Trends and Patterns of Tobacco Smoking-Related Respiratory Mortality in 3.4 Million South African Adults (35-74 Years)

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A question about previous smoking behaviour on death notification forms shows that tobacco smoking hazards remained high and evolved differently in South Africa when compared to high income countries.

BACKGROUND

The tobacco smoking epidemic has evolved differently in various regions of the world. A 2012 South African study highlighted the significant impact of smoking on infectious respiratory and other causes of death across the four population groups* in South Africa. We investigated smoking-related respiratory mortality among these population groups and identify changes in prevalence and risks over time.

METHODS

- Data Source: Unit record cause of death data from Statistics South Africa (StatsSA) from 2000 to 2018 for adults aged 35-74 years.
- Data Collection: Death notification forms since 1998 included a question on smoking status (Yes/No) five years prior to death, filled out by the next-of-kin.

- Classification: Underlying causes of death were classified into cases and controls based on known associations with smoking.
- Analysis: We calculated odds ratios between smoking and respiratory mortality for each population group*, adjusting for education, province of death, age, and marital status.
    - Time periods: 2000–2004, 2005–2011, 2012–2018.
    - Causes analysed: Tuberculosis (TB), lung cancer, chronic obstructive pulmonary disease (COPD) and Pneumonia.

* The pre-Apartheid-era population groupings remain important correlates of mortality and lifestyle.

RESULTS

- **Smoking Status (Fig 1):** 62% (N=3.4 million) of all deaths had information about their smoking status. Smoking prevalence in controls dropped overall but showed small increases in 2012-2018 in the Coloured females, White females and Black populations.
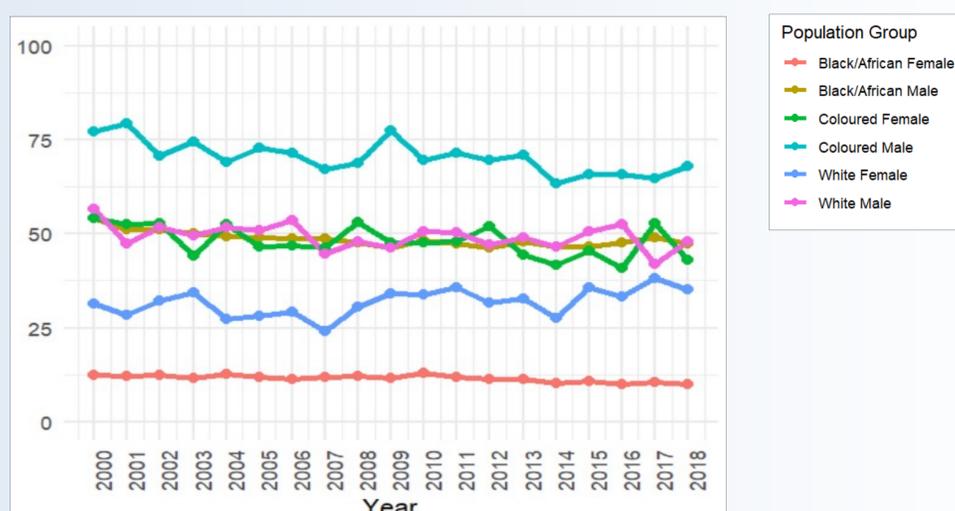

Fig 1: Prevalence of smoking among the control group

RESULTS (continued)

- **Risk Differences (Fig 2):**
    - *Lung Cancer:* High risks across all groups, particularly in White (OR: 4.6) and Coloured females (OR: 4.5).
    - *Chronic obstructive pulmonary disease (COPD):* Higher risks among White and Coloured females, stable across all groups over time.
    - *Tuberculosis (TB):* Increased risk, especially in White females (from OR: 1.7 to OR: 3.8) and White males (from OR: 2.0 to OR: 3.0).
    - *Pneumonia:* Highest odds ratios in Coloured populations, particularly in 2012-2018 (CM-OR: 1.6 and CF-OR: 1.9). Stable odds ratios for Black and White populations, with a slight increase in 2012-2018
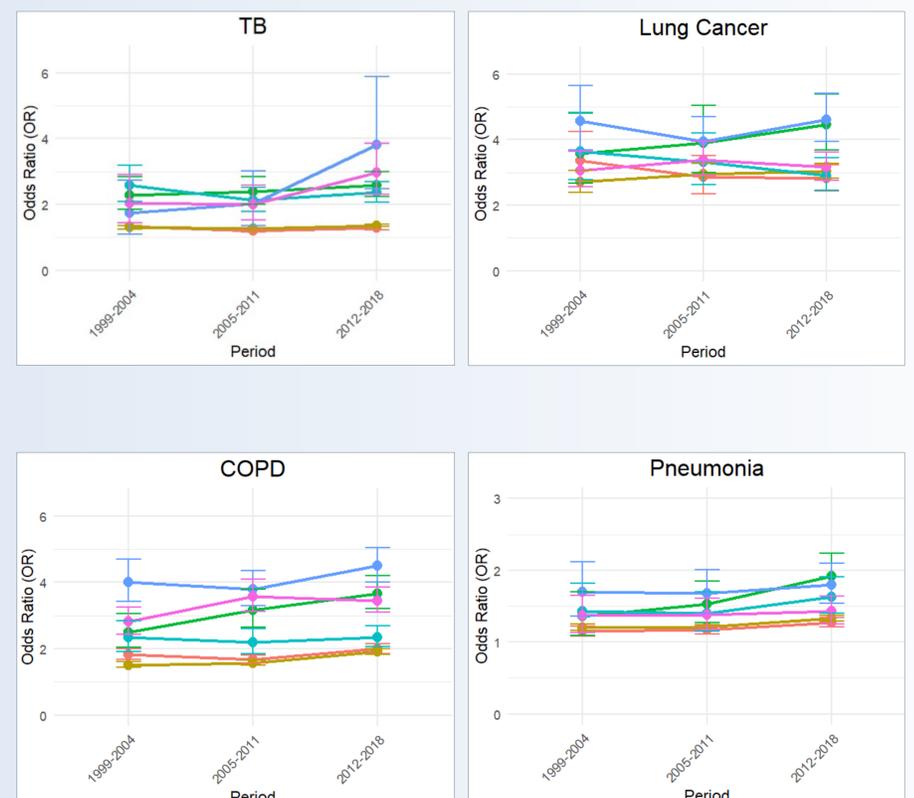

Fig 2: Odds Ratios (OR) and 95% CI by population group over time

CONCLUSIONS

Mortality risks of smoking remain high and different across the population groups in South Africa. Risks evolved differently when compared to high income countries. The highest risks (and smoking prevalences) are in the Coloured population and the lowest in the Black population, except for lung cancer, which was comparable across all groups.

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