

E4080 Demography and social determinants of health

Social interventions

Practical, Week 12

Work in two groups.

1. Think about the possible interventions that could lead to a) reduce prevalence of smoking, and b) promote physical activity in population. Discuss the ideas in different levels:
 - Policy approaches including economic instruments
 - Environment and living conditions and interventions
 - Community-based interventions including workplaces and school-based programmes
 - Family and individual-based interventions

2. The study¹ aimed to estimate the effect of mammographic screening at ages 40–48 years on breast cancer mortality. The study involved 23 breast screening units across Great Britain. We randomly assigned women aged 39–41 years, using individual randomisation, in a 1:2 ratio, to yearly mammographic screening from the year of inclusion in the trial up to and including the calendar year that they reached age 48 years (intervention group), or to standard care of no screening until the invitation to their first National Health Service Breast Screening Programme (NHSBSP) screen at approximately age 50 years (control group). Women in the intervention group were recruited by postal invitation. Women in the control group were unaware of the study. The primary endpoint was mortality from breast cancers diagnosed during the intervention period, before the participant's first NHSBSP screen. In total, 160 921 women were recruited between Oct 14, 1990, and Sept 24, 1997. 53 883 women (33·5%) were randomly assigned to the intervention group and 106 953 (66·5%) to the control group. Women were followed up for a median of 22·8 years (IQR 21·8–24·0).

a) What is the type of the study?

b) How was intervention and control groups defined?

1 Duffy SW, Vulkan D, Cuckle H, Parmar D, Sheikh S, Smith RA, Evans A, Blyuss O, Johns L, Ellis IO, Myles J, Sasieni PD, Moss SM. Effect of mammographic screening from age 40 years on breast cancer mortality (UK Age trial): final results of a randomised, controlled trial. *Lancet Oncol.* 2020 Sep;21(9):1165-1172. doi: 10.1016/S1470-2045(20)30398-3.

	Intervention group		Control group		RR (95% CI)
	Deaths, n	Follow-up, person-years	Deaths, n	Follow-up, person-years	
Cancers diagnosed in the intervention period, up to immediately before first NHSBSP screen (primary analysis)					
Total	209	1 201 010	474	2 385 006	0.88 (0.74–1.03)
Observation period					
<10 years	83	532 729	219	1 058 236	0.75 (0.58–0.97)
≥10 years	126	668 281	255	1 326 770	0.98 (0.79–1.22)

- c) What are the total death rates in intervention and control group (per 100 000 participants)?

- d) Interpret the result of the observational period <10 years.

- e) Is the finding consistent with the result of observational period ≥10 years?

- f) What are the conclusions of this study?