Short Report

Uptake of faecal occult blood test colorectal cancer screening by different ethnic groups in the Netherlands

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We investigated the participation rates in CRC screening with a FOBT among various ethnic groups in the Netherlands. Individuals (n = 10 054) were invited by mail and grouped by country of birth. Overall participation rate was 49%. Participation among ethnic minority groups was significantly lower than among ethnic Dutch (adjusted OR for participation: Middle- or Central-East 0.25 (0.18–0.34), African 0.48 (0.34–0.67), Surinamese and Antillean 0.51 (0.43–0.61), South- or South-East Asian 0.56 (0.46–0.69) and ‘other Western’ 0.78 (0.63–0.96)). Further studies are needed to explore whether ethnic minority groups are not reached or that low uptake is determined by other causes.

Keywords: colorectal cancer, ethnicity, participation, screening.

Introduction

Colorectal cancer (CRC) is the second most common cause of cancer-related death for both men and women in the Western World. CRC screening and early detection can possibly reduce CRC morbidity and mortality. Population screening programmes for CRC have been implemented in many Western countries. These programmes aim to provide all individuals between 50 and 75 years of age in the community equal opportunity to consider participation in CRC screening. However, previous studies indicate that the uptake of CRC screening is lower in ethnic minority groups than in the host population.1–3 African Americans were 18% less likely to be screened than whites.1 The participation rate for CRC screening with a faecal occult blood test (FOBT) was 63% in the English general population, but significantly lower in the South Asian community (ranging from 32% in the Muslim community to 44% for the Hindu community).2 In Sweden, the uptake of CRC screening was lower in those without a Swedish citizenship compared with those with a Swedish citizenship (44% versus 69%).3 Population-based screening for CRC with a FOBT is currently under evaluation in the Netherlands. Around 15% of the population of the Netherlands in the age category of interest belong to ethnic minority groups, the largest groups originating from Indonesia (3%), Surinam and the Netherlands Antilles (2%), Turkey and Morocco (both 1%). We investigated the variation in participation rates in population-based CRC screening and the FOBT positivity rates by ethnic group in the Netherlands.

Methods

The study design of our screening programme has been described in detail elsewhere4 and was approved by the Dutch Health Council.5 A random sample of males and females between 50 and 75 years of age was selected from the municipal databases of Amsterdam and surrounding regions, based on postal area codes. Institutionalized people were excluded from invitation. All those selected for invitation received a FOBT kit, including an invitation letter, information leaflet, a FOBT without any costs for invitees and a freepost envelope by direct mailing through the Comprehensive Cancer Centre Amsterdam between May 2006 and January 2007. The information leaflet explained the screening programme, the purpose, benefits and limitations of CRC screening, the risk factors associated with CRC and instructions on how to use the FOBT. The leaflet was provided in Dutch.

All invitese were randomly allocated to either a three-day guaiac-based FOBT (gFOBT) (Hemoccult II, Beckman Coulter) or a one-day sample for an automated semi quantitative immunochemical FOBT (iFOBT) (OC-sensor, Eiken Chemical Co).

Ethnic variations in participation rates were evaluated in the selected sample. Data on date of birth, gender, postal area and country of birth were obtained from the civil service of the municipalities and updated every 8 weeks to keep the database up to date with respect to moving, age and death.

Data analyses

Based on their country of birth individuals were grouped (i) ethnic Dutch; (ii) other Western (e.g. Europe, North America and Australia); (iii) Surinamese and Antillean; (iv) South Asian and South-East Asian (e.g. India, Indonesia, China and Japan); (v) Middle- and Central-East (e.g. Turkey, Iran, Iraq and Afghanistan); and (vi) African (e.g. Morocco).

We defined as participant an invitee who returned the FOBT within 3 months after the invitation. Differences in participation rates and FOBT positivity rates between the ethnic groups were tested with chi-square statistics. The effect of ethnicity on participation rate, adjusted for age, gender.
and type of test (iFOBT or gFOBT), was explored with logistic regression. P-values below 0.05 were considered to indicate statistical significance.

**Results**

The characteristics of the invitees (n = 10 054) are shown in table 1. In total, 82% was from ethnic Dutch background and 18% from another ethnic origin. The average age of invitees was 60.2 (±7) years and 49% was male.

Overall participation rate was 49%. The participation rates differed between ethnic groups, with the lowest participation rate in those from Middle- or Central-East descent (21%) and the highest in the ethnic Dutch population (52%). Compared with the ethnic Dutch population, participation was significantly lower in all ethnic minority groups (table 1) also after differences in age, gender and type of test received were taken into account.

No statistically significant differences were found in the positivity rate of the FOBT per ethnic group.

**Discussion**

This study is the first to show that the participation rate of ethnic minority groups in population-based CRC screening in the Netherlands was significantly lower than in the ethnic Dutch population. The results of this study correspond to previous studies concluding that uptake of cancer screening is lowest in ethnic minority groups.6–9

Population screening programmes aim to offer equal access of health care to all individuals of the community. There are reasons to believe that some of the ethnic minority groups were ineffectively reached because the leaflet was only available in Dutch; many of the ethnic minority groups living in the Netherlands have poor Dutch language skills, and the participation rate was also lower in the group ‘other Western’ who are culturally close to the ethnic Dutch. A language barrier cannot be the only explanation, however, because uptake was also significantly lower in those of Surinamese and Antillean background who have Dutch as their mother tongue. Other factors may additionally have played a role in the variations in uptake, for instance differences in socioeconomic status (SES), perceived personal chance of CRC and perception and knowledge of CRC and screening between the various ethnic minority groups. This study does not support potential differences in perceived chances of CRC as no difference was observed in the percentage of positive tests between the studied ethnic groups.

The observation that the proportion of ethnic minority groups in the sample of invitees was higher (18%) than in the general population (15%) does not reflect a selective sample, but the composition of the population of the urban region of Amsterdam, the capital of the Netherlands. Similarly, the higher proportion of males in the African group reflect the gender distribution that is present in this population, which is related to the migration history.

A limitation of the present study is that the grouping of ethnic background could only be based on the country of birth of the subjects themselves, so that second generation immigrants are grouped as ethnic Dutch. However, 98% of the non-western ethnic minorities, in the invited age range are first generation immigrants, as substantial immigration in the Netherlands started in the 1960s of the previous century.10

A second limitation is the impossibility to adjust the observed participation rates for SES, as it is known that participation in screening is associated with SES and the average SES of ethnic minorities is generally lower than that of the ethnic Dutch population. Information on average SES per postal area is available in the Netherlands, but invitees were selected from only seven postal areas so that variation was insufficient to analyse SES as a potential determinant of uptake.

In conclusion, uptake of CRC screening was lower in ethnic minority groups compared with ethnic Dutch. Further studies are needed to elucidate whether the strategies to inform individuals in the target population are effective in reaching ethnic minority groups or that their low uptake is determined by other causes. The results of such studies will allow for developing interventions to provide all individuals equal opportunity to benefit from CRC screening.

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**Conflicts of interest:** None declared.
Key points

- Participation in a population CRC screening programme is consistently and markedly lower in all ethnic minority groups, including those with a Western background.
- Language barriers cannot be the only explanation for the lower uptake.
- Screening programmes should be adapted in a way that equal access for all ethnic minority groups is accomplished.

References

2 The UK CRC Screening Pilot Evaluation (Ethnicity) Team. Ethnicity: UK Colorectal Cancer Screening Pilot (final report), 2003.

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