

## Key messages

- Place of residence may affect health, and mortality from most common diseases tends to be higher in areas characterised by low socioeconomic position
- Research dating back over 100 years suggests that social fragmentation may influence suicide
- In the 1980s and 1990s, parliamentary constituencies with high levels of social fragmentation had high rates of suicide, independent of deprivation
- Constituencies with the greatest increases in social fragmentation between 1981 and 1991 also had the greatest increases in suicide rates over the same period
- Any targeting of suicide prevention may be more effective if aimed at socially fragmented rather than deprived areas

social fragmentation index<sup>12</sup> might be updated to reflect social trends—for example, the proportion of unmarried people could be replaced by the proportion currently divorced or separated, to reflect increasing cohabitation.

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## Does publicity about cancer screening raise fear of cancer? Randomised trial of the psychological effect of information about cancer screening

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Critics of cancer screening have suggested that the publicity associated with it can provide people with a new health worry.<sup>1</sup> After a mass media heart disease campaign in Norway a national survey showed that 17% of those who had seen the campaign materials were worried about heart disease and that these people were most likely to make behaviour changes.<sup>2</sup> No comparable data on publicity about cancer screening are available.<sup>3</sup>

We evaluated the impact of publicity about a new bowel cancer screening programme, comparing a group who had been sent information about the programme with a control group who had not.

### Participants, methods, and results

Participants aged 55-64 were identified from family health services authority registers and confirmed by their general practitioner to be suitable for screening for bowel cancer. This study group is part of a

randomised controlled trial of flexible sigmoidoscopy for the prevention of bowel cancer.<sup>4</sup>

Altogether 2961 adults in Leicester were randomised on a 2:1 ratio, with computer generated random allocations, to receive brief information by post about the flexible sigmoidoscopy screening test (n=1974) or not (n=987). Couples were randomised together to avoid contamination. People in the information group were also asked whether they would be interested in having the test. All participants were sent a letter from their general practitioner requesting their cooperation with the questionnaire study and a questionnaire, which included items on worry about bowel cancer, perceived risk, minor bowel symptoms, and anxiety (shortened version of the state trait anxiety inventory). Demographic and health status items were also included (table). Participants were unaware that they were participating in a study of the effect of information. The study was powered to detect a 0.6

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Demographic characteristics of participants in study, and attitudes to bowel cancer

	No (%) of participants		$\chi^2$ (for trend where appropriate)
	Information group (n=1425)	Control group (n=795)	
<b>Demographics</b>			
Age (years):			$\chi^2=1.63$ , P=0.20
55-59	759 (53.3)	401 (50.4)	
60-64	666 (46.7)	394 (49.6)	
Marital status:			$\chi^2=1.04$ , P=0.31
Married	1048 (79.0)	612 (80.8)	
Not married	279 (21.0)	145 (19.2)	
Employment status:			$\chi^2=2.38$ , P=0.12
Employed	714 (54.2)	436 (57.7)	
Unemployed	604 (45.8)	320 (42.3)	
Housing tenure:			$\chi^2=0.120$ , P=0.73
Owns home	1120 (85.9)	640 (85.3)	
Rents home	184 (14.1)	110 (14.7)	
Car ownership:			$\chi^2=0.018$ , P=0.89
Yes	1104 (83.4)	627 (83.2)	
No	220 (16.6)	127 (16.8)	
Educational qualifications:			$\chi^2=1.99$ , P=0.16
Yes	501 (38.4)	262 (35.3)	
No	802 (61.6)	480 (64.7)	
Ethnic group:			$\chi^2=0.078$ , P=0.78
White	1273 (97.4)	732 (97.6)	
Other	34 (2.6)	18 (2.4)	
<b>Health status</b>			
Current health:			$\chi^2=0.722$ , P=0.40
Excellent	164 (12.2)	89 (11.7)	
Good	816 (60.9)	446 (58.6)	
Fair	313 (23.3)	204 (26.8)	
Poor	48 (3.6)	22 (2.9)	
Frequency of visits to GP in previous 3 months:			$\chi^2=0.776$ , P=0.38
Have not been	543 (40.4)	331 (43.6)	
Have been once	418 (31.1)	215 (28.3)	
Have been twice	187 (13.9)	110 (14.5)	
Have been $\geq 3$ times	195 (14.5)	104 (13.7)	
<b>Psychological variables</b>			
Worry about bowel cancer:			$\chi^2=37.7$ , P<0.0005
Not worried	477 (35.6)	220 (29.1)	
A bit worried	687 (51.3)	353 (46.6)	
Quite worried	128 (9.6)	122 (16.1)	
Very worried	47 (3.5)	62 (8.2)	
Perceived risk of bowel cancer:			$\chi^2=9.37$ , P=0.002
Lower than average	164 (12.9)	70 (9.5)	
Same as average	1049 (82.7)	613 (83.6)	
Higher than average	56 (4.4)	50 (6.8)	
No of bowel symptoms in previous 12 months:			$\chi^2=19.3$ , P<0.0005
None	457 (2.1)	310 (39.0)	
1	402 (28.2)	245 (30.8)	
>1	565 (39.7)	240 (30.2)	
Mean (SD) state anxiety score	10.5 (3.9)	10.8 (4.1)	

GP=general practitioner.

difference in the primary outcome, the mean state anxiety score.

Response rates were high, particularly in the control group (80.4% (794/987) for the controls *v* 72.2% (1425/1974) for the information group;  $\chi^2_1=24.5$ , P<0.0001). More women than men responded (79.1% (1169/1477) *v* 70.8% (1051/1484);  $\chi^2_1=27.3$ , P<0.0001). There were no significant demographic differences between groups or any differences in health status or visits by the general practitioner (table).

Reported worry about bowel cancer was lower in the information group than the control group

(35.6% *v* 29.1% said they were not at all worried; 95% confidence interval for difference 2.4% to 11%), as was perceived risk (4.4% *v* 6.8% perceived their risk to be higher than average (0.3% to 4.6%)). There was a trend for anxiety to be lower in the intervention group (10.5 *v* 10.8;  $t=1.7$ , P=0.09; -0.66 to 0.05). The information group reported more minor bowel symptoms in the previous three months than the control group (32.1% *v* 39.0% reported no symptoms; -11% to -2.7%). The pattern of results was the same when analysed separately for men and women.

## Comment

Publicity about screening did not increase either worry about bowel cancer or subjective risk; indeed, the information seemed to be reassuring, with the informed group reporting less worry and lower subjective risk. The only evidence of any adverse effect was that patients in the information group were more likely to report minor bowel symptoms. This might be attributable to the recognised phenomenon of an increased perception of symptoms while thinking about a particular disease.<sup>5</sup>

An alternative explanation for the apparently reassuring effect of screening is that the information caused denial—respondents were more worried but would not admit it. This seems unlikely, given that the information group reported more symptoms than the control group. The response rate was slightly lower in the information group; this raises the possibility of a small subset of anxious non-responders, whose experiences are not reflected in studies that use postal questionnaires to collect the data.

Overall, these results are encouraging. They give no support to the idea that publicity about cancer screening produces widespread alarm, at least in this age group, and even suggest that screening publicity can have a positive effect.

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