

## The Impact of Climate Change on Chronic Respiratory Diseases in Saudi Arabia: The Mediating Role of Air Pollution

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### Abstract:

**Background:** The prevalence of chronic respiratory diseases (CRD) in Saudi Arabia exhibits a persistent and increasing pattern over the past few years. Several factors can affect the prevalence of CRD. Therefore, this study aims to examine the effect of air pollution and climate change on the prevalence of CRD in Saudi Arabia.

**Methods:** The study uses the autoregressive distributed lag (ARDL) estimator to estimate the long-term and short-term effects of air pollution and climate change on the prevalence of CRD. The study uses data from 1990 to 2023. The dependent variable is CRD prevalence, which is extracted from the Global Burden of Disease (GBD) database. The independent variables include air pollution (AP) and the heating index (HI), which are obtained from the World Bank database. The Stata software is used for data analysis, and a 5% level of significance is used.

**Results:** The empirical analysis reveals a statistically significant effect of AP on the prevalence of CRD in both the long and short terms. A one-standard-unit increase in AP leads to a 1.92% and 0.75% increase in the prevalence of CRD in the long and short run, respectively. HI significantly affects the prevalence of CRD in the long run by about 0.96%.

**Conclusion:** Persistent and higher levels of AP and HI contributed to the increase in prevalence of CRD in Saudi Arabia.

### Keywords:

Chronic respiratory disease, air pollution, climate change, Saudi Arabia.