Cancer Prevalence Across Ethnicity-Education-Deprivation Subgroups: An Intersectional Analysis

Vladimir Jolidon[1,2,3], Bernadette W. A. van der Linden[2,3], Stefano Tancredi[2,3], Andrew Bell[4], Daniel Holman[1]

[1] Department of Sociological Studies, University of Sheffield, United Kingdom
[2] Population Health Laboratory (#PopHealthLab), University of Fribourg, Switzerland
[3] Swiss School of Public Health, Switzerland
[4] Sheffield Methods Institute, University of Sheffield, United Kingdom

BACKGROUND

- Identifying variation in **cancer prevalence** across **population subgroups** is critical for public health.
- Previous research has shown that cancer prevalence is lower among non-White ethnic groups compared to White ethnic groups in England.
- However, these studies relied on broad ethnic categories and overlooked the **intersection of ethnicity and socioeconomic position**.

AIM

This study examines **cancer prevalence** across more specific **ethnicity-education-deprivation subgroups** from an intersectional perspective, in the United Kingdom.

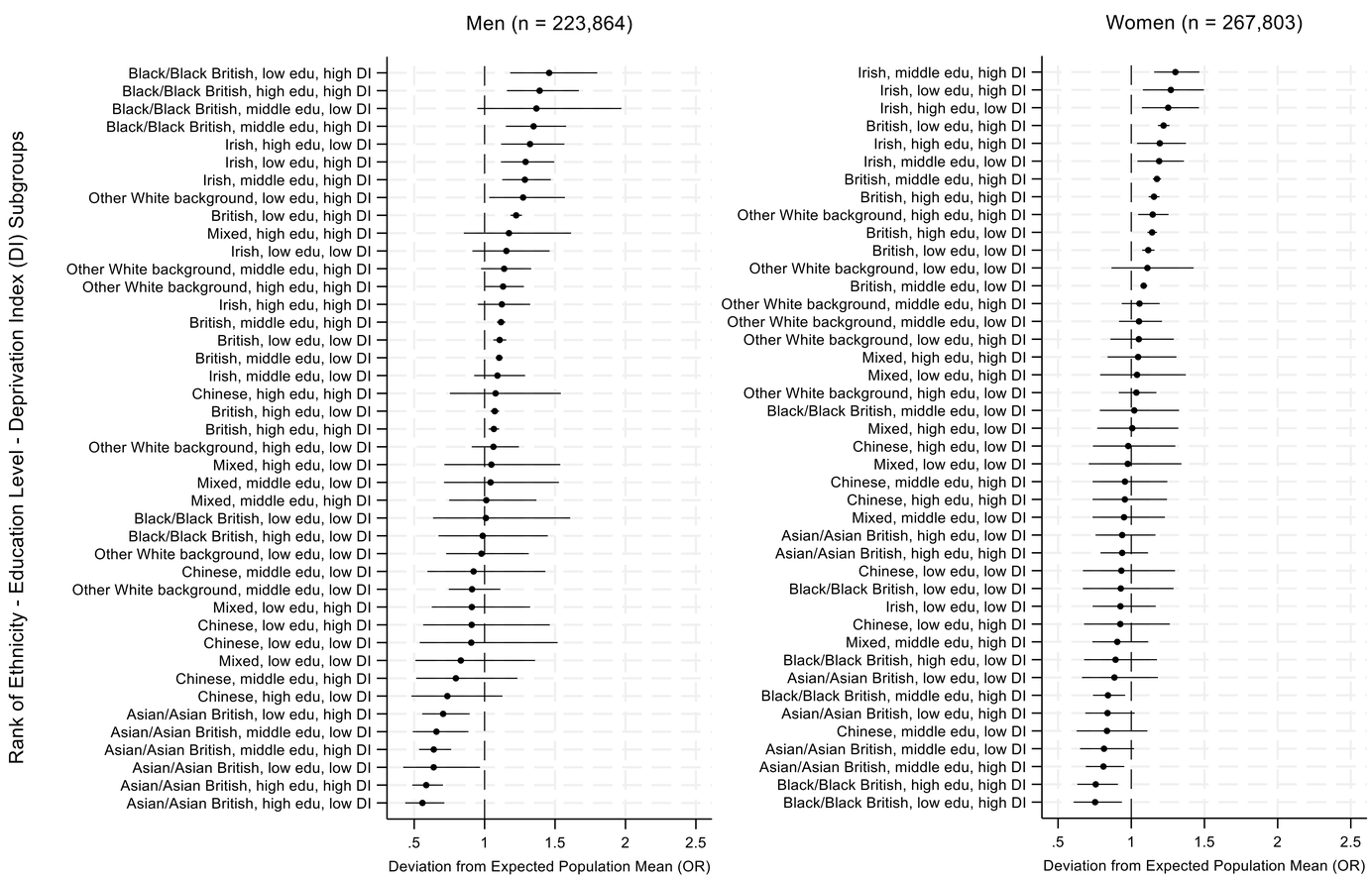
METHODS

- Data from the **UK Biobank**, a prospective cohort study.
  - 267,803 women and 223,864 men aged 40-69 years.
  - Baseline data collected between 2006-2010 in the UK.
- Outcome: all cancer prevalence, excluding non-melanoma skin cancer.
- Statistical analysis: Multilevel analysis of individual heterogeneity and discriminatory accuracy (MAIHDA), logistic regression.
  - Individuals nested within **42 intersectional subgroups** based on seven ethnic groups, education (low, middle, high) and deprivation levels (low, high).
  - Stratified by sex and adjusted for age.

RESULTS

- Overall, **cancer prevalence** was 14.6% among women and 16.3% among men. As in prior studies, cancer prevalence was generally lower in Non-White groups.
- However, ethnicity-education-deprivation subgroup analysis highlighted key differences.
- Among **men**, Black subgroups had the highest cancer prevalence, especially in subgroups with lower education and higher deprivation levels.
- Among **women**, cancer prevalence was highest among Irish and British subgroups with lower education and higher deprivation levels.
- MAIHDA models revealed that between-group differences were additive rather than multiplicative.

Fig 1: All-cancer prevalence across ethnicity-education-deprivation subgroups, deviation from expected population mean (odds ratio, OR)



Note: edu = Education level; DI = Deprivation Index; OR = odds ratio

CONCLUSIONS

- This study highlights **disparities in cancer prevalence** across intersectional subgroups, revealing patterns that are often masked by ethnicity-only analyses using broad categories.
- Identifying **subgroups at higher risk of cancer** can inform **targeted interventions to address inequities** in cancer prevention and care.

Conflict of interest: none

Contact: vladimir.jolidon@unifr.ch