

International travel as a risk factor for gastrointestinal illness in England

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INTRODUCTION



International travel is thought to be a major risk factor for developing gastrointestinal illness for people normally resident in England



Transmission is thought to be more likely when travelling to countries which have lower food hygiene standards, poor sanitation facilities and lack of access to clean water.



Most studies looking at impacts of travel on developing gastrointestinal illness are conducted within travel clinic settings, which may bias findings towards more riskier travel behaviours or more severe illness



Here we present findings of a study comparing cases of gastrointestinal illness in the general population who reported travel prior to illness onset and were notified to the UK Health Security Agency following diagnosis to controls who had travelled but did not experience illness following travel.

METHODS



An online questionnaire was developed with the GI HPRU Patient and Public Involvement and Engagement panel to collect information of symptoms (for cases only), travel details and exposures while travelling.



All cases of salmonella, shigella, giardia and cryptosporidium notified to UKHSA between 01 July and 15 October 2023 were sent the electronic questionnaire to self-complete if travelling within 14 days prior to symptom onset



A comparable number of controls who reported travel between 01 July and 15 October 2023 but did not have symptoms of gastrointestinal illness within 14 days of travel were recruited using a commercial market research company and asked to complete the questionnaire.



Case and control questionnaire responses were compared using univariable and multivariable analyses in R studio. Odds ratios and 95% confidence intervals were calculated for specific risk factors.

RESULTS

Illness in cases



- Between 01 July and 15 October 2023, 7,654 laboratory confirmed cases were reported to the UK Health, of which 5,730 cases had valid contact details and were sent the questionnaire.
- From a previous study (Love et al, under review) it was estimated that 43% of cases during the period would likely be travel associated (n=2,464). 689 Travelbug questionnaire responses were received, giving an estimated response rate of 28%, of which 659 met the case definition and were included in the study.
- 98% of cases reported diarrhoea, 88% abdominal pain and 39% vomiting. Bloody diarrhoea was reported by 19%.
- Mean illness duration was 13 days (SD: 8 days) and 43% of cases reported at least one day of school/employment absence.
- 42% of cases reported at least one co-traveller with similar symptoms. 18% of cases reported other guests with symptoms in their accommodation and 6% reported evidence of communal illness in accommodation.



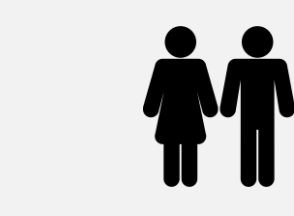
Case and control demographics

- 629 controls were recruited, of which 483 were eligible for inclusion (80% excluded travelled outside of period).
- Cases were younger than controls, but sex and ethnicity distributions were comparable.

n=653

n=483

P value



63% female

57% female

0.06



28% <19 yrs
64% 20-59 yrs.
8.9% 60+ yrs.

23% <19 yrs
49% 20-59 yrs.
28% 60+ yrs.

<0.01



90% white
5% Asian
1.4% Black

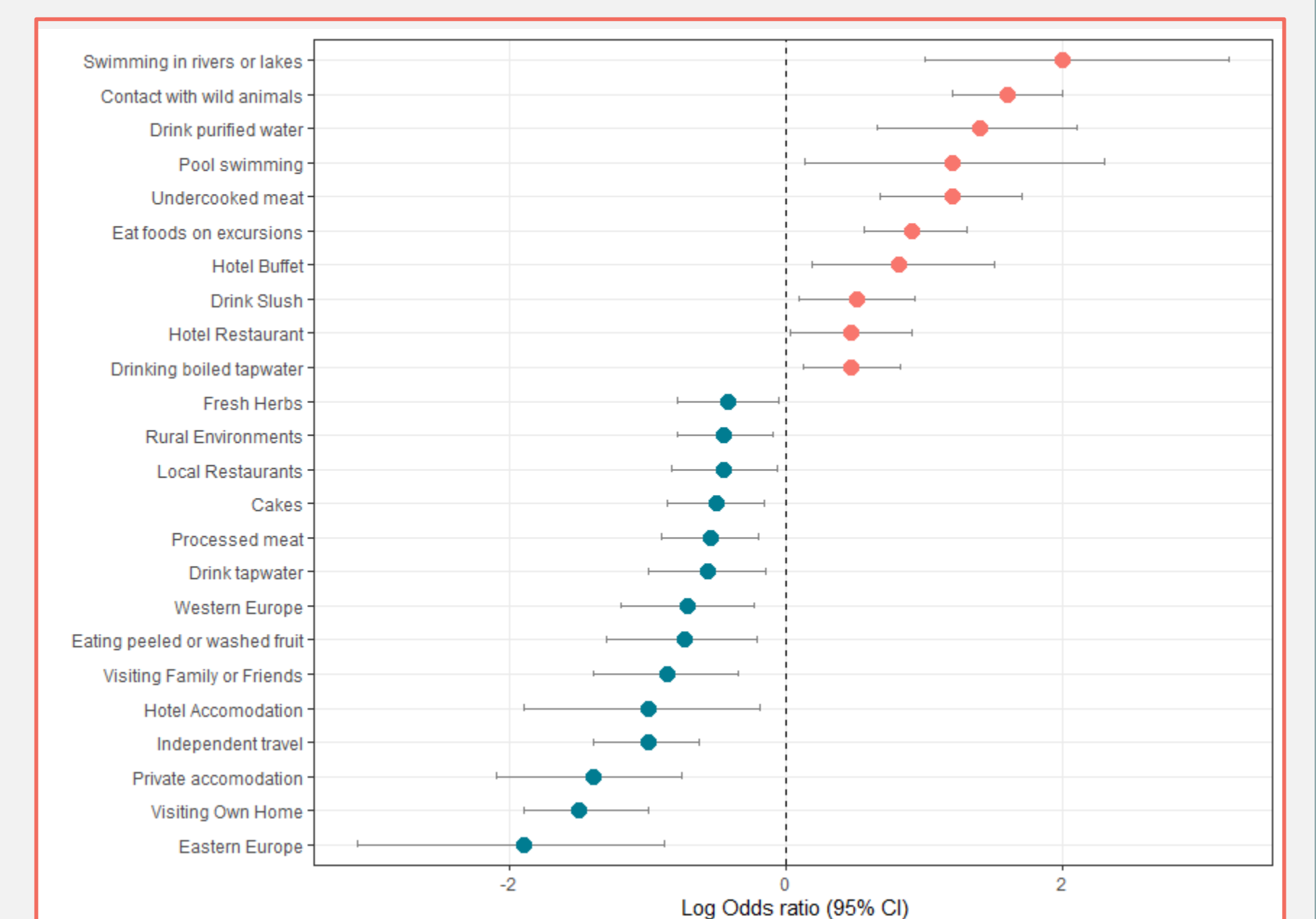
88% white
5% Asian
1.5% Black

0.4



Risk factors

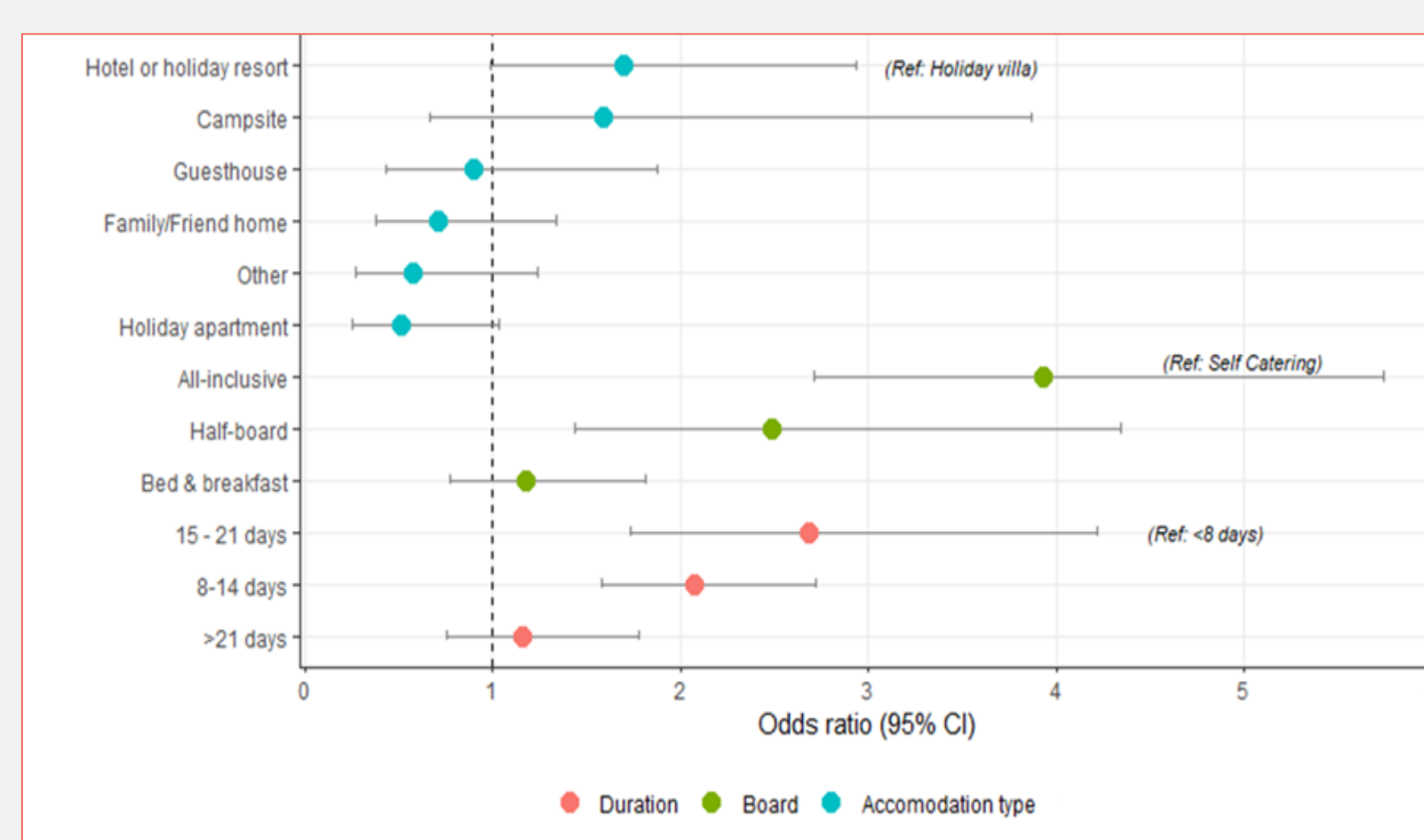
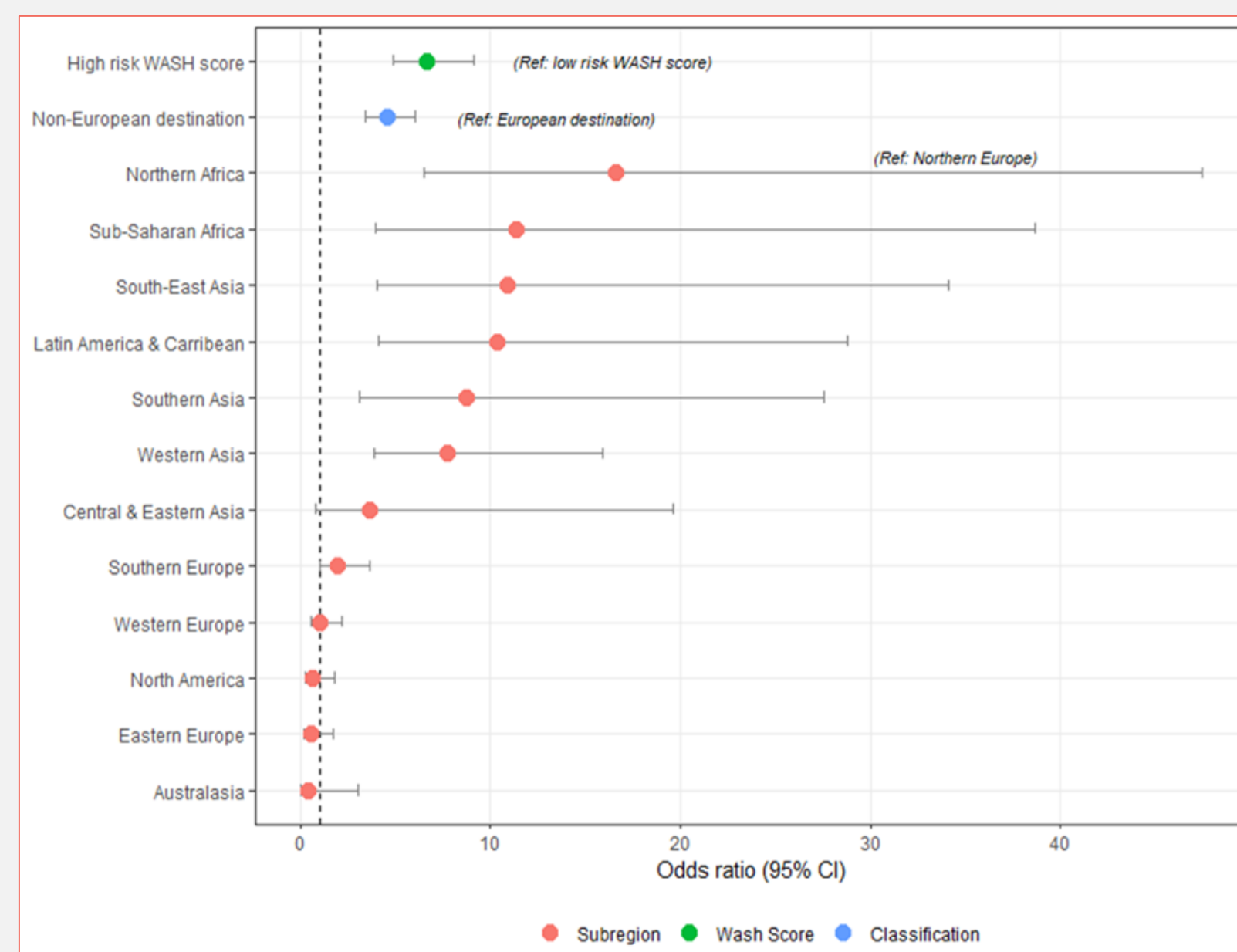
- In the multivariable analysis, several exposures including eating from hotel buffets, drinking slush, eating undercooked meat and swimming in pools were significantly higher in cases.
- Eating peeled or washed fruit, travelling independently and visiting family or friends abroad were significantly lower in cases.



Travel details

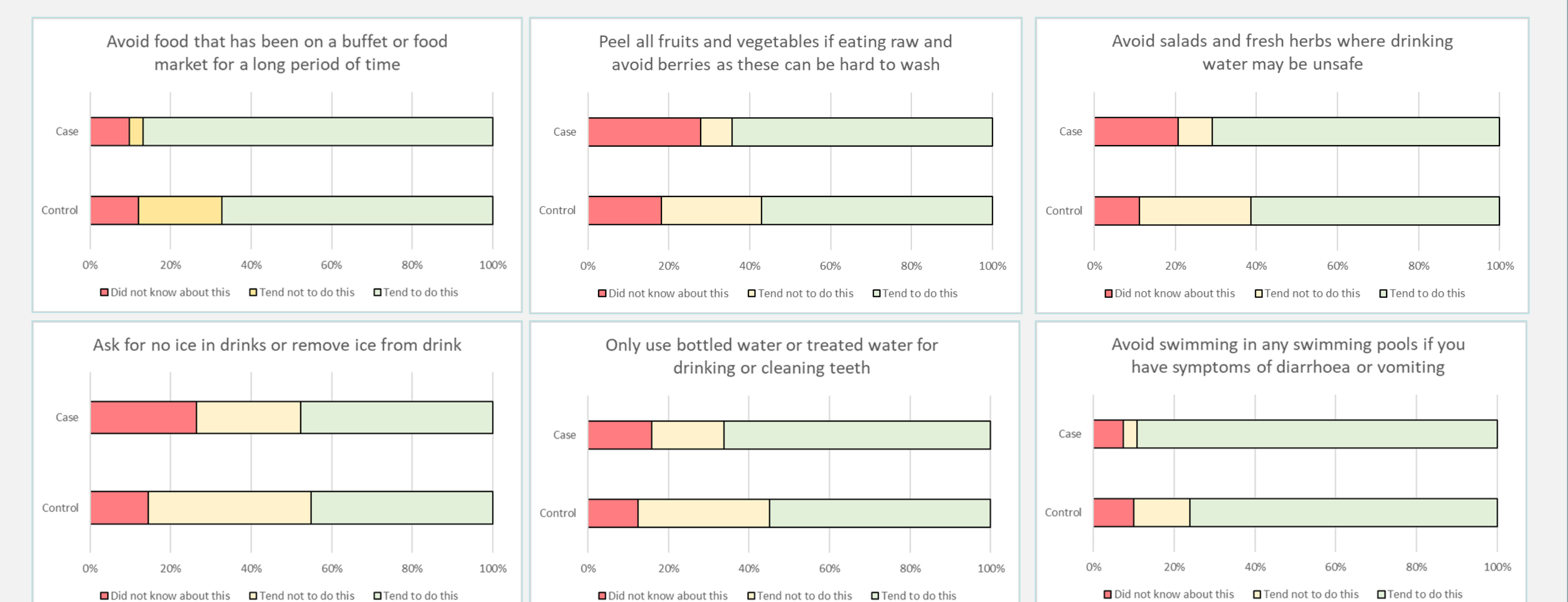
Cases were:

- 7 times more likely to have visited an area with poor water and sanitation (high risk WASH score; determined using a WHO Attributable fraction of diarrhoea to inadequate WASH indicator).
- significantly more likely to have travelled to Northern Africa, Sub-Saharan Africa, South-East Asia, Latin America and the Caribbean, Southern Asia and Western Asia (with Northern Europe as a reference).
- 23 times more likely to have travelled to Egypt, 10 times more likely to have visited Mexico, Tunisia and Turkey, 8 times more likely to have visited Cabo Verde, Dominican Republic and Jamaica, 7 times more likely to have travelled to India and 5 times more likely to have visited Pakistan (with France as a reference).
- 4 times more likely to have stayed in all-inclusive accommodation and 3 times more likely to have stayed in half-board accommodation (with self-catering as a reference).



Case and control awareness of travel health advice

- Cases and controls were frequently unaware of travel advice including avoiding uncooked fruit and vegetables, ice in drinks and salads where drinking water is unsafe.



CONCLUSIONS

- Holiday travel to tourist destinations in middle income countries such as Egypt and Turkey is a potentially under-recognised risk factor for acquiring gastrointestinal infections.
- All-inclusive buffets in hotels, drinking slush and eating foods on trips and excursions were exposures that may be risk factors while travelling outside of the UK.
- Both cases and controls were often unaware of health guidance which may help to prevent travellers from becoming unwell due to food and waterborne illness.
- Further awareness raising of travel health advice is needed, particularly for travel to destinations the public may not feel is 'high risk'.