

Method: A cross-sectional retrospective study was carried out on 533 newly enrolled cardiac patients at Jimma University Specialized Hospital's cardiac clinic. The data was gathered using a systematic record review process and analyzed with SPSS version 24.

Result: Of the 533 newly recruited cardiac patients in the Jimma University Specialized Hospital cardiac clinic, 301 (56.5%) are men and 232 (43.5%) are women. The average age of the patients at enrollment was 47.41 years. The top three diseases are hypertensive heart disease 127 (23.8%), rheumatic heart disease 17 (22.0%), and ischemic heart disease 110 (20.6%). The mitral valve was the most usually involved value in patients with Rheumatic Heart Disease (71.4%). Hypertension was identified as a risk factor in 51.4% of patients with ischemic heart disease. The most prevalent type of congenital heart disease is mitral valve prolapse (M.V.P.). All of the patients with Thyro-cardiac disease were female.

Conclusion: hypertensive and cardiomyopathy heart diseases accounted for more than three-quarters of cardiac diseases in the study population. This study highlighted the need for further research to determine the burden of a community setting.

Introduction

Background

Worldwide, non-communicable diseases (N.C.D.s) are the leading cause of death, accounting for 73.4% of all deaths, while communicable, maternal, neonatal, and nutritional (CMNN) causes accounted for 18.6% and injuries 8.0% [1]. In high-income Western countries, N.C.D.s are the leading cause of morbidity and mortality and account for 90% of all deaths, with the leading N.C.D.s being CVDs [2]. N.C.D.s are the second most common cause of death in sub-Saharan Africa (S.S.A.), accounting for 2.6 million deaths, equivalent to about 35% of all deaths, after a composite of communicable, maternal, neonatal, and nutritional diseases (CMNNDs). In S.S.A., cardiovascular diseases (CVDs) are the most frequent causes of N.C.D. deaths [1, 2]. Due to the increasing burden of N.C.D.s globally, the 2011 U.N. High-Level Meeting made a political declaration aimed at achieving the goal of a 25% reduction in premature N.C.D. mortality by 2025 (the 25 by 25 goal) [3], which was further emphasized in the U.N. Sustainable Development Goals (S.D.G.s) in 2015 to reduce by one-third premature mortality from N.C.D.s by 2030 [4]. Cardiovascular disease (CVD) is on the rise worldwide, with developing nations experiencing an increase in both incidence and prevalence of the condition. Cardiovascular disease continues to be the world's most significant cause of mortality, with 80% of cases occurring in low- and middle-income nations and at a younger age [5, 6, 7]. There has been a reported nearly twofold increase in the total number of fatalities from CVD since 1990, and there is a mortality gap of more than 10% between men and women [8]. Over 75% of heart failure patients in S.S.A. are caused by hypertensive heart disease, cardiomyopathy, and rheumatic heart disease [2, 9]. These conditions are the leading causes of heart failure in this population. Fifty percent of high-income countries in Sub-Saharan Africa have ischemic heart disease, Fifty percent of high-income

countries in Sub-Saharan Africa have ischemic heart disease [2, 9]. Additionally, the diagnosis, treatment, and control of hypertension are at 2017 WHO estimate states that 17.9 million people worldwide die from CVDs annually; by 2020, the number of fatalities attributable to CVDs was expected to reach 19.1 million, and 244.1 million people worldwide were estimated to have I.H.D., with more than 75% of these deaths taking place in low- and middle-income nations. Sub-Saharan Africa accounts for more than 80% of worldwide morbidity and death. 37% of deaths from N.C.D.s and 13.5% of total deaths are related to CVDs. The burden of CVDs in the S.S.A. has a significant negative influence on the already fragile healthcare systems and results in lost years of active life. It directs limited resources to tertiary care with a substantial economic burden [10, 11]. Genetic and environmental factors, including food habits, physical activity, the burden of infectious diseases, and the accessibility of healthcare systems, influence the prevalence and pattern of CVDs. In the West, coronary artery disease is the primary cause of CVDs; however, in Sub-Saharan Africa, hypertensive heart disease, rheumatic heart disease, and cardiomyopathies are the main contributors. The unique characteristics of CVD in S.S.A. are that they disproportionately affect younger people—roughly two decades earlier than in high-income countries (H.I.C.)—. They lead to high mortality rates because of inadequate infrastructure and health care systems, a lack of cardiac professionals, unequal budget allocation and prioritization away from N.C.D.s, the high cost of cardiac treatments and interventions, and the scarcity of health insurance systems [10, 11, 12, 13, 14].

Statement of the problem

The global risk of cardiovascular disease results from an unprecedented transformation in the causes of morbidity and mortality during the 20th century, known as the epidemiologic transition. This shift is driven by industrialization, urbanization, and associated lifestyle changes, and it is taking place in every

part of the world among all races, ethnic groups, and cultures (1). [15]

Although communicable diseases continue to be a major cause of death, cardiovascular disease has emerged as a significant health concern in low and middle-income countries. Approximately 14 million individuals died of cardiovascular disease in 1990, and this is projected to rise to about 25 million by 2020 [16].

In the case of sub-Saharan Africa, despite marked regional differences, much of the continent is at an early phase of epidemiologic transition, with 70% of deaths due to communicable diseases, namely infections and parasites. In essence, Africa is an epidemiologic transition spanning the spectrum from phase to phase 4 in different countries and among various ethnic groups. The heart of the Sweto study in predominantly urban, black South Africa drew attention to the rising incidence of risk factors in black Africans. In a population with a mean age of 46, 78% had greater than one significant risk factor, primarily obesity, H.T.N., and smoking, although serum cholesterol was elevated in only 14% [17].

Acute rheumatic fever (RHD) is the leading cause of acquired heart disease in children and young adults worldwide. Globally, the incidence of R.F. and the prevalence of RHD have decreased in the past few decades. However, the decrement is uneven and remains a significant media and public health problem in low- and middle-income countries. It is estimated that more than 15 million people have the disease, and over 300,000 of them die from it every year. It also poses an economic problem by costing many adolescents and young adults precious productive years. Nearly half of the 2.4 million children affected with RHD in the world live on the African continent, where only 8% of the world population resides. Although early detection and management avoid disability and death, diagnosis is usually made late, either due to delayed medical seeking or the absence of

national programs with appropriate guidelines. As a result, many of the patients with RHD either become economically inactive or die at an early age in the absence of surgical intervention. It becomes worse as cardiac surgery is unavailable in many African countries, including Ethiopia, and is a very expensive venture. On the other hand, it is not difficult to imagine how high the economic burden (treatment cost, disability, opportunity cost) is on the families, communities, and healthcare systems [18].

Significance of the study

Ethiopia, like the rest of the world, is expected to see an increase in cardiovascular disorders. In our country, appropriate studies are required to identify the trend of cardiovascular diseases. So, this research will provide more information for our country to understand the changing pattern of cardiovascular illness (if present), allowing for some intervention in prevention because the diseases are wreaking havoc on human resources and the economy.

Literature Review

Cardiovascular disease accounts for 30% of deaths worldwide and 28% in low and middle-income countries. While HIV/AIDS is the leading overall cause of death in this region, cardiovascular vascular disease is the third leading killer and the first among those over the age of 30 years. RHD remains a significant cause of cardiovascular disease mortality and morbidity [15].

Rheumatic heart disease is estimated to exist with a prevalence of at least 15.6 million cases, with 282,000 new cases and 233,000 deaths each year. The incidence of RHD has declined in developed countries. However, RHD is still common and evident. Suggested that there is little if any, decline in the occurrence of rheumatic fever in the developing world. In sub-Saharan Africa, RHD is still common and doesn't seem to be decreasing, while HHD and I.H.D. are rising and competing with already

existing RHD as a cause of heart disease in the area.

Cardiomyopathy has been considered to be the most prevalent form of heart disease amongst blacks in southern Africa. The study evaluated 5725 patients with heart disease. RHD was most pervasive, accounting for 42% of cardiac diseases. I.H.D. was extremely rare [19].

The pattern of RHD in 84 adolescent and adult patients seen over nine years (1982-1990) at the University of Maiduguri Teaching Hospital (UMTH) was presented; over 70% were in the 2nd and 3rd decades of life. Pure mitral incompetence and mixed mitral valve disease were the most common valvular lesions. This pattern appears similar to those in other developing countries [20].

Five hundred seventy-two consecutive patients with heart failure referred to the National Cardiothoracic Center, Accra, Ghana, over four years were evaluated for the etiology of heart failure using two-dimensional Doppler echocardiography with color flow. The leading cause of heart failure was H.T.N. (21.3%), RHD (20.1%), and cardiomyopathy (16.8%). Congenital heart disease and coronary artery disease accounted for 9.8; 8.10% of cases, respectively. The most typical rheumatic valvular lesion was MR (78%). Dilated cardiomyopathy was the most usual form of idiopathic cardiomyopathy (67.7%) [21].

As part of sub-Saharan Africa, Ethiopia shares the burden of cardiac diseases. According to some studies conducted in the country, RHD and HHD are the two major causes of cardiac diseases.

385 patients were seen in the cardiology clinic of Tikur Anbessa Hospital A.A., ETH over 20 months of 338 with defined pathology, 152 had RHD, 47 were hypertensive, 39 had cardiomyopathy, 36 had congenital heart disease, and 24 had arrhythmia. The average age of rheumatic was 25.5, 78% were \leq 30yr male to female ratio was 58-94. The mitral valve was affected by 91%; 18 of the rheumatics had pure M.S., and 56% only had mitral involvement. The average age of cardiomyopathy patients was 52, 90% had dilated cardiomyopathy in

congenital cases, mitral valve prolapse was most common (25%), followed by V.S.D. (19%) and patient aortic arteriosus (19%) clearly, R.F. is the leading cause of cardiac pathology in Ethiopia. It deserves significantly increased attention [22].

A total of 474 patients (216 M and 258 F) with cardiovascular diseases, which were followed in the cardiac clinic of the Gondar College of Medical Science Hospital, Gondar, Ethiopia, between 1985 and 1988, were studied. The most common form of heart disease in Ethiopians was found to be RHD (42%) and affects primarily young people, who often have advanced valvular lesions. H.T.N. (38.1%) was the second most common cause of heart disease. It primarily affects young people, and 77% of the cases were of the essential type. The incidences of atherosclerotic and congenital heart disease have not changed, but those of syphilitic heart disease and cardiomyopathy have markedly decreased in the past 20 years. The incidence of rheumatic and hypertensive heart disease has shown a significant increase. However, the rise in the incidence of atherosclerotic and congenital heart disease has not changed, but that of syphilitic heart disease and cardiomyopathy have markedly decreased in the past 20 years. The incidences of rheumatic and hypertensive heart disease have shown a significant increase. However, the rise in the incidence of myocardial infarction over 20 years from 0.88/1000 in 1963-68 to 6.4/1000 in 1985-88 is distinctively impressive [23].

One hundred fourteen patients with rheumatic heart disease were seen between January 1994 and January 1995 at Gondar College of Medical Sciences Teaching Hospital. Patients' mean and median age were 23+/-8 yrs and 22 yrs, respectively (range 5-50yr). About 66% of patients were females, with a female-to-male ratio of 1.9:1. History findings suggestive of rheumatic fever were obtained in 26% of patients. Frequently encountered valve lesions were combined M.R. and M.S. seen in 29(25.4%), followed by pure MS in 25(21.9%) and MR in 21(18.4%) [24].

A total of 58 cardiac patients, new and follow-up cases, were seen in the cardiac clinic of Jimma Hospital during six months (September – March 1996). Pediatric patients were omitted. There were 28 males (48.3%) and 30 females (51.7%), giving a male and female ratio 1:1.07. The age range was 15-75 years, and most were in the age group 15-20 (25.9%), followed by the age group 21-30 (24.1%). Half of all cases were below 30 yrs. of age. When classified according to diagnosis, 42(72.4%) patients suffered from rheumatic heart disease, while 11(19%) were diagnosed as having cardiomyopathy, and five (8.6%) were diagnosed as having HHD. In those with RHD, mitral valve involvement alone was the commonest, accounting for 78.6%, while combined aortic and mitral lesions were the 2nd most frequent, accounting for 12%. In terms of actual lesions, among those with rheumatic heart diseases, combined mitral lesions were found in 11(26.2%) of the cases. Isolated MR and M.S. were diagnosed in 10(23.8%) cases each [25].

In another retrospective study done at Jimma University specialized hospital cardiac clinic by the year 2008 G.C. on newly enrolled patients, out of 781 newly enrolled cardiac patients in the cardiac clinic (i.e., within 3 yrs), 32.4% had RHD, 24.2 HHD, 20.2% cardiomyopathy, 12.0% I.H.D., 83.8% cor- pulmonale, 3.5% arrhythmia, and 3.4% had other sorts of heart disease. The mean age in years for the respective cardiac diseases at registration was 31.4 for RHD, 51.1 for HHD, and 46.5 for cardiomyopathy. Concerning sex distribution, males constitute 46.1 % among RHD, 62.4% among HHD, 50.0% among cardiomyopathy, 60.6% a, pmg O.J.D., 43.3% among cor- pulmonale, and 51.8% among arrhythmia patients. Among 256 RHD patients, 75.4% had ec echocardiographic report for the valve involved during the time of enrollment, of which 51.3% had isolated MS, 25.4% had combined M.S. + M.R., isolated M.R. and isolated each accounting for 6.2% [26].

Objectives

General objective

- To assess the pattern of cardiac disease of patients who had follow up at the cardiac clinic of JUSH.

Specific objective

- To determine the pattern of heart disease in JUSH
- To describe the socio-demographic status of patients with specific cardiac diseases.
- To describe valve involvement patterns among patients with RHD.

Methodology

Study area and period

○ Study area:

The study was conducted in Jimma University specialized hospital in Jimma town, 350 km S.W. of Addis Ababa.

○ Study Period:

The study was conducted from March 1, 2021GC to March 5, 2021GC

Study design

A retrospective study was conducted on cardiac patients who were in the cardiac follow-up clinic of Jimma University Specialized Hospital from September 14, 2020- September 14, 2022 G.C.

Population

○ Source population

All cardiac patients had follow-ups at the JUSH cardiac clinic from September 14, 2020, to September 14, 2022, G.C.

○ Study population

All newly enrolled cardiac patients at JUSH cardiac clinic from September 14, 2020 – September 14, 2022 G.C.

Sample size and sampling technique

Will not be employed.

Variables

Independent variables

- Age
- Sex
- Residency

Dependent variables

- Type of cardiac disease
- Type of echocardiographic finding

Data collection

After preparing a structured format, workers collected cards from the card office. For this purpose, the card No in the registration book of the cardiac clinic was used. After selecting the cards, the data collector filled in the structured format after brief training on extracting the necessary information from the card.

Data quality control

The principal investigator was supervised on an ongoing basis each day during data collection to ensure the quality of the data by checking the completed formats for their completeness and consistency.

Data analysis

The collected data was summarized and analyzed using SPSS version 17.0 software, and the results were presented using numbers, ratios, tables, and graphs.

Ethical consideration

The student research program at Jimma University sent a formal letter of authorization to the heart clinic and card office. The cardiac

clinic and card office staff members were informed of the study's goals, and private records were maintained.

Result

Between September 14, 2020, and September 14, 2022, 638 new cases were added to the JUSH cardiac clinic's enrollment. 97 of these 638 cases had no traceback possible because the hospital's card room does not include their records. Of the 541 remaining instances, the etiology diagnosis was missing from the records of 8 patients. This retrospective analysis was therefore conducted on 533 cardiac patients.

At the JUSH cardiac clinic, out of the 533 recently enrolled cardiac patients, 301 (56.5%) were men, and 232 (43.5%) were women. The average age of the patients when they were enrolled was 47.41. Upon examining the patients' dwellings, 152 were located in metropolitan regions, 254 in semi-urban areas, and 127 in rural locations.

Out of the 533 patients, 117(22.0%) had rheumatic heart disease, 110(20.6%) had ischemic heart disease (I.H.D.), 58(10.9%) had cardiomyopathy, 47(8.8%) had degenerative valvular heart disease (DVHD), 41(7.7%) had cor- pulmonale, 17(3.2%) had arrhythmia, 9(1.7%) had congenital heart disease. Others accounted for 7 (1.3%).

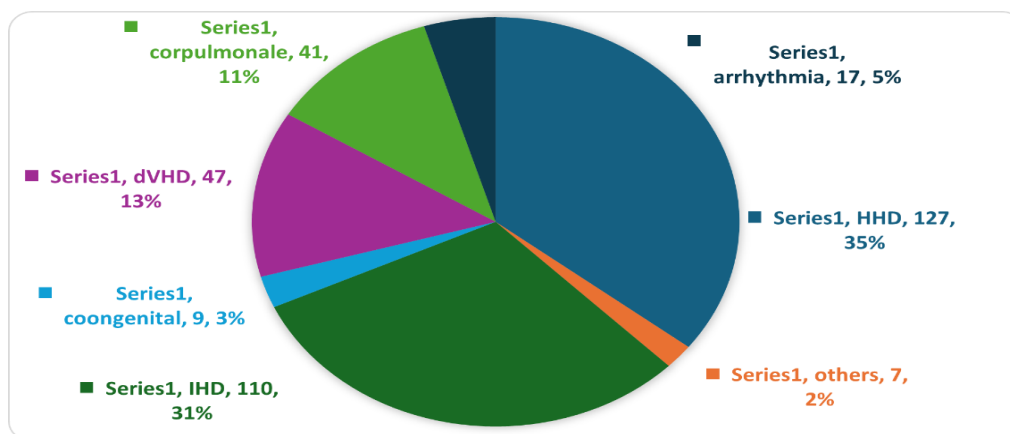


Fig 1: Type of cardiac diseases of newly enrolled cardiac patients at the cardiac clinic of JUSH from September 14, 2020- September 14, 2022, G.C. Jimma, and S.W. Ethiopia

The mean age of the patients for the respective cardiac disease at the time of registry was 30.03 in RHD, 53.41 in HHD, 49.5 in cardiology,

55.31 in I.H.D., 45.06 in arrhythmias, 53.24 for cor pulmonale, 24.56 for congenital, 39.75 for Thyrocardiac disease and 29.67 for pan carditis.

Table 1: Mean age distribution by sex of newly enrolled cardiac patients at the cardiac clinic of JUSH from September 14, 2020-September 14, 2022 G.C. Jimma, S.W., Ethiopia

Patients Working Diagnosis	Mean by sex (yr)		Total
	Male	Female	
HHD	55.97	44.03	53.41
RHD	30.86	31.19	31.03
IHD	56.93	52.24	55.31
Cardiomyopathy	54.94	42.36	49.52
VHD	59.22	46.63	52.79
Cor- pulmonale	57.77	48.00	53.24
Arrhythmia	50.00	41.60	45.06
Congenital heart disease	25.00	23.67	24.56
Thyrocardiac	-	39.75	39.75
Pan carditis	16.00	36.50	29.67

In terms of sex distribution, males account for 60 (51.2%) of RHD, 77 (60.6%) of HHD, 33 (56.9%) of cardiomyopathy, 72 (65.5%) of I.H.D., 7 (41.2%) of arrhythmia, 23 (48.9%) of

DVHD, 22 (53.7%) of corpulmonale, and 6 (66.7%) of congenital. All patients with Thyrocardiac disease were female.

Table 2: Cardiac disease distribution by sex and residency among newly enrolled cardiac patients at the cardiac clinic of JUSH from September 14, 2020 – September 14, 2022, G.C. Jimma, S.W. and Ethiopia.

Patients Working Diagnosis	Sex				Residency					
	Male	%	Female	%	Urban	%	Semi-urban	%	Rural	%
HHD	77	60.1	50	9.4	36	28.3	73	57.5	18	14.2
RHD	60	51.3	57	48.7	34	29.1	44	37.6	39	33.3
Cardiomyopathy	33	56.9	25	43.1	12	20.7	34	58.6	12	20.7
IHD	72	65.5	38	34.5	36	32.7	47	42.7	27	24.5
Arrhythmia	7	41.2	10	58.8	6	35.3	7	41.2	4	23.5
dVHD	23	48.9	24	51.1	9	19.1	28	59.6	10	21.3
Cor- pulmonale	22	53.7	19	46.3	11	26.8	17	41.5	13	31.7
Thyrocardiac disease	0	0	4	100.0	3	75	1	25	0	0
Pan carditis	1	.33.3	2	66.7	2	66.7	0	0	1	33.3

Among the RHD patients, 79.3% had echocardiographic evidence; the rest were by history and physical examination. When we see the valvular involvement 36(31.5%) of the

patients had pure MS, 29(25.2%) had mixed MS+ MR, 11(90.0%) had MR, 10(8.7%) had MR + AR 87(6.1%) had MR + TR.

Table 3: Valvular involvement on those RHD patients among newly enrolled cardiac patients at the cardiac clinic of JUSH from September 14, 2020- September 14, 2022, G.C. Jimma, and S.W. Ethiopia.

Valvular involvement	Frequency	%
MS	36	31.5
MS + MR	29	25.2
MR	14	15.5
MR + AR	14	15.2
MR + TR	7	12.5

Hypertension was identified as a risk factor in 51.4% of I.H.D. patients. 69.1% of individuals had echo evidence, and 10% had cardiac markers to confirm the diagnosis.

At the cardiac clinic, 41 new cases of corpulmonale were enrolled; of these, 31.7% were secondary to COPD, 22.0% were following I.L.D., and 34.1% were following post-T.B. fibrosis. Four cases were not identified; a patient's chest abnormality caused their corpulmonale. 75.6% of corpulmonale patients underwent echocardiography.

26.8% of the patients with HHD were enrolled in the cardiac clinic, where supportive evidence included a history and physical examination. Of the other patients, 8.7% had E.C.G. signs suggestive of HHD. Of the patients with HHD, 63.8% had echo evidence.

Of the 58 patients with a diagnosis of cardiomyopathy who were recently admitted to JUSH's cardiac clinic, 53 had D.C.M. and five had per partum cardiomyopathy. Echo findings supported the diagnosis in 81.1% of the D.C.M. patients.

When we examine the valve involvement, echo evidence was seen in 76.5% of the individuals with degenerative valvular heart disease. 11 M.R. accounts (23.4%), 6 A.R. accounts (12.8%), 5 MR+TR accounts (10.6%), M.S. + MR 4 (8.5%), AS + AR 3 (6.4%), and MS 3 (6.4%) are the accounts that total. Nine individuals, six of them were men, were diagnosed with congenital cardiac disease. In cases with congenital cardiac disease, the average age was 24.56. All the patients with thyroid diseases are females, and it's scientifically known that thyroid diseases usually attack females.

Table 4: Types of congenital heart diseases among newly enrolled cardiac patients at the cardiac clinic of JUSH from September 14, 2020 – September 14, 2022, G.C. Jimma, and S.W. Ethiopia

Congenital heart disease	Frequency	%
A.S.D.	2	22.2%
V.S.D.	1	11.15
MVP	5	55.6%
Idiopathic hypertrophic cardiomyopathy	1	11.05%

Discussion

While I.H.D. and HHD are on the rise and competing with RHD as the region's leading causes of heart disease, RHD is still frequent

and doesn't appear to be getting any better in sub-Saharan Africa. The findings of this study show that in addition to RHD, I.H.D. and HHD have emerged as significant cardiac

conditions. Various studies conducted in Africa have demonstrated the critical roles played by RHD and HHD. In the same configuration three years prior, cardiomyopathy, RHD, and HHD accounted for 20.2%, 32.4%, and 32.4% of cases, respectively. On the other hand, these findings account for 22.0%, 23.8%, and 10.9% of the study's total. As shown, HHD has taken the largest share, which may prove the epidemiologic change.

A Ghanaian study found that cardiomyopathy (16.8%), RHD (20.1%), and H.T.N. (21.3%)

were the leading causes of heart failure. This is consistent with the study's findings, which indicated that RHD and H.T.N. had respective percentages of 22.0% and 23.8%. Infectious cardiomyopathy comes in fourth in this study because the two researchers' definitions of the disease's operation differ.

The mean ages of the two studies are similar, except for arrhythmia, which was found in 33.7 and 45.1 of the previous and present studies, respectively.

Table 5: Mean age of the two studies (previous and current) for different types of heart diseases.

Patients working diagnosis	Mean age in the previous and current study	
	Previous	Current
HHD	51.1	53.41
RHD	31.4	31.03
IHD	57.2	55.31
Cardiomyopathy	46.5	49.52
Arrhythmia	33.7	45.06
Corpulmonale	47.0	53.02
Congenital heart disease	-	24.56

This has been demonstrated in Ethiopia by several studies conducted across the nation. For instance, it contributed 44.97% to a 1998 study conducted at Tikur Anbessa Hospital A.A., 42% to a research study conducted at Gonder College of Medical Science Hospital, and 72.4% to a survey conducted at J.U. three years prior. However, as of right now, it only accounts for 22.0%; might this indicate it is declining? Though a thorough investigation is necessary, the most likely response is no. It is because other illnesses, such as I.H.D. and HHD, are taking up more and more of the share.

Based on all the literature considered as a reference for this study, the mitral valve is the most frequently involved in patients with RHD. Similarly, this study found that 80% of RHD patients had mitral valve disease, with 31.3% having pure MS, 25.2% having mixed M.S. and MR, 11% having M.R., and 10% having M.R.

and A.R. Pure M.S. accounted for 51.3% in the previous study conducted three years ago in the same hospital. This is a significant percentage when compared to the current research, and it may be because the prior research had 200 more patients overall than the current study. This study's most common form of heart disease, in contrast to earlier research using the same design, is hypertensive heart disease. In the most recent investigations that followed, its prevalence rose. Male and female average ages are, respectively, 49.52 and 55.97 years. Women may lead fewer active lifestyles, which accounts for their lower mean age. A South African study (13). [25] For example, indicated that physical activity at least slows the progression of hypertension and has been demonstrated to have a good impact on its prevention and treatment.

Conclusion And Recommendation

From the results and discussions held above, it was shown that hypertensive heart disease, rheumatic heart disease and ischemic heart disease are the top their cardiac diseases among those patients who were newly enrolled in the cardiac clinic of JUSH. Hypertensive heart disease has raised enough to overcome RHD, which shows that there is lifestyle change in the community. Cardiac diseases, when though they are not a significant worry in the country. Currently, like those of infectious diseases, it is worth giving due attention and doing a lot about them. The government leases human power within the productive age and has high currency for the drugs used to prevent and treat expensive diseases.

With this, we would like to recommend

1. Hypertension, which is a significant risk factor, should be given attention by the concerned bodies and should be worked on its prevention, early detection and treatment (follow-up); this could be by
 - Building different physical fitness centers
 - Providing Health education by different medical about

- Symptoms
- The benefit of follows and
- Complications

2. RHD, even though it has become 2nd common cardiac disease, doesn't mean that it is decreasing, and there still needs consideration.
3. Finally, I recommend that this study's findings be used as baseline information for other extensive research on different cardiac diseases.

Abbreviations

AR: Aortic regurgitation

AS: Aortic Stenosis

DM: Diabetus mellitus

dVHD: Degenerative valvular heart disease

HHD: Hypertensive heart disease

H.T.N.: Hypertension

I.H.D.: Ischemic heart disease

JUSH: Jimma University specialized hospital

MR: Mitral regurgitation

MS: Mitral Stenosis

M.V.P.: Mitral valve prolapse

RHD: Rheumatic heart disease

T.R.: Tricuspid regurgitation

References

1. GBD 2017 Causes of Death Collaborators. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018 Nov 10; 392:1736-1788.
2. Yuyun MF, Sliwa K, Kengne AP, Mocumbi AO, Bukhman G. Cardiovascular Diseases in SubSaharan Africa Compared to High-Income Countries: An Epidemiological Perspective. *Global Heart*. 2020; 15: 15.
3. United Nations. Political declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. 2011. Accessed on May 2022
4. United Nations. Transforming our World: The 2030 Agenda for Sustainable Development. 2015. Accessed in May 2022
5. Gersh BJ, Sliwa K, Mayosi BM, Yusuf S. The epidemic of cardiovascular disease in the developing world: global implications. *European Heart Journal*. 2010; 31:642–648
6. . Keates AK, Mocumbi AO, Ntsekhe M, Sliwa K, Stewart S. Cardiovascular disease in Africa: epidemiological profile and challenges. *Nature Reviews Cardiology*. 2017; 14:273–293

7. Morana A, Forouzanfar M, Sampson U, Chughd S, Feigine V, Mensahf G. The Epidemiology of Cardiovascular Diseases in Sub-Saharan Africa: The Global Burden of Diseases, Injuries and Risk Factors 2010 Study. *Prog Cardiovasc Dis.* 2013; 56:234–239.
8. Mensah GA, Roth GA, Sampson U.K.A., Moran AE, FeiginVL, Forouzanfar MH, Naghavi M, Murray C.J.L. Mortality from cardiovascular diseases in sub-Saharan Africa, 1990–2013: a systematic analysis of data from the Global Burden of Disease Study 2013. *Cardiovasc J Afr.* 2015; 26: S6-10.
9. Damasceno A, Dzudie A, Mayosi B. Heart failure in sub-Saharan Africa: Time of action. *J Am Coll Cardiol* 2007; 50:1688-1693
10. Yuyun MF, Sliwa K, Kengne AP, Mocumbi AO, Bukhman G. Cardiovascular diseases in sub-Saharan Africa compared to high-income countries: An epidemiological perspective. *Glob Heart.* 2020;15(1):1–18.
11. American Heart Association. 2021 Heart Disease & Stroke Statistical Update Fact Sheet Global Burden of Disease High Blood Cholesterol and Other Lipids. *Am Hear Assoc.* 2021;(Cvd):2019–21
12. Jingi AM, Noubiap JJN, Kamdem P, Wawo Yonta E, Temfack E, Kouam Kouam C, et al. The spectrum of cardiac disease in the West Region of Cameroon: A hospital-based cross-sectional study. *Int Arch Med.* 2013;6(1):2–5.
13. Mengistu MD, Benti H. Assessment of magnitude and spectrum of cardiovascular disease admissions and outcomes in Saint Paul Hospital Millennium Medical College, Addis Ababa: A retrospective study. 2022;
14. Habte B, Alemseged F, Tesfaye D. The Pattern of Cardiac Diseases at the Cardiac Clinic of Jimma University Specialised Hospital, South West Ethiopia. *Ethiop J Health Sci.* 2011;20(2).
15. Harrison's Principles of Internal Medicine, 17th ed., 2008, epidemiology of cardiac diseases, P. 1375-1379.
16. Managing the global burden of cardiovascular disease *eur. Heart J. suppl* (2002) volume and pp F₂=F₆.
17. Gaziano T. Global burden of cardiovascular disease in Brounwood's heart disease: A textbook of cardiovascular medicine, 8th ed. Philadelphia Elsevier sounders, 2007: 1-21.
18. Abraham Hailamlak, MD, FACP, vol 20 No July 2 2010 Ethiopian J. Health Sci.
19. Vander Horst RL the frequency of different types of heart disease in South African blacks at a cardiac referral center; *Int. J. Cardiol* 1984 Aug; 6(2): 240-3.
20. Onwuchekwa AC, Ugwu EC pattern of Rheumatic heart disease in adults in Maiduguri, northeast Nigeria; *Trop. Doct.* 1996 Apr; 26(2): 67-9.
21. A.G.B. Amoah, C. Kallen. Aetiology of heart failure as seen from a national cardiac referral center in Africa. *Cardiology*, 2000; 93(1-2): 11-18.
22. Richard M. Hodes pattern of heart diseases in Ethiopia as seen in a cardiology referral clinic vol.75 No 6 1998 (458-464).
23. Maru M. The changing pattern of cardiovascular diseases in Ethiopia East. *Africa Med J.* 1993 Dec, 70(12): 772-6.
24. Melka A. Rheumatic heart disease in Gondor College of Medical Sciences Teaching Hospital socio-demographic and clinical profile *ethio. Med J*, 1996; 34:207-217.
25. Petros G. pattern of heart disease Jimma Hospital. *Bulletin of JIHS*, 1996; 6(2): 85-92.
26. Belete Habte, Pattern of cardiac diseases at the cardiac clinic of Jimma University Specialized Hospital, southwest Ethiopia. *J. Health Sci* 2010 Jul; 21 No P (99-106).
27. Kruger S, Venter S, Vorster H. Physical inactivity as a risk factor for cardiovascular disease in communities undergoing rural to urban transition THUSA study *Cardiovasc. J S Afr*, 2003;14(1):16-23.