EPIDEMIOLOGY AND CLINICAL TRENDS OF AORTIC VALVE DISEASE IN INDIA: A COMPREHENSIVE ANALYSIS OF PREVALENCE, AND SURGICAL AORTIC VALVE REPLACEMENT (SAVR) UTILIZATION

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INTRODUCTION

Aortic Valve Disease:

- Cardiovascular condition significantly contributing to morbidity and mortality worldwide.
- Untreated AVD can lead to cognitive heart failure, and premature mortality.

Surgical Aortic Valve Replacement (SAVR):

- The treatment remains the gold standard for treating severe AVD
- It provides symptom relief and improving survival rates.

Purpose:

- This dissertation aims to comprehensively analyze the epidemiology of AVD in India, focusing on prevalence, and trends in SAVR utilization.
- The study will identify demographic, geographic, and socioeconomic disparities in AVD diagnosis and treatment, and propose evidence-based recommendations to improve management and surgical accessibility.

OBJECTIVES

- To estimate the prevalence of aortic valve disease in India using secondary data sources
- To analyse trends in SAVR utilization, including patient demographics, clinical outcomes, and procedural volume changes over time
- To identify geographic and socioeconomic disparities affecting diagnosis and treatment of AVD
- To provide recommendations for improving AVD management and SAVR accessibility in India

RESEARCH QUESTIONS

- What are the current prevalence rates of AVD in India, and how have SAVR utilization trends evolved?
- What disparities exist in AVD diagnosis and treatment, and what are their implications for healthcare policy?

LITERATURE REVIEW

S.no.	Author	Year	Title	Key Findings
1.	Manjunath et al.	2014	Incidence and Patterns of Valvular Heart Disease	Rising AVD burden, rheumatic heart disease predominant, especially in youth.
2.	Sengupta et al.	2017	Aortic Stenosis in the Indian Subcontinent	SAVR underutilized; early detection and community screening needed.
3.	Vahanian et al.	2022	2021 ESC/EACTS Guidelines	Emphasizes timely diagnosis and heart team-based management.
4.	Thakur et al.	2019	Burden of Valvular Heart Disease	Significant regional prevalence differences linked to socioeconomic factors.
5.	Krishnan et al.	2018	Trends in Cardiovascular Surgeries	SAVR numbers rising; male predominance noted.

S.no.	Author	Year	Title	Key Findings
6.	Arora et al.	2020	Barriers to Surgical Treatment of AVD	Barriers: high costs, rural access issues, delayed diagnosis.
7.	Banerjee et al.	2023	Epidemiology and Outcomes of SAVR	Good outcomes, but delayed referral and access remain challenges.
8.	GBD 2019	2020	Global Burden of Disease Study	AVD incidence and prevalence increasing with aging population.
9.	Kumar et al.	2021	Valve Surgeries in India	Shift toward bioprosthetic valves due to patient preference and technology.
10.	Sharma et al.	2016	National Registry Challenges	Lack of national registry hampers planning and quality control.

METHODOLOGY

Study Design

This research follows a narrative literature review of secondary data on AVD epidemiology and SAVR utilization in India.

Data Sources and Collection Procedure

Data was collected from reputable databases including:

- PubMed
- Indian Heart Jornal
- Cardiovascular Surgery Reports,
- Ministry of Health Publications
- GBD 2019
- Google Scholar

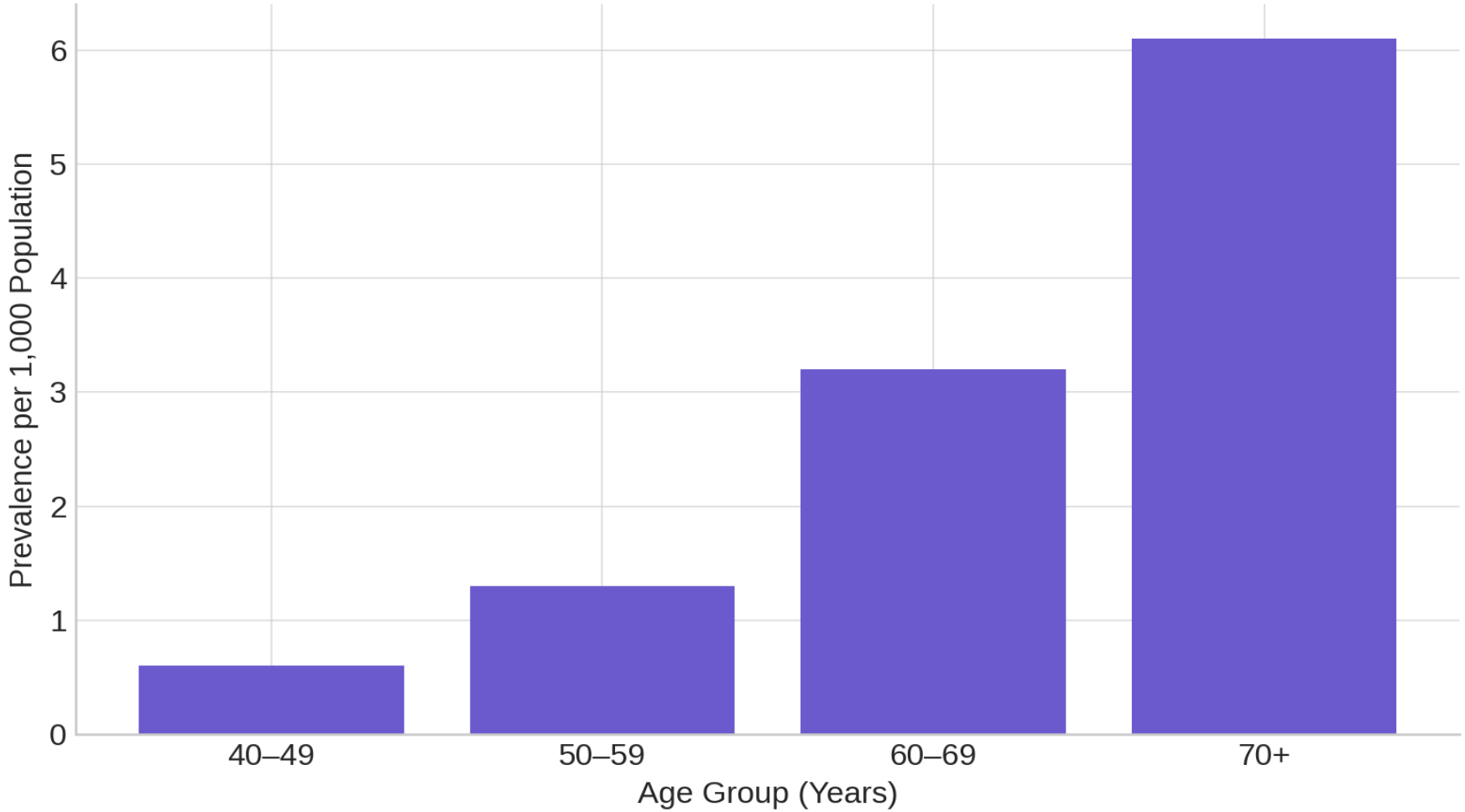
RESULTS

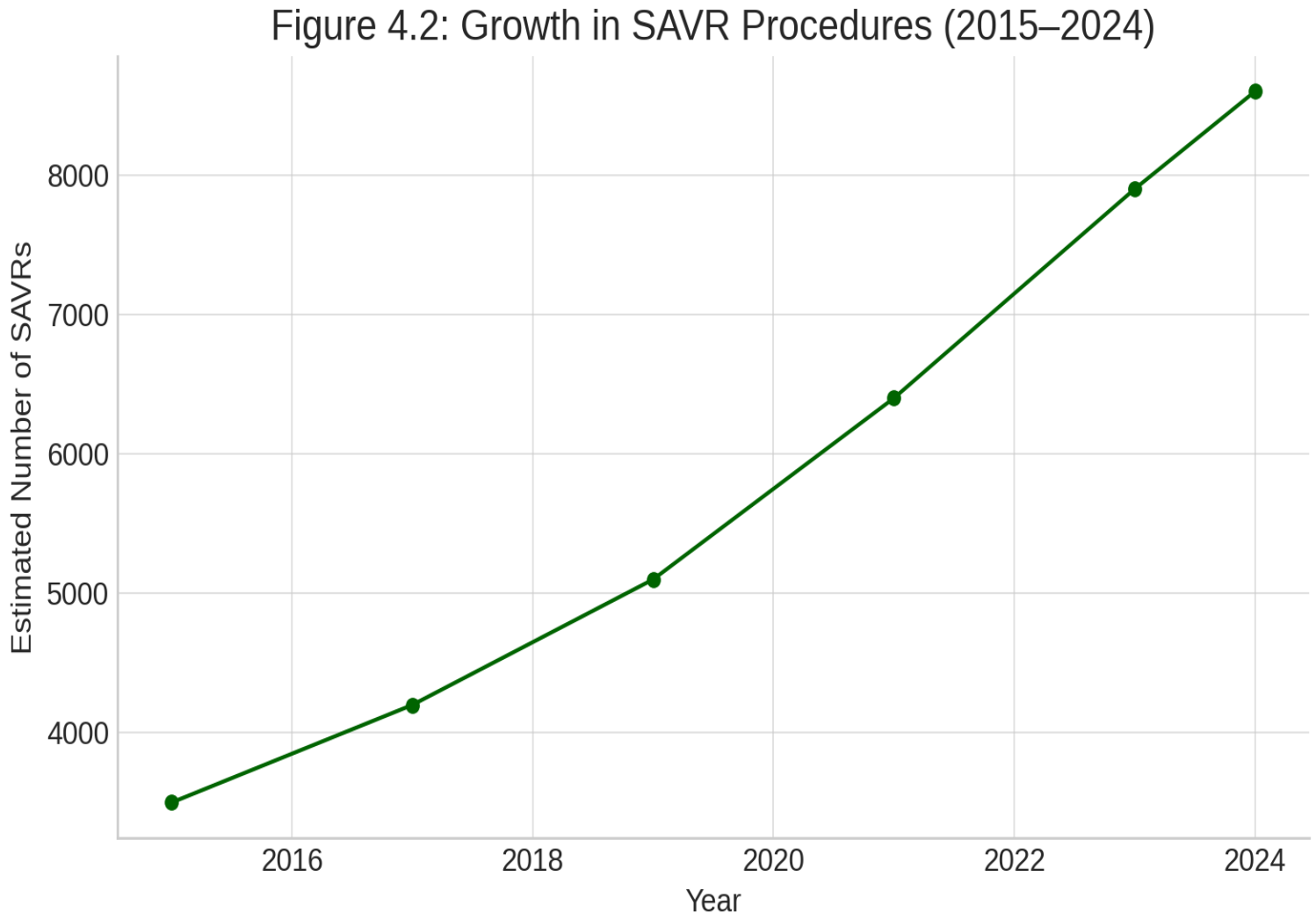
Parameter	Observation
Estimated AVD prevalence	2–3 per 1,000 adults (age ≥60 years)
Common etiologies	Degenerative (urban), Rheumatic (rural)
Gender ratio in SAVR	Male: Female ≈ 1.6:1
Average age of SAVR patients	62.4 years
Hospital types	Tertiary-care private hospitals
In-hospital mortality post-SAVR	2.4% (range 1.6%–3.1%)
Reported barriers	Cost (84%), Rural location (66%), Delayed diagnosis (54%)

Epidemiological and Clinical Parameters of AVD and SAVR

The review reveals a rising AVD prevalence in India, estimated at 2–3 per 1,000 adults aged ≥60 years. Rheumatic etiology predominates in rural areas, while degenerative causes are common in urban settings. SAVR utilization has increased, with an estimated 8,600 procedures projected for 2024, primarily in urban tertiary centers.

Figure 4.1: Age-wise Prevalence of Aortic Valve Disease in India





SAVR Clinical Outcomes

Outcome Metric	Value
In-hospital Mortality	2.4%
Average Length of Stay (LOS)	7.5 days
1-Year Survival Rate	92%

Figure 4.3: Gender Distribution among SAVR Recipients

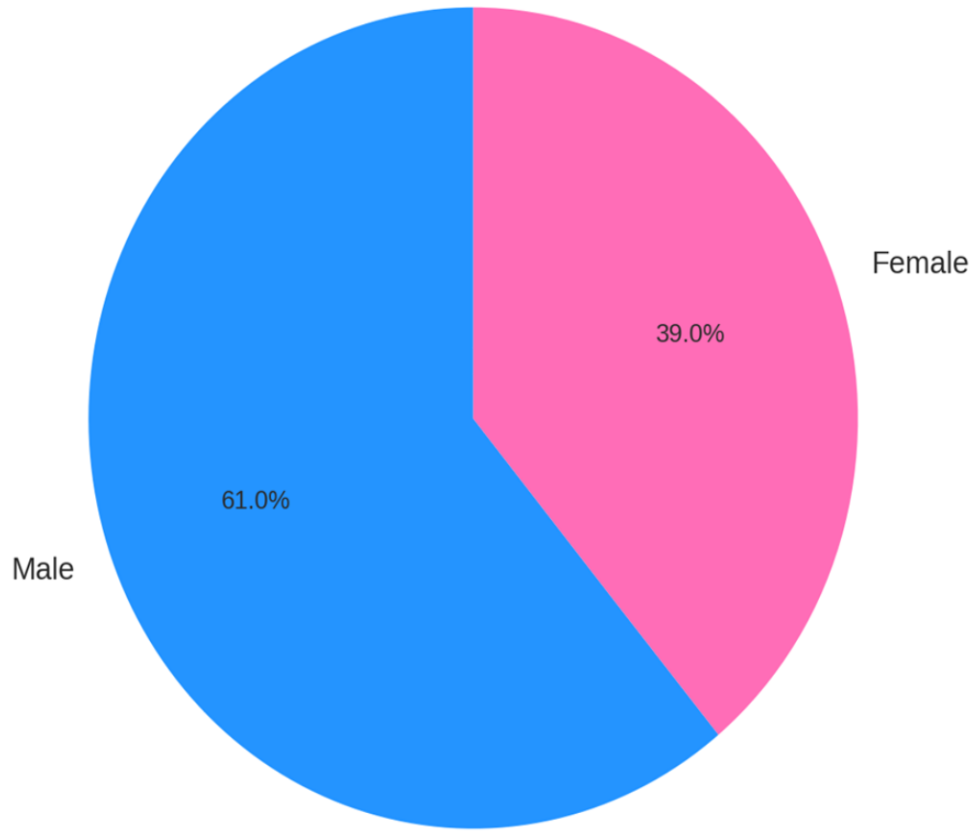
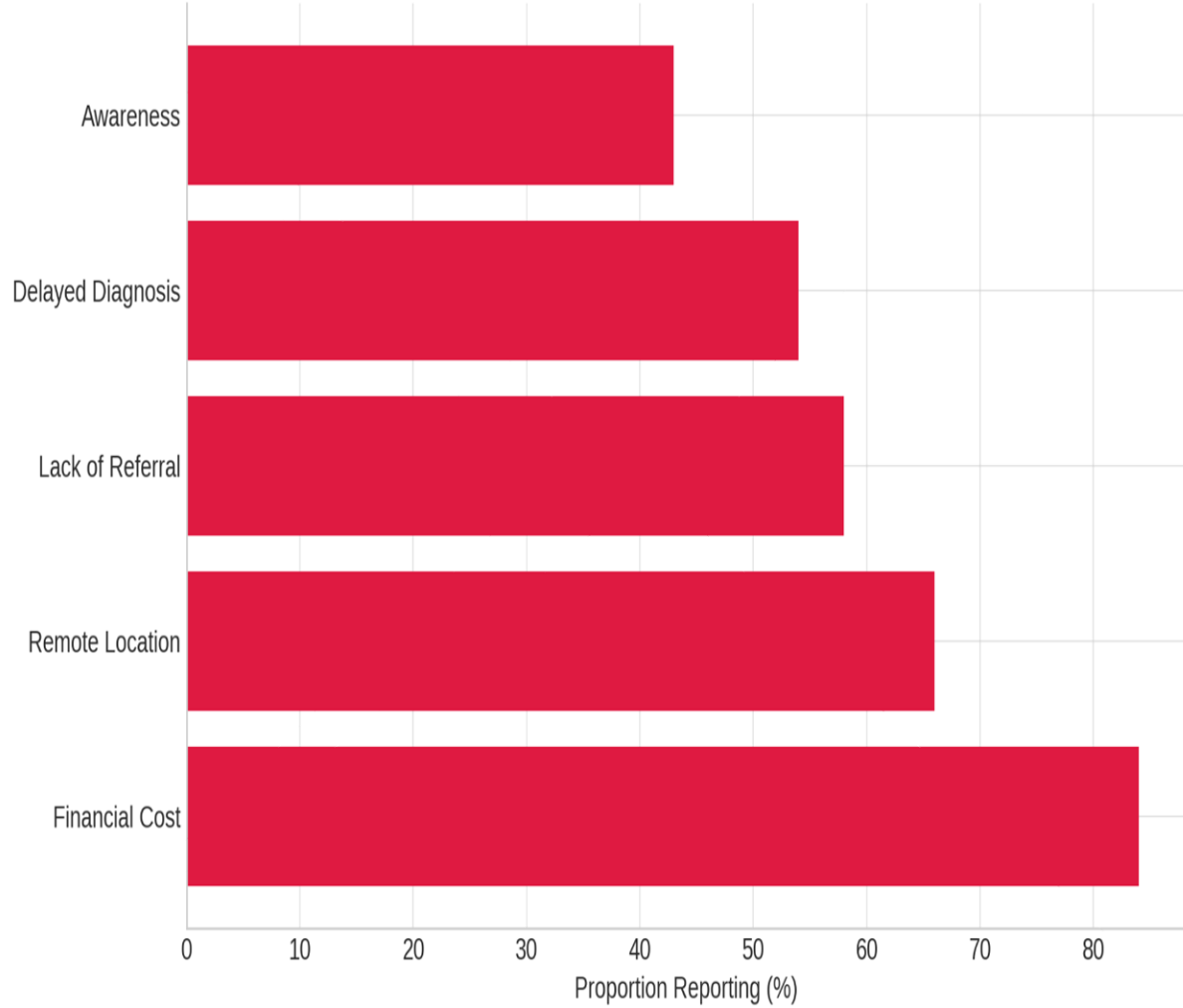


Figure 4.4: Key Barriers to SAVR Access



CONCLUSION

AVD is a growing health burden in India, with increasing prevalence and SAVR utilization. However, disparities in access, driven by cost, geography, and delayed diagnosis, persist. This study provides a comprehensive synthesis of secondary data, highlighting the need for targeted interventions to enhance equitable cardiac care.

Key Insights from the Study:

- AVD is an emerging public health issue in India, with a rising burden among older adults due to both rheumatic and degenerative causes.
- Significant disparities exist in access to surgical care (SAVR)—rural populations, women, and low-income groups face the greatest barriers.
- Improved outcomes are seen in leading centers, but high costs and limited insurance coverage restrict access for many.

RECOMMENDATIONS

- Establish a National AVD Registry to track incidence, prevalence, and outcomes.
- Conduct opportunistic echocardiographic scanning for high-risk groups, based on feasibility.
- Include SAVR in government insurance schemes like Ayushman Bharat.
- Expand cardiac surgical facilities in tier-2 cities and rural areas.
- Support research comparing SAVR and TAVR outcomes in Indian populations.

Policy Implication Summary

Policy Area	Recommendation
Screening & Diagnosis	Conduct opportunistic echocardiographic scanning
Access & Affordability	Include SAVR in Ayushman Bharat.
Data Systems	Develop a National Valve Disease Registry.
Infrastructure	Invest in cardiac surgery facilities in tier-2/rural areas.
Research & Innovation	Support SAVR vs. TAVR comparative studies.

Thank You