

## **Ethnic differences in bowel cancer awareness: findings from a pharmacy-based community survey**

**Authors:** Mr Andrew Prentice, Ms Sarah Marshall, Mr Sameer Choglay, Mr Michael Levitan, Dr Lesley McGregor, Dr Robert Kerrison, Dr Christian von Wagner

### **Abstract.**

**Background:** The present study used London-based Multilingual Community Pharmacies (CPs) to better understand ethnic inequalities in levels of bowel cancer awareness.

**Methods:** We invited 206 CPs through the Middlesex Group of Local Pharmaceutical Committees. Participating pharmacies interviewed customers (aged 60+) using a modified version of the 'Bowel Cancer Awareness Measure'. Awareness was divided into 'symptom', 'risk factor' and 'screening' awareness. Variation in risk factor and symptom awareness were assessed using stepwise linear regression, while variation in screening awareness was assessed using logistic regression. The fully adjusted model controlled for main spoken language, age, gender and pharmacy postcode based index of multiple deprivation [IMD] rank.

**Findings:** 40 CPs interviewed 913 customers. There was no significant difference in area-level deprivation between participating and non-participating CPs ( $p=.50$ ). To minimise confounding, individuals who reported a history of bowel cancer were excluded from the analysis ( $n=49$ ) leaving 864 respondents (578 English speakers, 412 women, 406 men, 406 White-British, 228 Indian, 43 White-Irish, 39 Black Caribbean, 29 'other', 23 Pakistani, 21 Black African, 16 White-other). At the univariate level, ethnicity was associated with symptom awareness ( $p=0.002$ ) and screening awareness ( $p<0.0001$ ), but not risk factor awareness ( $P=0.41$ ). In a fully adjusted model, screening awareness was significantly lower among Black African (adjusted Odds Ratio [aOR]: 0.37; 95% Confidence Intervals [CI]: 0.17, 0.80;  $p=0.012$ ), Black Caribbean (aOR: 0.28; 95%CI: 0.10, 0.83;  $p=0.022$ ) and 'other' respondents (aOR: 0.19; 95%CI: 0.07, 0.48;  $p=0.001$ ), compared with White-British respondents. However, symptom awareness was no longer associated with ethnicity. Screening awareness was also higher in pharmacies situated in more affluent areas (aOR: 7.83; 95%CI: 2.14, 28.65;  $p=0.002$ ) even after adjusting for other demographics, while area-level socioeconomic deprivation was not associated with symptom or risk awareness.

**Interpretation:** Overall, administering BCAM was feasible. While participation of CPs was low, the number of surveys completed was substantive and there was no selection bias for deprivation. The association between ethnicity and screening awareness was independent of language which means that unlike symptom awareness, campaigns trying to level awareness of screening programmes cannot just rely on providing materials in people's native language. Instead, academics and community outreach workers should work with CPs, and their customers to co-create materials to improve

awareness of the bowel cancer screening programme. Future BCAM surveys would also benefit from larger sample sizes among individual ethnic groups and the least and most deprived.

**Funding:** This project was funded by Norgine B.V. and St Mark's Bowel Cancer Screening Centre.

**Contributors:** AP, SC, SM, ML, LM, RK and CVW contributed to the design of the project.

AP and SC led the training of community pharmacists and co-ordinated data collection. All authors contributed to changes to the Bowel Cancer Awareness Measure. All authors have seen and approved the final version of the abstract for publication.

**Early Career Status:** CVW is Reader at University College London. RK is an early career post-doctoral career researcher.

**Conflicts of interest:** We declare that we have no conflicts of interest.

**Acknowledgments:** The authors thank all the community pharmacists involved in this project.