

# A DESCRIPTIVE METHOD FOR COMBINING THE MULTIPLE OUTCOMES OF MULTIPLE EXPOSURES AND ITS APPLICATION WITH TOBACCO AS EXPOSURE AND CANCER AS OUTCOME IN A SELECTED STATE IN INDIA

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**Objectives:** To develop a descriptive method for estimating the overall burden of outcome (non-communicable disease) due to any stochastic exposure and its empirical application with tobacco as exposure and cancer as outcome in a selected state in India.

**Study design:** Descriptive methods were designed with the help of prevalence of exposure, risk of outcome due to exposure and number of outcome related with respective exposure.

**Methods:** Concept of PAR has been used for developing the descriptive method to combine the outcomes associated with different forms of exposure. Further, for the application, the proposed method uses data from NSSO; population projected by the RGI, PBCR (Bengaluru), and published studies.

**Results:** The proposed descriptive method provides estimates of outcomes in different exposure-outcome scenarios like single exposure and single outcome, multiple exposures and single outcome, single exposure and multiple outcomes, and multiple exposures and multiple outcomes. By applying this method to data for Karnataka, it was found that the proportion of oropharynx cancer due to tobacco use is the highest among all sites associated with tobacco. It is likely to decrease from 47% in 2015 to 32% in the year 2025. On the other hand lung cancer cases, estimated at 4,317 in year 2015 are expected to increase to 6,360 by 2025; but cases attributed to tobacco are expected to decline from 1,887 in 2015 to 1,607 by 2025. Tongue and mouth cancer cases attributed to tobacco use show a continuously increasing trend for the period 2015 to 2025.

**Conclusion:** In view of the vast diversity in the cancer burden, it is necessary to evaluate public health programs using the method proposed in the study. This would help in improving the effectiveness and / or in the design and implementation of new policies.

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