



ABSTRAK

Latar Belakang: Penyakit kardiovaskular (PKV) menjadi penyebab utama kematian di seluruh dunia. Penelitian ini bertujuan untuk memproyeksikan beban PKV di Indonesia dari tahun 2025 hingga 2045 dengan mempertimbangkan berbagai faktor risiko yang berkontribusi terhadap mortalitas, prevalensi, insidensi, DALYs, dan biaya langsung penyakit ini.

Metode: Penelitian ini menggunakan data sekunder yang bersumber dari *Global Burden of Disease Study 2021*, Data Sampel BPJS Kesehatan, dan Data Proyeksi Penduduk BPS. Analisis proyeksi menggunakan metode ARIMA (autoregressive integrated moving average), GAM (Generalized Additive Model) dan Prophet. Sedangkan evaluasi model proyeksi menggunakan metode *rolling-cross validation*.

Hasil: Antara tahun 2025 hingga 2045, laju kematian akibat PKV diperkirakan meningkat 28,32%, meskipun pada kelompok umur baku menurun sebesar 0,2%. Prevalensi PKV naik sebesar 41,10%, dengan peningkatan ringan pada kelompok umur baku sebesar 2,29%. Insidensi diperkirakan meningkat 33,32%, sementara laju insidensi pada kelompok umur baku naik 7,02%. DALYs menunjukkan kenaikan 22,32%, tetapi menurun sebesar 3,38% pada kelompok umur baku. Proyeksi beban biaya langsung akan mengalami kenaikan yang signifikan, mencapai 177% dibandingkan dengan biaya pada tahun 2023. Terdapat disparitas beban penyakit kardiovaskular antar provinsi. Terdapat juga keterbatasan dalam ketersediaan data dalam *GBD Study*.

Kesimpulan: Beban penyakit kardiovaskular di Indonesia diperkirakan akan terus meningkat hingga 2045. Meskipun ada potensi penurunan beban melalui pengurangan faktor risiko, implementasi program intervensi faktor risiko penyakit kardiovaskular perlu dioptimalkan. Selain itu, keterbatasan data dalam *GBD Study* menunjukkan perlunya pengembangan sistem surveilans yang lebih baik untuk perencanaan kebijakan kesehatan di masa depan.

Kata Kunci: Penyakit kardiovaskular, faktor risiko, proyeksi, mortalitas, DALYs, beban ekonomi

ABSTRACT

Background: Cardiovascular disease is the leading cause of death worldwide. This study aims to project the burden of Cardiovascular disease in Indonesia from 2025 to 2045, taking into account various risk factors that contribute to mortality, prevalence, incidence, DALYs, and direct cost of this disease.

Methods: This study utilized secondary data from the Global Burden of Disease Study 2021, BPJS Health Sample Data, and Population Projection Data from the Central Statistics Agency (BPS). Projection analysis employed the ARIMA (autoregressive integrated moving average), GAM (Generalized Additive Model), and Prophet Method. Model evaluation utilized rolling-cross validation.

Results: Between 2025 and 2045, crude cardiovascular mortality in Indonesia is projected to rise by 28.32%, despite a 0.2% decline in the age-standardised mortality rate. Prevalence will increase by 41.10%, with a modest 2.29% rise in age-standardised rate. Incidence is expected to grow by 33.32%, while the age-standardised incidence rate increases by 7.02%. DALYs will rise 22.32%, though the age-standardised DALY rate will decrease by 3.38%. The projected burden of direct costs is expected to increase significantly, reaching a 177% rise compared to the costs in 2023. There are disparities in the burden of cardiovascular disease between provinces. There are also limitations in the availability of data in the GBD Study.

Conclusion: The burden of cardiovascular disease in Indonesia is projected to continue increasing until 2045. Although there is potential for reducing the burden through risk factor reduction, the implementation of cardiovascular disease risk factor intervention programs needs to be optimized. Additionally, the limitations in data availability in the GBD Study highlight the need for the development of a better surveillance system for future health policy planning.

Keywords: Cardiovascular disease, risk factors, projections, mortality, DALYs, economic burden