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SYSTEMATIC LITERATURE REVIEW ON CARDIOVASCULAR DISEASES IN INDIA

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ABSTRACT **Background And Objective:** Cardiovascular diseases (CVDs) are a leading cause of death globally, accounting for approximately 17.9 million deaths each year. In India, the burden of CVDs has been rising steadily, driven by factors such as rapid urbanisation, lifestyle changes, and an ageing population. The primary objective of this systematic literature review is to provide a comprehensive overview of the prevalence, risk factors, trends, and management of cardiovascular health in India. By synthesizing existing research, this review aims to identify gaps in knowledge and highlight areas for future research and policy development. **Methods:** A systematic search was conducted using databases such as PubMed, Google Scholar, and MEDLINE. Keywords included "cardiovascular diseases," "India," "prevalence," "risk factors," and "trends." The search was limited to studies published in English between 2000 and 2025. The extracted data were then synthesized to compute pooled prevalence rates and identify common risk factors. **Results:** The prevalence of CVDs in India shows significant variation between urban and rural populations. Urban areas report higher prevalence rates compared to rural areas. Hypertension is a major risk factor for CVDs in India. Lifestyle factors such as poor diet, lack of physical activity, and smoking are major contributors to cardiovascular risk. CVDs are a leading cause of disability in India, contributing significantly to the burden of disability-adjusted life years (DALYs). **Conclusion:** India has high age-standardized mortality rates from CVDs, contributing significantly to disability-adjusted life years (DALYS) and increasing hospitalization rates. Public health initiatives, healthcare infrastructure, awareness and education programs, and technology play crucial roles in managing CVDs in India.

KEYWORDS :

BACKGROUND AND SIGNIFICANCE

Cardiovascular diseases (CVDs) are a leading cause of death globally, accounting for approximately 17.9 million deaths each year.[1] In India, the burden of CVDs has been rising steadily, driven by factors such as rapid urbanisation, lifestyle changes, and an ageing population. [1] The increasing prevalence of risk factors such as hypertension, diabetes, and obesity has further exacerbated the situation. Understanding the current state of cardiovascular health in India is crucial for developing effective public health strategies and interventions.

Objectives Of The Review

The primary objective of this systematic literature review is to provide a comprehensive overview of the prevalence, risk factors, trends, and management of cardiovascular health in India. By synthesizing existing research, this review aims to identify gaps in knowledge and highlight areas for future research and policy development.

Scope And Limitations

This review focuses on studies published between 2000 and 2025, covering various aspects of cardiovascular health in India. The scope includes both urban and rural populations, with an emphasis on identifying regional variations and socioeconomic disparities. Limitations of this review include potential publication bias and the variability in study methodologies and quality.

METHODS

Search Strategy

A systematic search was conducted using databases such as PubMed, Google Scholar, and MEDLINE. Keywords included "cardiovascular diseases," "India," "prevalence," "risk factors," and "trends." The search was limited to studies published in English between 2000 and 2025.

Inclusion And Exclusion Criteria

Studies were included if they met the following criteria:

- Conducted in India
- Focused on cardiovascular health
- Published in peer-reviewed journals
- Provided data on prevalence, risk factors, or trends

Studies were excluded if they:

- Were not peer-reviewed
- Focused on populations outside India
- Did not provide sufficient data for analysis
- Data Extraction and Synthesis

Data were extracted from selected studies using a standardized form. Information on study design, sample size, population characteristics, and key findings were recorded. The extracted data were then synthesized to compute pooled prevalence rates and identify common risk factors.

Prevalence Of Cardiovascular Diseases In India

Urban Vs. Rural Prevalence

The prevalence of CVDs in India shows significant variation between urban and rural populations. Urban areas report higher prevalence rates compared to rural areas. For instance, a study found that the prevalence of coronary heart disease (CHD) in urban areas ranged from 35 to 90 per 1000 in men and 28 to 93 per 1000 in women, while in rural areas, it ranged from 17 to 45 per 1000 in men and 13 to 43 per 1000 in women.[1]

Gender Differences

Gender differences in the prevalence of CVDs have also been noted. Studies indicate that the prevalence of CVDs is generally higher in men compared to women. However, the gap is narrowing, with increasing rates of CVDš observed in women, particularly in urban areas.[1]

Age-Specific Prevalence

Age-specific prevalence rates show that CVDs are more common in older age groups. The prevalence of CVDs increases significantly with age, with the highest rates observed in individuals aged 60 years and above.[1]

Risk Factors For Cardiovascular Diseases

Hypertension

Hypertension is a major risk factor for CVDs in India. Studies have shown that a significant portion of the population is affected by hypertension, with prevalence rates ranging from 20% to 40% in different regions.[2,3]

Diabetes And Obesity

The increasing prevalence of diabetes and obesity, particularly in urban areas, is a significant contributor to the rising burden of CVDs in India. Studies indicate that the prevalence of diabetes in urban areas ranges from 10% to 20%, while obesity rates are also on the rise.[4]

Lifestyle Factors

Lifestyle factors such as poor diet, lack of physical activity, and smoking are major contributors to cardiovascular risk. The adoption of a sedentary lifestyle and unhealthy dietary habits has been linked to the increasing prevalence of CVDs in India.[4]

Socioeconomic Status

Socioeconomic status (SES) plays a crucial role in the prevalence of CVD risk factors.

Higher SES is associated with risk factors such as hypertension, diabetes, and obesity, while lower SES is linked to higher tobacco and alcohol consumption.[4]

Environmental Factors

Environmental factors, particularly air pollution, have been identified as significant contributors to cardiovascular risk. Studies have shown that exposure to high levels of air pollution is associated with an increased risk of CVDs.[2]

Trends In Cardiovascular Health

Historical Trends

Historical trends indicate a rising prevalence of CVDs in India over the past few decades. The increasing burden of risk factors such as hypertension, diabetes, and obesity has contributed to this trend.[1]

Regional Variations

There are significant regional variations in the prevalence of CVDs in India. Urban areas, particularly metropolitan cities, report higher prevalence rates compared to rural areas. Additionally, certain regions, such as the northern and western parts of India, have higher rates of CVDs compared to other regions.[4]

Impact Of Urbanization And Lifestyle Changes

The rapid urbanization and lifestyle changes in India have had a significant impact on cardiovascular health. The adoption of a sedentary lifestyle, unhealthy dietary habits, and increased stress levels associated with urban living have contributed to the rising burden of CVDs.[5]

Mortality And Morbidity

Age-Standardized Mortality Rates

Age-standardized mortality rates from CVDs in India are among the highest in the world. Studies have shown that the age-standardized mortality rate from CVDs in India ranges from 248.6 to 350.9 per 100,000 persons.[6]

Disability-Adjusted Life Years (DALYS)

CVDs are a leading cause of disability in India, contributing significantly to the burden of disability-adjusted life years (DALYs). High systolic blood pressure, diabetes, and obesity are major contributors to the DALYs associated with CVDs.[2]

Hospitalization Rates

Hospitalization rates for CVDs have been increasing in India, reflecting the growing burden of the disease. Studies have shown that the number of hospital admissions for CVDs has increased significantly over the past decade.[7]

Management And Awareness

Public Health Initiatives

Several public health initiatives have been launched in India to address the burden of CVDs. These initiatives focus on increasing awareness, promoting healthy lifestyles, and improving access to healthcare services.[2,8]

Healthcare Infrastructure

The healthcare infrastructure in India faces significant challenges in managing the burden of CVDs. Limited access to healthcare services, particularly in rural areas, and high out-of-pocket expenses are major barriers to effective management.[8]

Awareness And Education Programs

Awareness and education programs play a crucial role in the prevention and management of CVDs. However, studies have shown that awareness levels about CVD risk factors and management are still suboptimal in India.[9]

Role Of Technology In Management.

Innovations in healthcare, such as telemedicine and digital health tools, are emerging as potential solutions to improve the management and monitoring of CVDs in India. These technologies can help bridge the gap in healthcare access and provide timely interventions.[2]

DISCUSSION

Summary Of Key Findings

The systematic literature review highlights the significant burden of CVDs in India, with higher prevalence rates in urban areas and among older age groups. Hypertension, diabetes, obesity, and lifestyle factors contribute to cardiovascular risk. Socioeconomic disparities and environmental factors also play a crucial role in the prevalence of CVDs.

Comparison With Global Trends

The trends observed in India are consistent with global trends, where CVDs are a leading cause of morbidity and mortality. However, the burden of CVDs in India is exacerbated by socioeconomic disparities and limited access to healthcare services. The document provides a comprehensive summary of key concepts, findings, and recommendations. It outlines the objectives, methodologies, and significant results, while also addressing the implications for future research and practical applications. The conclusion highlights essential takeaways.

CONCLUSION:

Cardiovascular diseases (CVDs) are a leading cause of death globally, with a rising burden in India due to urbanization, lifestyle changes, and an ageing population. CVD prevalence is higher in urban areas compared to rural areas, with significant gender and age-specific variations. Major risk factors for CVDs in India include hypertension, diabetes, obesity, lifestyle factors, socioeconomic status, and environmental factors like air pollution. Trends in Cardiovascular Health: Historical trends show a rising prevalence of CVDs, with regional variations and significant impacts from urbanization and lifestyle changes. India has high age-standardized mortality rates from CVDs, contributing significantly to disability-adjusted life years (DALYS) and increasing hospitalization rates. Management and Awareness: Public health initiatives, healthcare infrastructure, awareness and education programs, and technology play crucial roles in managing CVDs in India.

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