Multimorbidity in people diagnosed and living with cancer:
A cross-sectional study of four common cancers using primary care data

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Background

Cancer is a major public health challenge in the UK and globally, with more than 385,000 new cases diagnosed annually in the UK.[1] Improving mortality means that increasing numbers of **people are living with and beyond cancer (PLWBC).** Understanding the co-existing health conditions of people with cancer—both at diagnosis and during survivorship—is essential for effective clinical care planning and optimising treatment pathways.

The aims of this study are to:

1. Measure the prevalence of individual conditions and multimorbidity in patients diagnosed with four common cancers—**breast**, **prostate**, **colorectal**, and **lung**—both at diagnosis and five years post-diagnosis.
2. Examine the impact of sociodemographic factors on multimorbidity prevalence in cancer patients.

Methods

- Design: Cross-sectional study (index date: 1 Jan 2018)
- Data sources: CPRD Aurum (primary care) linked with HES-APC, ONS death registrations, IMD
- Population: Patients ≥18 years, alive and registered on index date
- Cancer groups:
  - Incident cases: first diagnosis of **breast**, **prostate**, **colorectal**, or **lung** cancer in 2018
  - PLWBC: ≥5 years post-diagnosis, alive in 2018
- Definitions:
  - **Multimorbidity: ≥2 of 44 chronic conditions + cancer**
  - **Mental–physical multimorbidity: ≥1 physical + ≥1 mental health condition + cancer**
- Analysis:
  - Prevalence of multimorbidity and condition counts by cancer type and demographics
  - Crude and age–sex standardised prevalence of individual conditions and groups
  - Logistic regression for multimorbidity and mental–physical multimorbidity
    - Adjusted for age, deprivation, ethnicity
    - Stratified by sex

Results

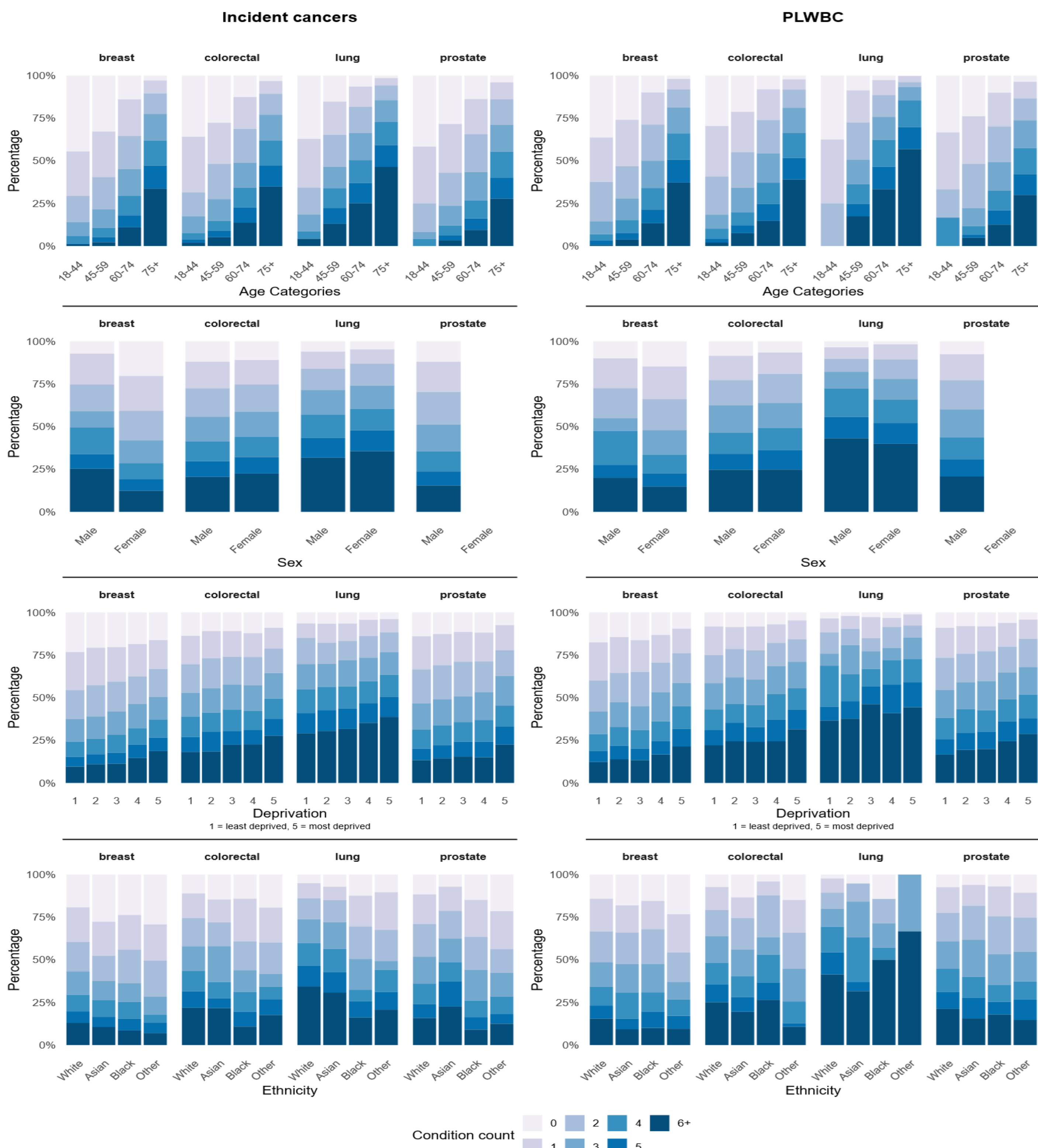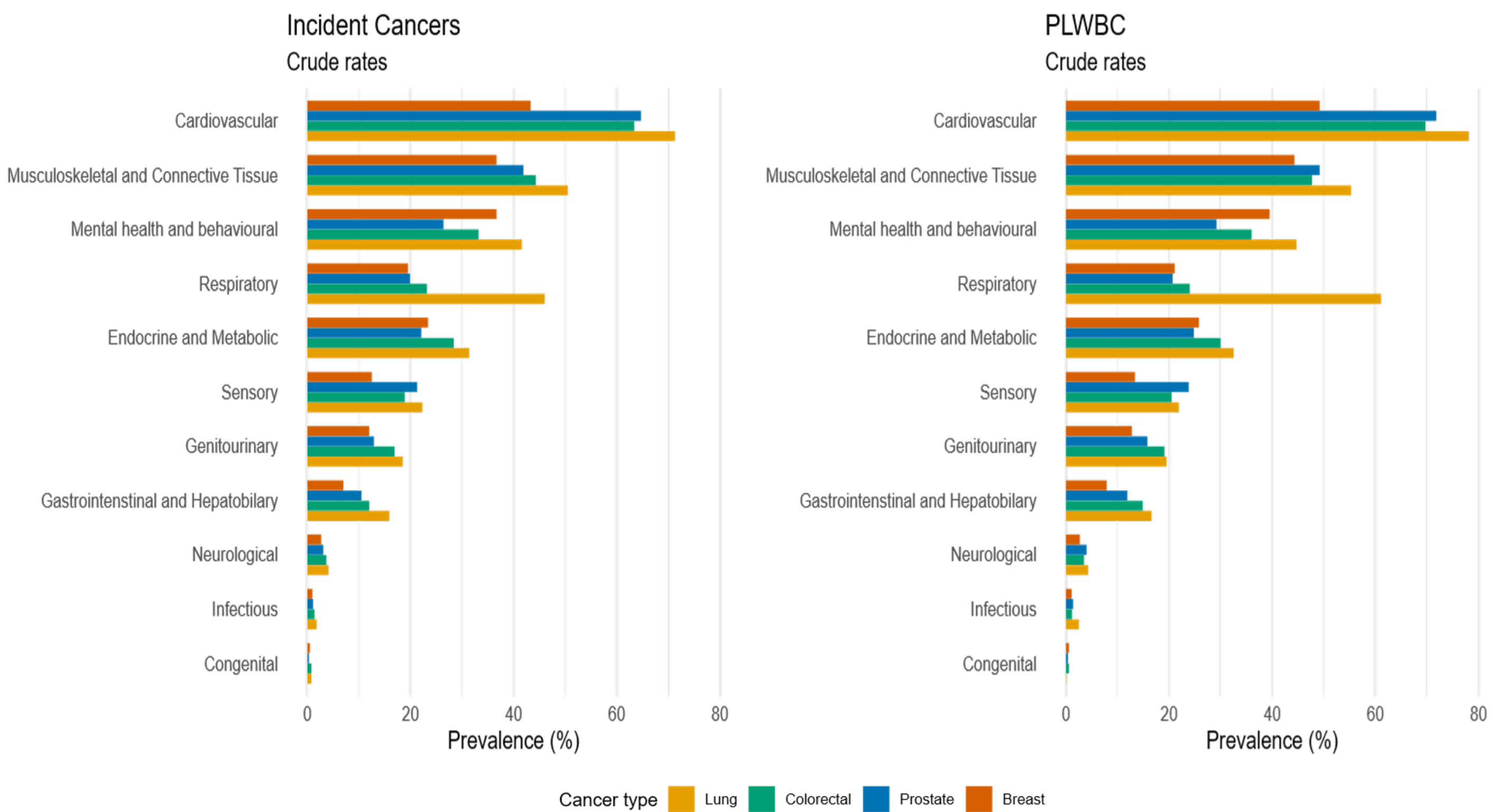### Figure 1- Number of chronic conditions by sociodemographic factors

Figure 2- Observed prevalence of condition groupings at diagnosis and in survivors

Prevalence of Multimorbidity (figures 1 and 2)

- 33,258 people with newly diagnosed cancers and 16,807 cancer survivors were included
- **Multimorbidity** was present in **59.4, 70.4, 73.5** and **85.3%** of people with **breast, prostate, colorectal** and **lung cancer** at diagnosis and **66.2, 77.3, 78.9** and **89.5%** of PLWBC.
- ≥ 6 conditions: lowest in people with **breast cancer** (**12.5%** at diagnosis; **14.9%** in survivors) highest in people with **lung cancer** (**33.6** and **41.4%**).
- Age and deprivation strongly influence condition count across all cancers
- Cardiovascular disease was the most common condition group at diagnosis and in survivors ➡ largely driven by hypertension.

Figure 3- Adjusted odds of multimorbidity and mental-physical multimorbidity at diagnosis by sex
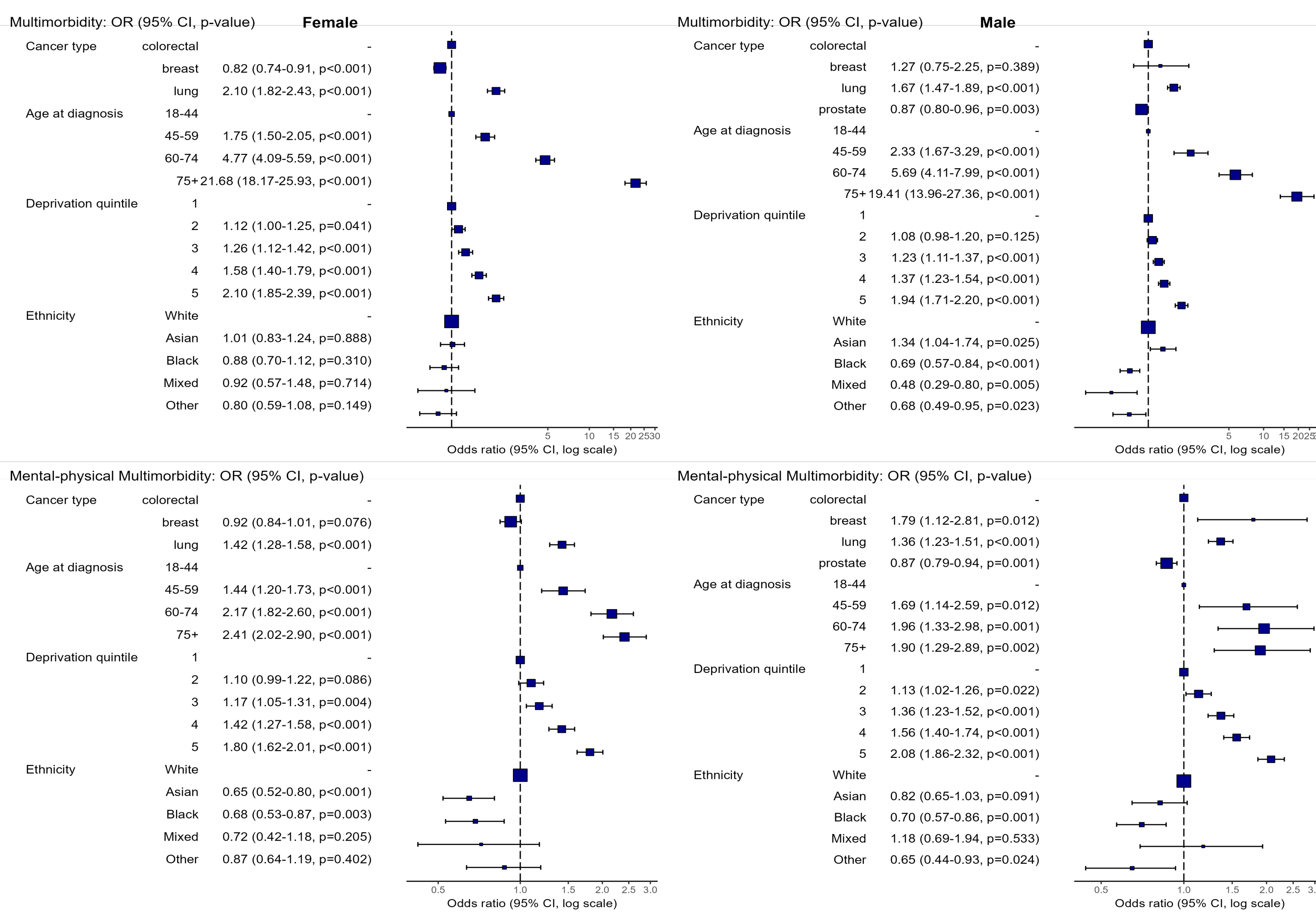
Predictors of Multimorbidity (figure 3)

- **Lung cancer** patients: **higher odds of multimorbidity** and mental-physical multimorbidity in men and women compared to colorectal cancer (figure 3).
- **Age: strongest predictor** of multimorbidity in both sexes
- Deprivation: significantly increased odds
- Ethnicity: Mixed effects but Asian and Black women had lower odds of mental–physical multimorbidity vs White women (similar, non-significant pattern in men)

Conclusions

Multimorbidity—including mental–physical multimorbidity—is common among people diagnosed with cancer and those living with and beyond it. The burden **increases with age and deprivation**. Even after adjustment, **lung cancer has the highest multimorbidity burden** across the four cancers. Future research should investigate the contribution of multimorbidity to cancer related inequalities.

References

1. **Cancer Research UK, https://www.cancerresearchuk.org/health-professionals/cancer-statistics/incidence, Accessed Sep 2025**