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**INTRODUCTION**

It’s an irrefutable fact that Cardiovascular diseases also referred as CVDs are the leading cause of deaths globally. It has been estimated that 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. 85% of these deaths were primarily due to heart attack and stroke. According to the statistics, in the year 2019 there had been 17 million premature deaths due to noncommunicable diseases, out of these deaths 38% were caused by CVDs. It has been observed that India has one of the highest burdens of cardiovascular diseases worldwide. The annual number of deaths from CVDs in India is projected to rise from 2.26 million in 1990 to 4.77 million in 2020.

***TABLE I: Estimates of total years of life lost due to CVD in 2000 and 2030***

| Country | Total years of life lost  (2000) | Rate per 100,000 | Total years of life lost (2030) | Rate per 100,000 |
| --- | --- | --- | --- | --- |
| India | 9,221,165 | 3,572 | 17,937,070 | 3,070 |
| Brazil | 1,060,840 | 2,121 | 1,741,620 | 1,957 |
| China | 6,666,990 | 1,595 | 10,460,030 | 1,863 |

Over the past several decades, various estimates have been carried out regarding the prevalence rates of coronary heart disease in India which predicted the occurrence of this particular disease to range from 1.6% to 7.4% in rural populations and from 1% to 13.2% in urban populations. CVDs also account for 45% of deaths in the 40-69 year age group.

***TABLE II: Forecasting the number of cases (males and females) of coronary heart disease in India***

| Year/area | 20-29 yrs | 30-39 yrs | 40-49 yrs | 50-59 yrs | 60-69 yrs | Total |
| --- | --- | --- | --- | --- | --- | --- |
| 2010 (Urban) | 5,992,412 | 5,154,766 | 5,606,731 | 4,223,273 | 3,710,938 | 24,688,119 |
| 2010  (Rural) | 2,324,772 | 3,940,722 | 5,367,797 | 5,817,363 | 4,829,922 | 22,280,577 |
| 2010  (Total) | 8,317,184 | 9,095,489 | 10,974,527 | 10,040,636 | 8,540,860 | 46,968,695 |
| 2015 (Urban) | 8,167,924 | 7,927,846 | 8,493,463 | 6,156,089 | 5,346,975 | 36,092,297 |
| 2015  (Rural) | 2,324,087 | 4,523,697 | 5,816,588 | 6,852,050 | 5,913,624 | 25,430,046 |
| 2015  (Total) | 10,492,011 | 12,451,542 | 14,310,051 | 13,008,140 | 11,260,599 | 61,522,343 |

Over the past two decades, the prevalence of CVDs in India has risen due to population growth, aging and a lot of other factors. Over the same time period, while the trend has begun to plateau in India, the United States has experienced an overall decline in age-adjusted CVD mortality. These improvements in CVD mortality in the United States are primarily due to favorable population-level risk factor trends, specifically with regard to tobacco use, cholesterol, and blood pressure.

India needs to implement population-level policies while strengthening and integrating its local, regional, and national health systems in order to achieve similar results in reducing premature death and disability from CVDs. The achievement of universal health coverage along with financial risk protection should remain the ultimate goal which should help all Indians realize their right to health.

**LITERATURE REVIEW**It has been observed that most cardiovascular diseases can be prevented by avoiding risk factors like tobacco use, unhealthy eating habits, obesity, physical inactivity, and excessive alcohol use. People who have cardiovascular diseases or who are at high cardiovascular risk due to the presence of risk factors like hypertension, diabetes, hyperlipidemia, or effectively treated illness should seek medical attention as soon as possible. Early diagnosis is crucial because Cardiovascular diseases continue to be the leading cause of morbidity and mortality. With the changing times, the healthcare expenses have been skyrocketing and it can get difficult for one to get advanced healthcare. Heart illness early identification can mean the difference between life and death. One can have a greater chance of seeing hazards early on if one is aware of the early symptoms of CVDs.

There are several other authors who’ve worked on detecting CVDs using various models such as - *NLP, CNN and RNN, Naïve Bayes* and many more. However, they have their own set of strengths and weaknesses. Talking about the detection of Coronary heart disease, it is normally detected using McPherson. It utilizes unsupervised learning methods and *Neural networks* for the prediction of the model to be accurate and effective. Another notable example is the commendable work done by *Mr. R Subramaniam*, that involved the diagnosis and prediction of heart diseases and blood pressure using neural networks. The *IJRASET* published a research paper on detecting CVDs using *Machine Learning algorithms*. The authors acquired the highest frequency while implementing the *Random Forest* algorithm.

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