

Perceived life expectancy is associated with colorectal cancer screening uptake in England

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Colorectal cancer (CRC)

- Colorectal cancer is the 3rd most common cancer in men and 2nd most common cancer in women worldwide (Torre et al., 2012)
- The UK has a publicly available CRC screening program
 - Home-based fecal occult blood test (FOBT) for men and women aged 60 to 74 years
 - No financial or transport barriers, small opportunity cost
- Screening uptake is ~50% in any given screening round
 - Uptake rates are similar in other countries with similar programs (Schreuders et al., 2015)

Perceived life expectancy (PLE)

- PLE = self-reported probability of living another X years
- Associated with mortality risk in older adults (Hurd & McGarry, 2002; Smith et al., 2001)
- Has been used in the economic literature, but rarely to predict future health-related behaviour (Hamermesh 1985; Carstensen, 2006; Wuebker 2012)
- Important: the American College of Physicians does not recommend cancer screening for people with a life expectancy <10 years, but this is not well known among the public

Objective

To investigate the prospective association between
PLE and participation in FOBt screening

Methods

- English Longitudinal Study of Ageing (ELSA) (Stephens et al., 2013)
 - Cohort study of English adults aged ≥ 50 years
 - Biennial in-person interviews from 2002 to present
 - Present analysis uses data from 2008/09 and 2012/13

PLE Measurement

- Measured at baseline (2008/09)
- **Study interview question:**
“What are the chances that you will live to be age X or more?”
- If aged <65, $X = 75$ years
- If aged 66-69, $X = 80$ years
- If aged 70-74, $X = 85$ years

CRC screening uptake

- Measured at follow-up (2012/13)
- **Study interview questions:**
 - “Have you ever completed a home testing kit for bowel cancer screening?”*
 - “How long ago was your most recent test?”*
 - “Was this test part of the NHS Bowel Cancer Screening Programme?”*
- Those with most recent test in 2010 or later coded as ‘yes’ for screening

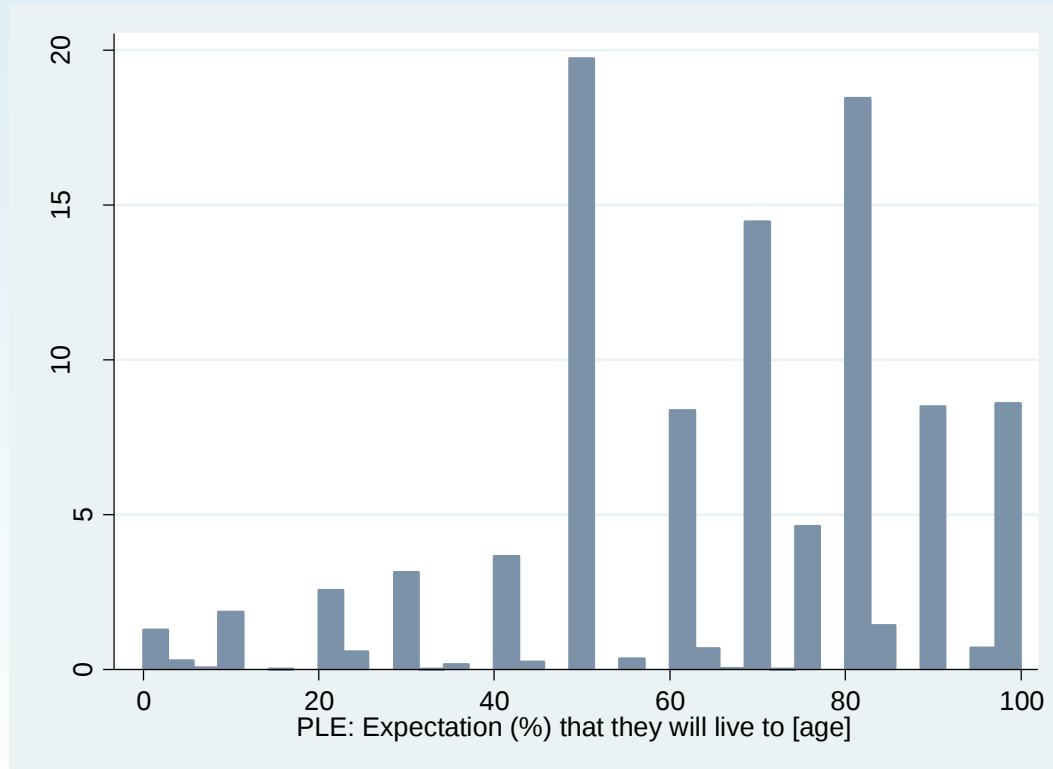
Statistical analysis

- Logistic regression to predict the relationship between PLE at baseline (2008/09) and FOBt screening over the follow-up (2010 to 2012/13)
- Covariates:
 - Age
 - Sex
 - Educational attainment
 - Ethnicity
 - Marital status
 - Smoking status
 - Self-rated health
 - Previous diagnosis of cancer, cardiovascular disease, hypertension
 - Age of mother (currently or at death)
 - Age of father (currently or at death)
 - Numeracy

Sample

- N = 3975 men and women aged 60-74 years
- Mean age = 62.6 years (SD: 4.1 years)
- 55% female
- 22% with no qualifications; 29% with higher degree
- 98% 'white'
- 77% married

The PLE variable



Re-categorized as:

- Low (0-24%; reference)
- Low middle (25-49%)
- High middle (50-74%)
- High (75-100%)

- **Focal point bias:** people round to the nearest integer when responding on a continuous scale (Hurd, 2009; Wuebker, 2012; Hurd et al., 1998)

PLE and cancer screening

Table 1. FOBt screening according to PLE, n=3975	
Baseline characteristic	FOBt screening (yes)
	2817 (71%)
Perceived life expectancy	
Low (0% to 24%)	126 (52%)
Lower middle (25% to 49%)	197 (63%)
Higher middle (50% to 74%)	1222 (70%)
High (75% to 100%)	1272 (76%)

Table 3. Logistic regression predicting FOBt screening, n=3975	
	Adjusted OR* (95% CI)
Perceived life expectancy	
Low (0% to 24%)	1.00 (ref)
Lower middle (25% to 49%)	1.32 (0.93, 1.88)
Higher middle (50% to 74%)	1.52 (1.14, 2.03)
High (75% to 100%)	1.74 (1.29, 2.34)

*Adjusted for age, sex, education, ethnicity, marital status, smoking status, age of mother and father (currently or at death), self-rated health, diagnoses of cardiovascular disease, cancer, or high blood pressure, and numeracy

Discussion & Future Work

- PLE is associated with future cancer screening uptake
 - Causality uncertain
 - Need better understanding of accuracy
- Half of people do not expect to live another 10-15 years participate in cancer screening
 - Why?
 - Potential for qualitative research
- Should the role of life expectancy be a part of public communication messages for screening in older adults?
 - Issues of utility, feasibility, and equity

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RRs predicting low PLE in older adults

- **Low education:** 1.16 (1.01, 1.34) for no qualifications vs. degree
 - **Older age:** 1.62 (1.50, 1.76) per 10 year increase
 - **Older age of mother at death:** 0.91 (0.88, 0.94) per 10 year increase
 - **Older age of father at death:** 0.91 (0.88, 0.95) per 10 year increase
 - **Limiting long-standing illness:** 1.26 (1.13, 1.40)
 - **Cancer:** 1.39 (1.15, 1.68)
 - **Diabetes:** 1.18 (1.04, 1.33)
 - **Chronic lung condition:** 1.15 (1.00, 1.33)
 - **Smoking:** 1.45 (1.27, 1.66)
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- **Low sense of control over life:** 1.91 (1.44, 2.53) for Q1 vs. Q4
 - **Low life satisfaction:** 1.52 (1.20, 1.93) for Q1 vs. Q4
 - **High perceived social status:** 0.90 (0.87, 0.93) per 10 point increase