

Cancer risk perception and potential cancer hazard in two Irish communities

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Figure 1 Cobh urban area and toxic waste site



Background

Considerable publicity has been generated by the discovery of a toxic dump on an island close to the town of Cobh (Figure 1). Media reports indicate that local residents have cancer concerns and are dissatisfied with official responses. We compared risk perception and some elements of coping between Cobh residents and those of a town at some distance from the waste site.

Objectives

Our aims were to evaluate cancer risk perception in residents, its relationship to appraisal of the cancer threat and to self-efficacy in obtaining and processing information about the hazard; and to identify more effective ways of bridging the gap between real and perceived cancer risk in the communities..

Methods

- Two communities were chosen for the study—Cobh Urban District, with a population of 6,500 in 2006, and Bandon Urban district, which has a population of 1,920 and is situated inland, about 50 km from Cobh.
- Cancer incidence was calculated from the data of the National Cancer Registry.
- A random sample of residents completed a questionnaire on five psychometric quantities: risk perception, anxiety level, assessment of information adequacy, motivation to seek additional information and self-efficacy in obtaining and using information.

Results

- Cancer incidence for both towns was similar, but above expected values, for all cancers combined and for the four commonest sites (Figure 2).
- The overall response rate to the questionnaire was 71% (n=163); 82% (n=94) in Cobh and 60% (n=69) in Bandon.
- The five psychometric measures were not strongly correlated (Table 1). The strongest relationship was between information sufficiency and self-efficacy ($r^2=0.628$).
- Unadjusted scores for risk perception and motivation to seek information were significantly higher in Cobh, while perception of information sufficiency and self-efficacy were lower (Figure 3).
- Entering all relevant variables into a general linear model (Figure 4) showed
 - higher levels of risk perception and motivation to seek information in Cobh
 - lower perception of information self-efficacy
 - higher perception of risk and higher levels of anxiety among females
 - no significant effects on risk perception of age, education, qualifications employment status or length of residence in the area

Conclusions

- This study of two similar communities shows significant differences in the perception of cancer risk but no objective difference in cancer incidence rates. The study does not support the idea that residents of a perceived high-risk area desire more information but Cobh residents were less confident of their ability to use this information to assess their cancer risk. They may have felt they had not the technical expertise to judge between conflicting official and unofficial opinions on this.
- We conclude that
- perception of a cancer risk in the Cobh community has not been dealt with by official statements that cancer incidence in the area is as expected.
 - communication of the reality of the situation is a complex matter of building and maintaining trust with the local community, giving them access to all useful information, and empowering them to use this information to make their own investigations and draw their own conclusions.
 - formal epidemiological investigation may be a starting point in this process but further detailed analysis or additional data collection is not warranted.

Figure 2 Standardised incidence ratios (relative to Ireland) for the common cancers in Cobh and Bandon

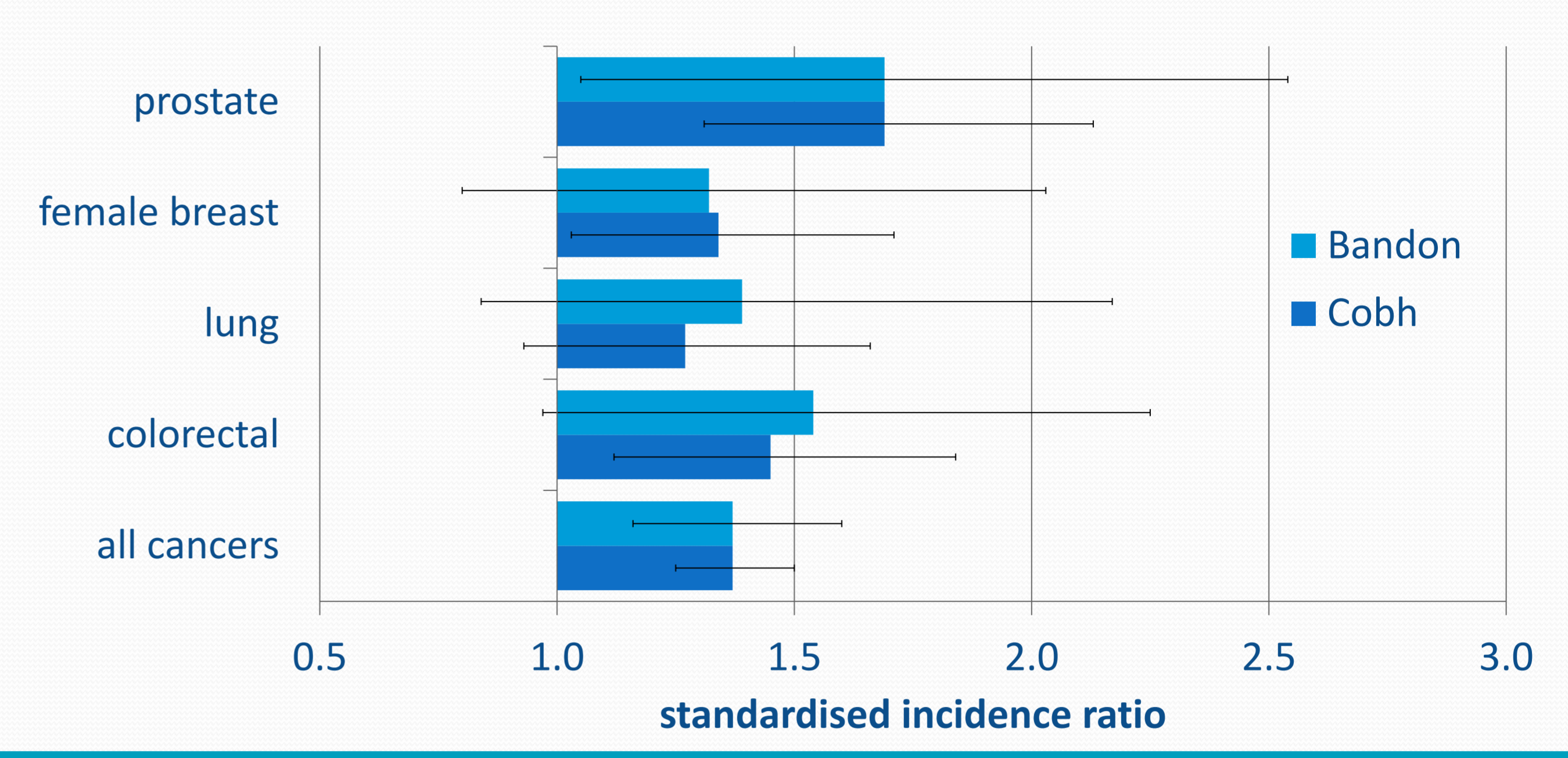
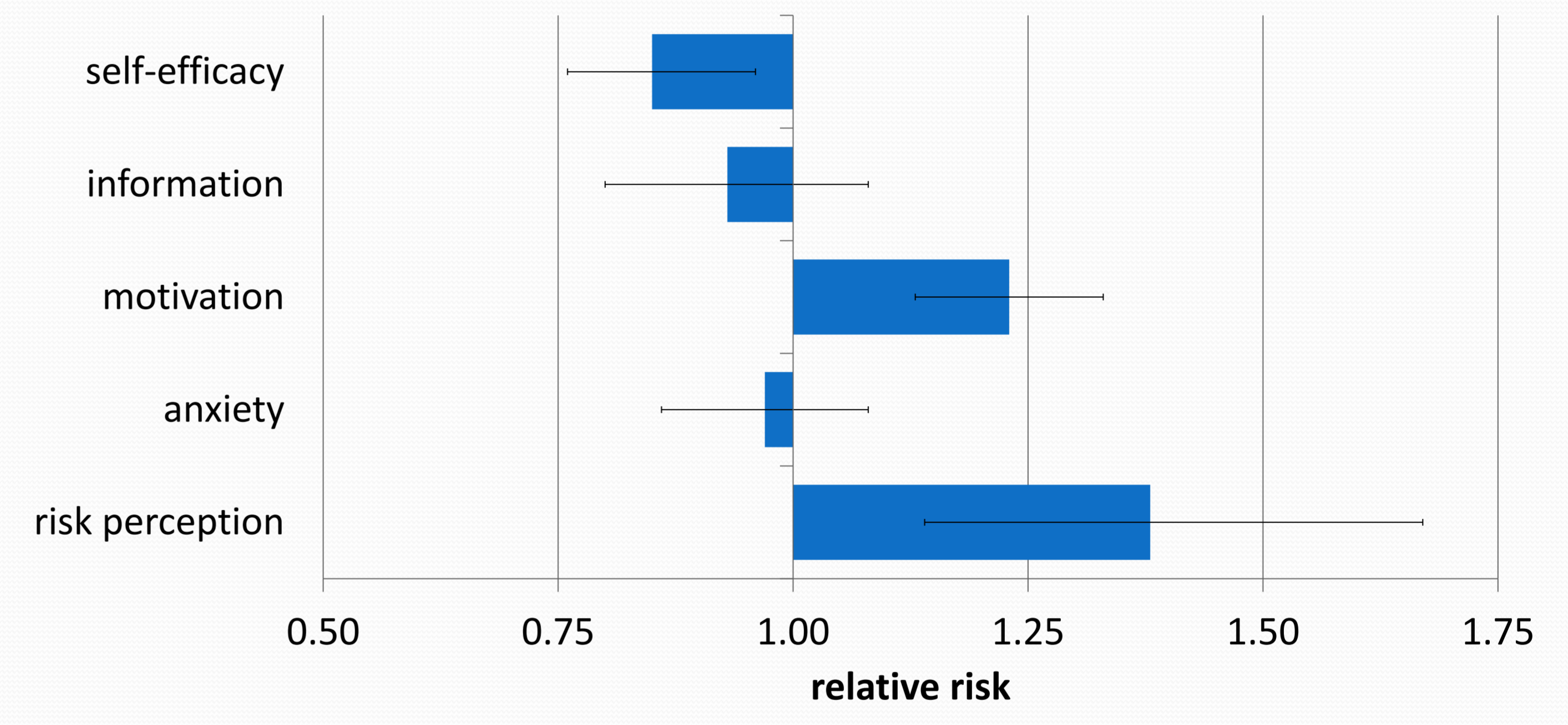


Table 1 Pairwise correlation coefficients of the five psychometric variables

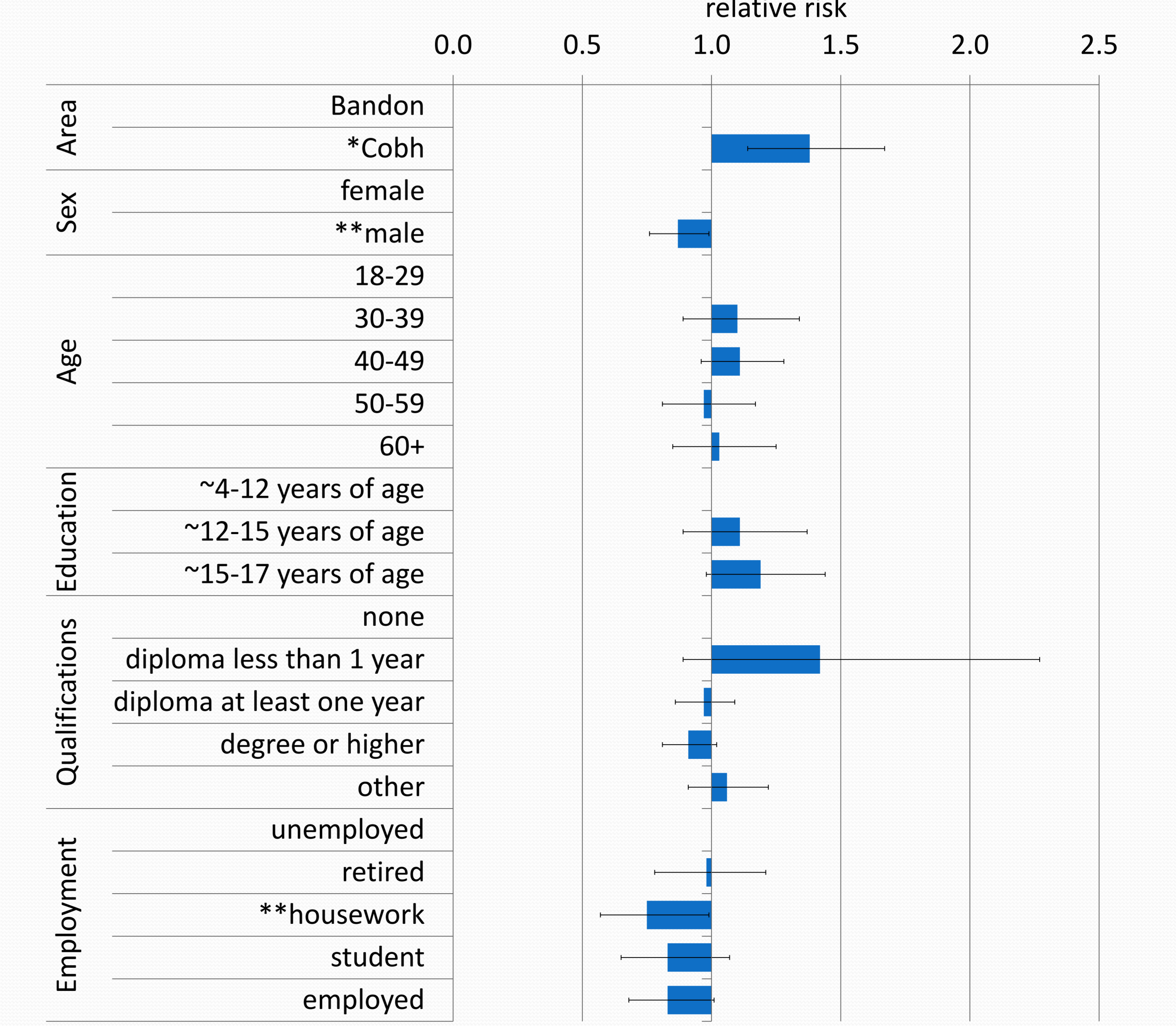
	risk perception	anxiety	motivation	information sufficiency	self-efficacy
risk perception	1.000				
anxiety	0.110 (0.164)	1.000			
motivation	0.331 (0.000)	0.129 (0.102)	1.000		
information sufficiency	-0.197 (0.012)	-0.139 (0.077)	-0.089 (0.259)	1.000	
self-efficacy	-0.280 (0.000)	-0.071 (0.306)	-0.223 (0.004)	0.628 (0.000)	1.000

Figure 3 Adjusted relative risk for Cobh residents for psychometric variables (Bandon=1)



Risks are adjusted for age, sex, education, qualifications, employment status and length of residence in the area

Figure 4 Adjusted relative risk for risk perception scores



All risks are mutually adjusted and also for length of residence in the area (not shown)
 *Significantly higher than baseline
 **Significantly lower than baseline