

Background

- Cancer incidence is set to rise to 506,000 new cases per year between 2038-2040 in the UK [1]. There is increasing evidence that this rise in incidence will disproportionately impact minority ethnic communities [2].
- Previous studies have reported variation in survival, outcome and mortality by broad ethnic group but few recent studies have compared difference in cancer incidence by broad ethnic group in England [3].

Aim To analyse and compare incidence rate of lung, breast and prostate cancer between ethnic groups in England

Methods

Data Sources and study design

- Population based study.
- Data: National Cancer Registration System (NCRAS).

Study population

- Cancer cases (numerator)
- All patients with breast, prostate and lung cancer recorded in their clinical record between 1995 and 2018.
- Population at risk (denominator)
- Population counts in England for each time period by sex and ethnicity.

Analysis

- This analysis involved data from approximately two million patients, segmented into five distinct time periods to enhance clarity of interpretation.
- The ethnic categories adhered to the UK government's classifications, encompassing White, Black, Mixed, Asian, and Other groups. Instances with unknown or unreported ethnicity details were omitted.

Results

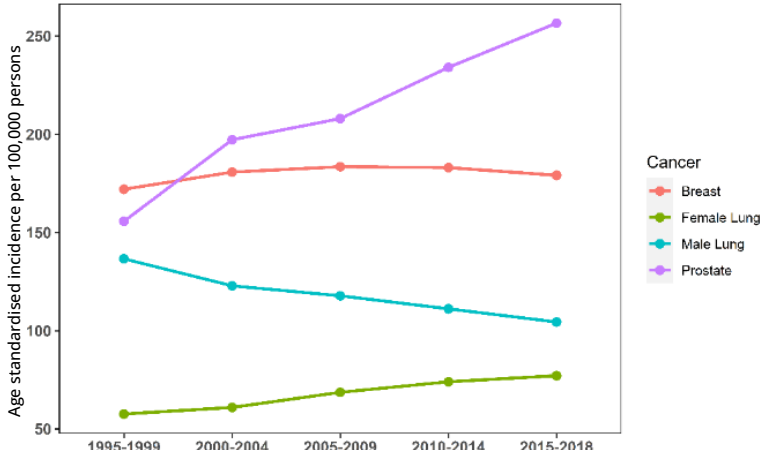


Figure 1: point and line graph for age standardised incidence rates of lung, breast and prostate cancer by time period

- Studied cancer cases from 1995 to 2018 involving 2,461,132 patients aged 15-100 years with lung, breast and prostate.
- Majority of cases occurred within ages 60-79 years.
- In Period 1, 63.3% of primary incidence tumours were in males.
- Lung cancer notably prevalent in males.
- Lung cancer incidence was remarkably high in both White and Asian males with an approximate incidence of 1 per 1000 persons (Figure 2).
- Lung cancer incidence trends over time in the Asian ethnic group has a large difference between the male and female sex.
- Age standardised breast cancer incidence was greatest in Asian women (178.6), then white women (169.4), closely followed by black women (155.9).
- We can observe in a steady increase in incidence from 1995-2014 till 2015-2018 where incidence levels drop, not significantly, but enough to counter the general trend for the previous ~20 years (Figure 1).
- It is well documented that South Asian women and Black women in the UK have lower incidence yet poorer breast cancer outcomes and survival in the UK [4].

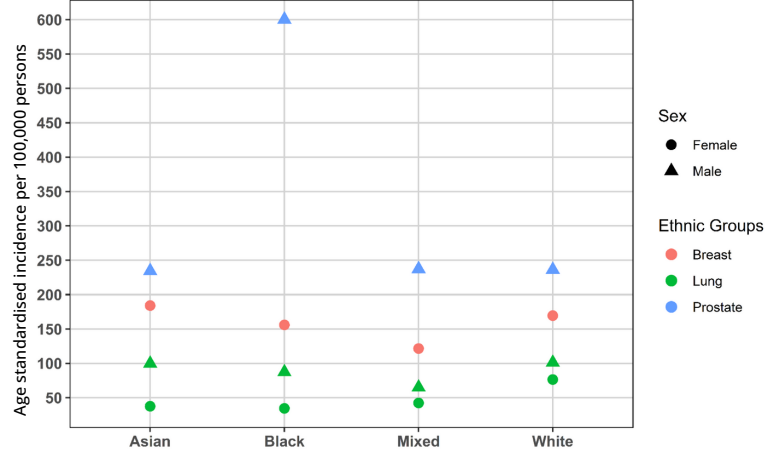


Figure 2: point graph for age standardised incidence rates of lung, breast and prostate cancer by ethnic group

- Additionally, lack of culturally appropriate resources mean they are less likely to engage in screening.
- We observed the greatest increase across all five time periods in prostate cancer incidence. Additionally, within our standardized incidence data for 2015-2018 we can observe far higher incidence in the black ethnic group (Figure 2).
- High rates for prostate cancer in Black men are likely to have been influenced by various external factors.
- The controversial use of prostate specific antigen (PSA) testing is widely suspected to have contributed to overdiagnosis.
- Recent research debates that men of African origin are more likely to have greater levels of PSA therefore are at greater risk of a prostate cancer diagnosis [7].

Limitations

- Population estimates are taken for ethnicity data and may not be representative of the actual populations at the time the study was done.
- Mixed ethnic group is broadly defined; therefore interpretation of this ethnic group is limited.

Conclusion

- Our results show evidence of increasing incidence of cancer over time (excluding male lung cancer).
- We can expect to see a shift in incidence rates amongst African and Asian broad ethnic groups as their populations age.

Discussion

- Context from previous studies tells us that smoking uptake is far lower in Asian women and they were more likely to use smokeless tobacco, evidenced by the high incidence of oral cancers [5] [6].

1. Cancer Research UK. Cancer Incidence Statistics. Cancer Research UK (2022).
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 3. Gathani, Toral, et al. "Ethnicity and breast cancer in the UK: Where are we now?." European Journal of Surgical Oncology 47.12 (2021): 2978-2981.
 4. Brennan, M. Breast cancer in ethnic minority groups in developed nations: case studies of the United Kingdom and Australia. Maturitas, (2017) 99, 16-19.
 5. Diz, Pedro, et al. "Oral and pharyngeal cancer in Europe: Incidence, mortality and trends as presented to the Global Oral Cancer Forum." Translational Research in Oral Oncology 2 (2017): 2057178X17701517.
 6. Messina, Josie, et al. "A systematic review of contextual factors relating to smokeless tobacco use among South Asian users in England." Nicotine & Tobacco Research 15.5 (2013): 875-882.
 7. Barlow, Melissa, et al. "Ethnic differences in prostate-specific antigen levels in men without prostate cancer: A systematic review." Prostate Cancer and Prostatic Diseases 26.2 (2023): 249-256.