Using behavioural science to test the updated radon risk maps

National Radon Forum

DATE
26th May 2022

RESEARCH TEAM
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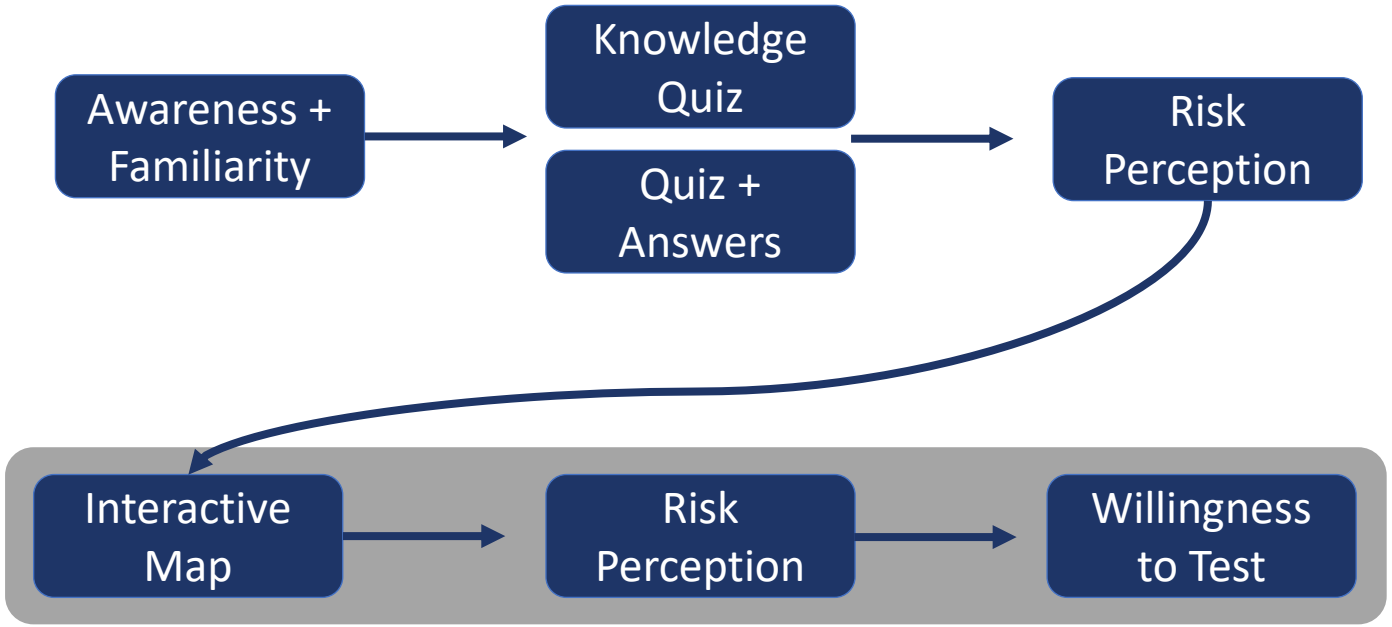
Prof. Pete Lunn

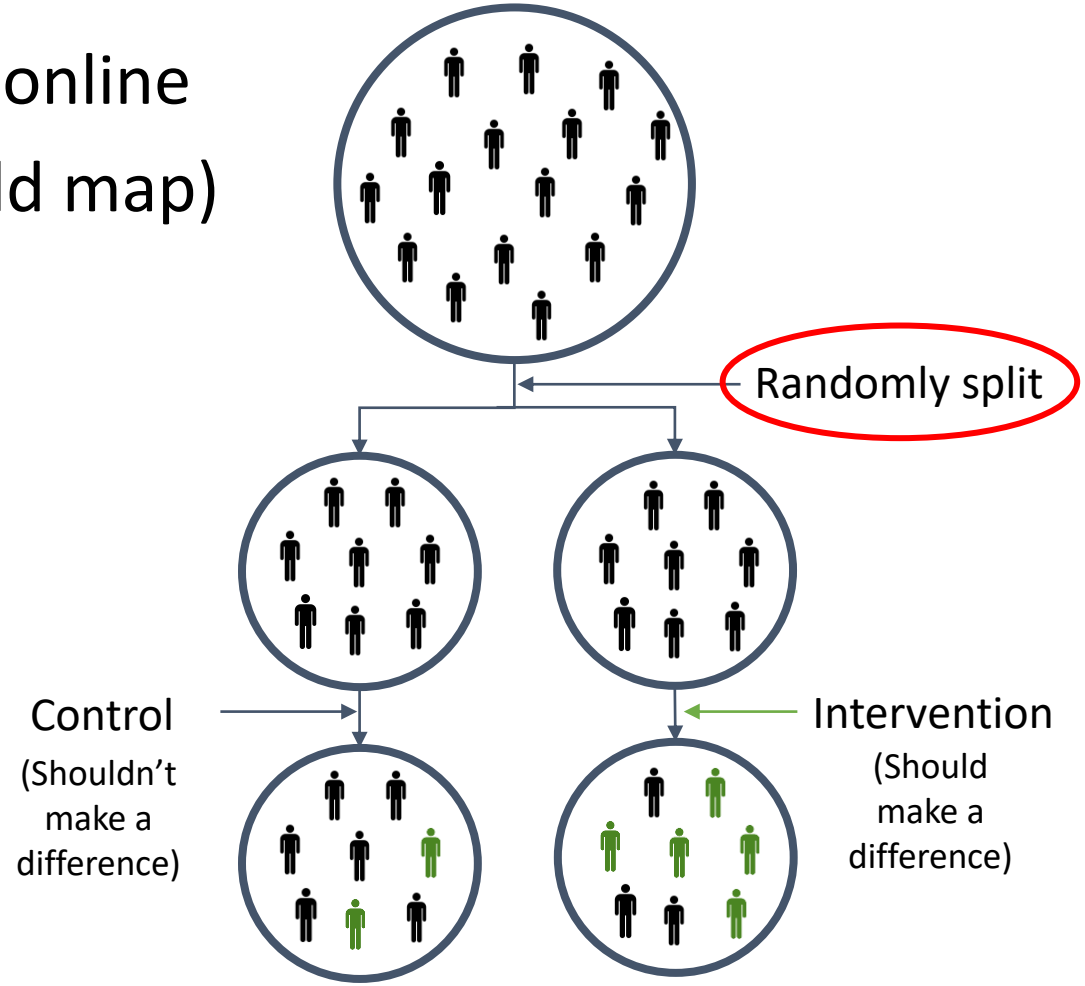
Behavioural Research Unit
esri.ie/bru

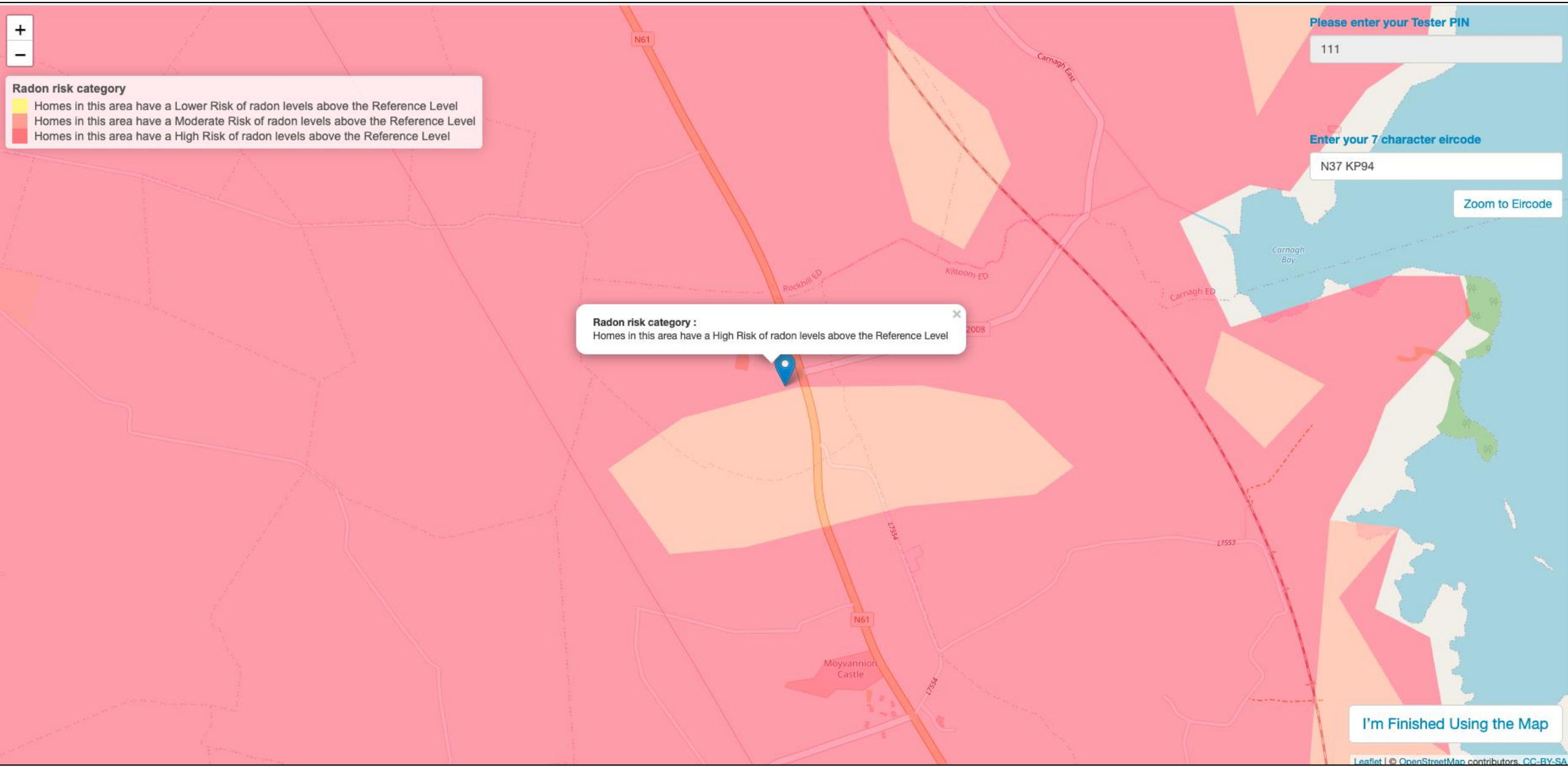
Experiment Design

Nationally representative 1600 took part online

(+100 to use old map)






Radon risk category
Homes in this area have a Lower Risk of radon levels above the Reference Level
Homes in this area have a Moderate Risk of radon levels above the Reference Level
Homes in this area have a High Risk of radon levels above the Reference Level
Please enter your Tester PIN
111
Enter your 7 character eircode
N37 KP94
Zoom to Eircode
Radon risk category :
Homes in this area have a High Risk of radon levels above the Reference Level
N61
Carnagh East
Rockhill ED
Kiltoom ED
Carnagh ED
Carnagh Bay
L7553
L7554
Moyvannion Castle
I'm Finished Using the Map
Leaflet | © OpenStreetMap contributors, CC-BY-SA

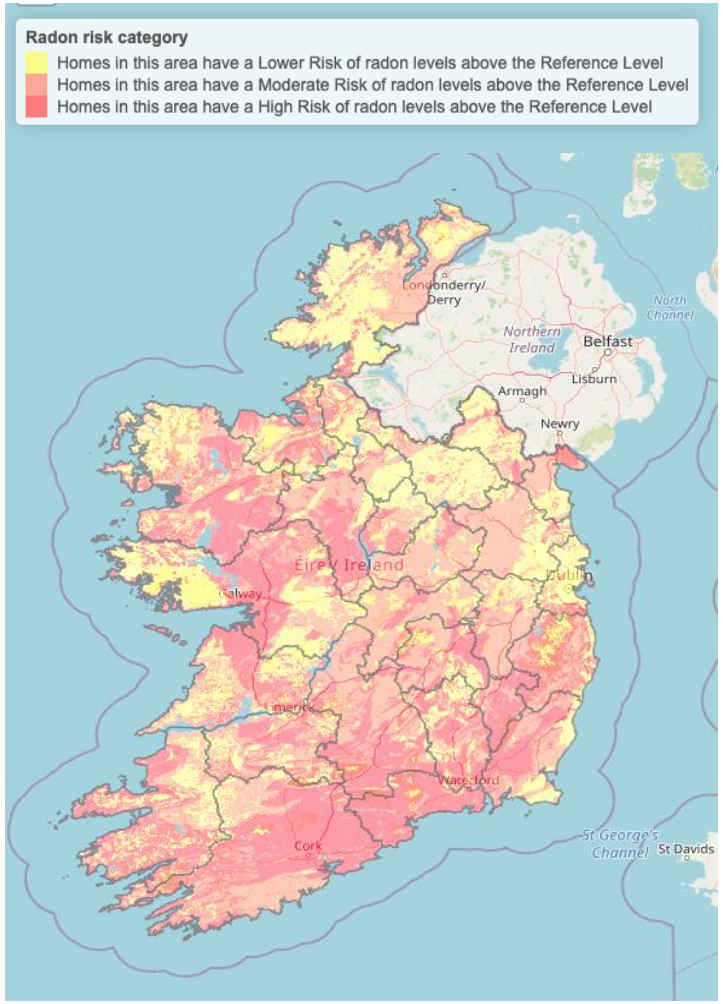
Map Testing

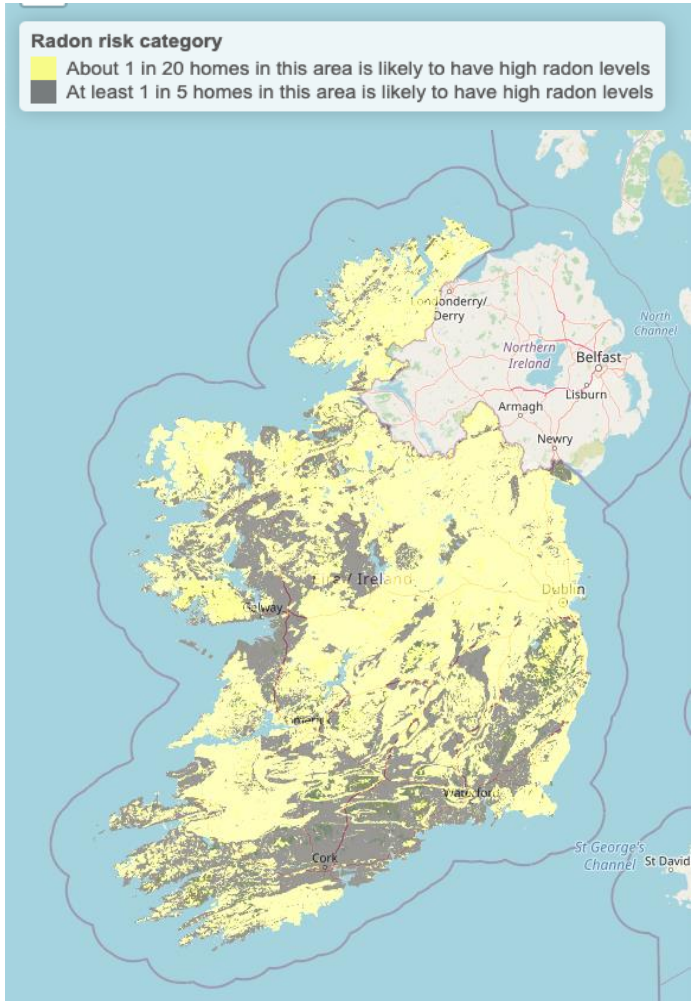
All else equal (by randomisation) but maps varied by…

- Number of risk categories (2 vs. 3)
- Legend (Simple vs. Numeric Frequency)
- Search Granularity (Yes vs. No)
- Colour (Yellow to Red vs. Black)

(100 saw old map)

→ Any differences in responses can be attributed to these factors



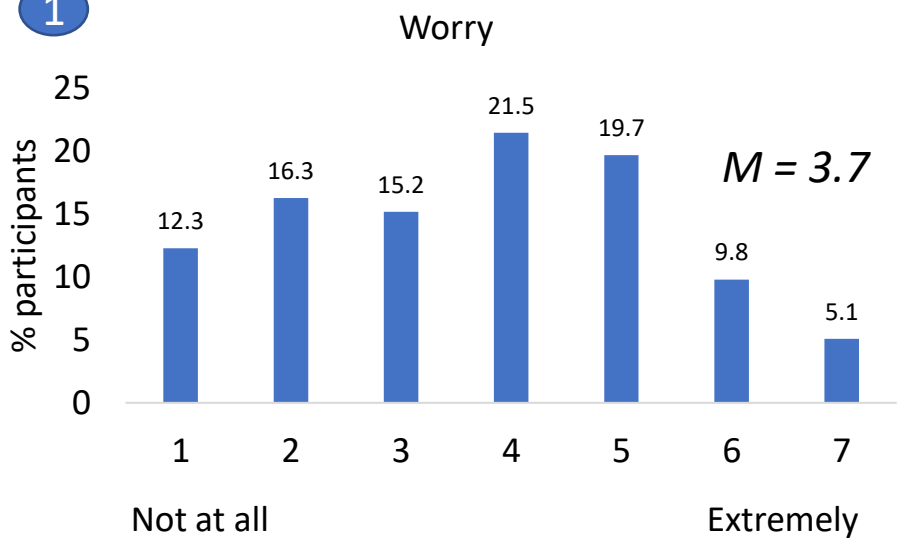


Risk Perception

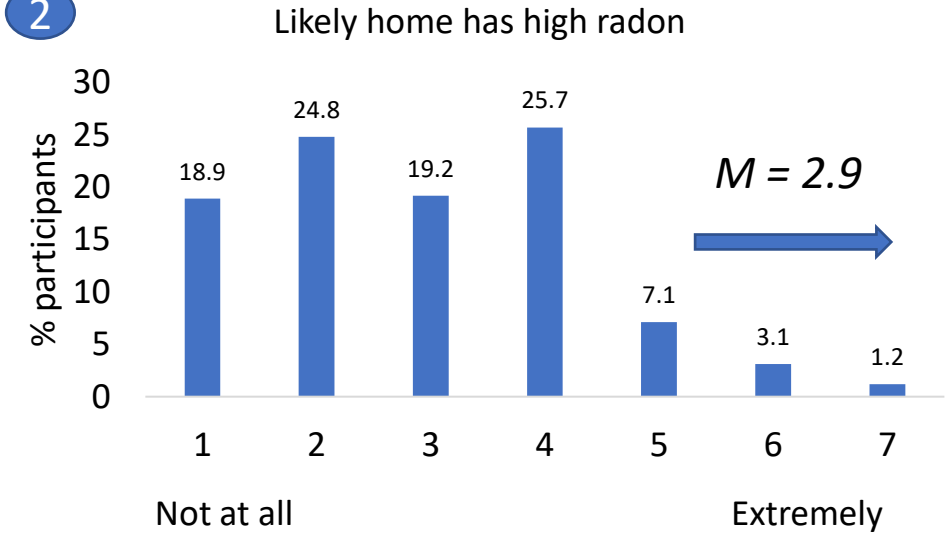
Most effective to examine three components:

1. Affective response
2. Perceived likelihood of being affected
3. Perceived consequences if affected

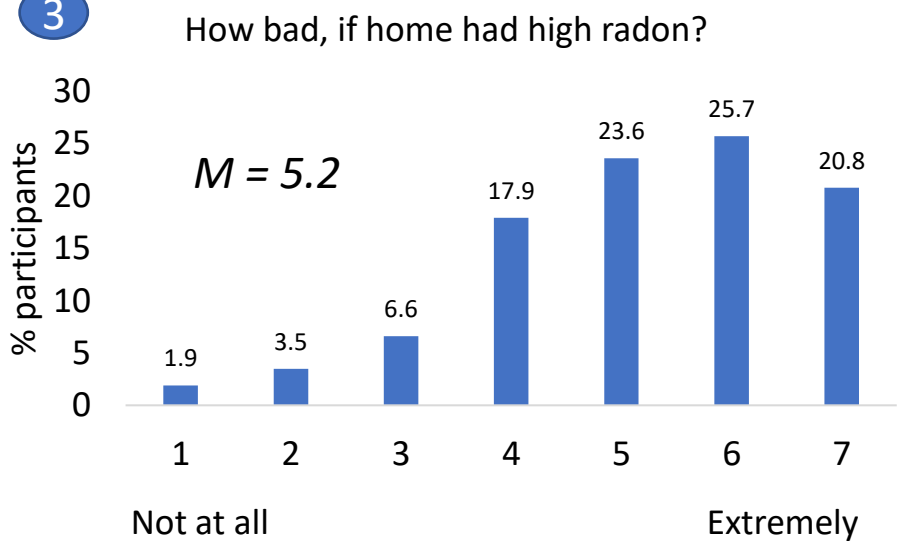
1



2

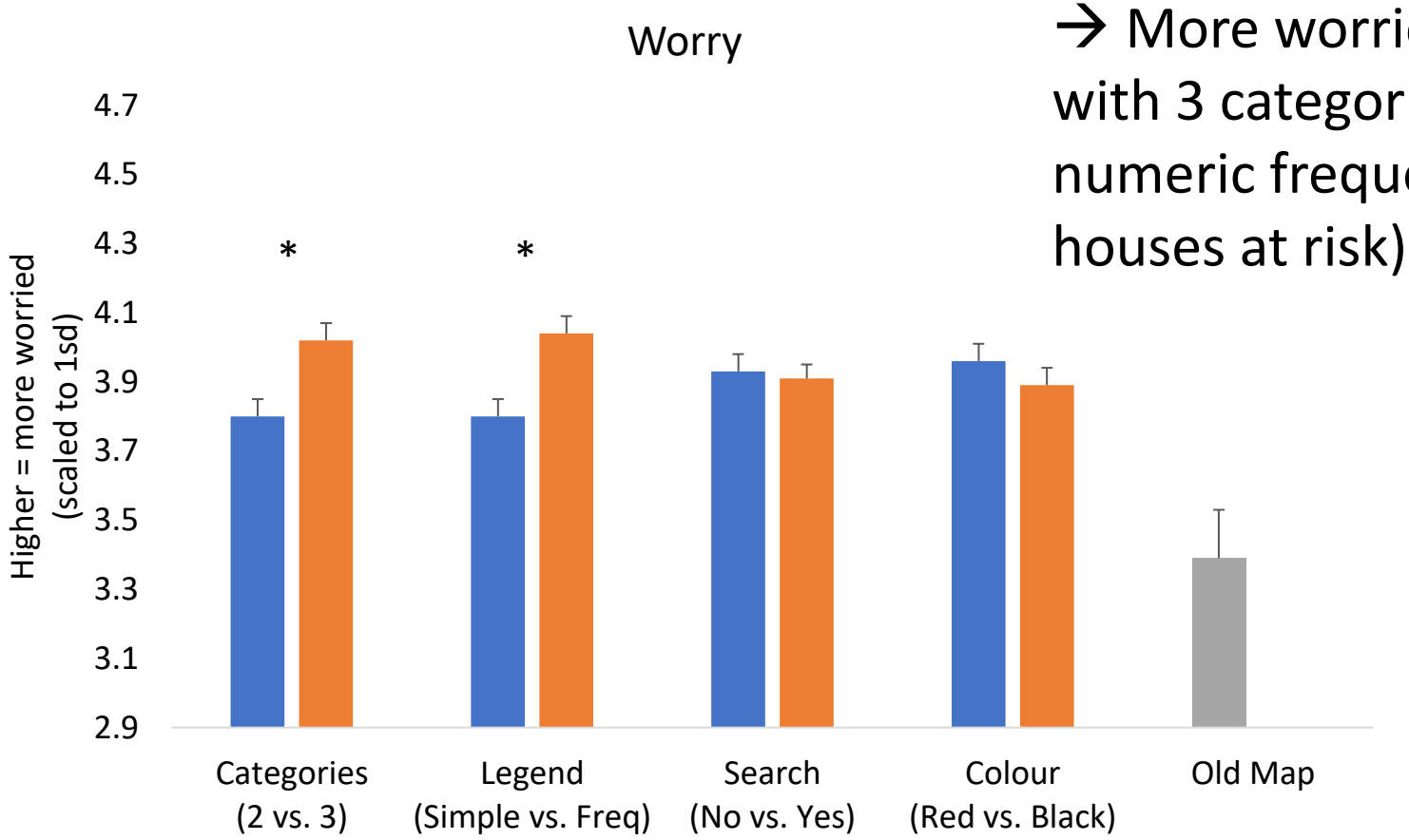


3



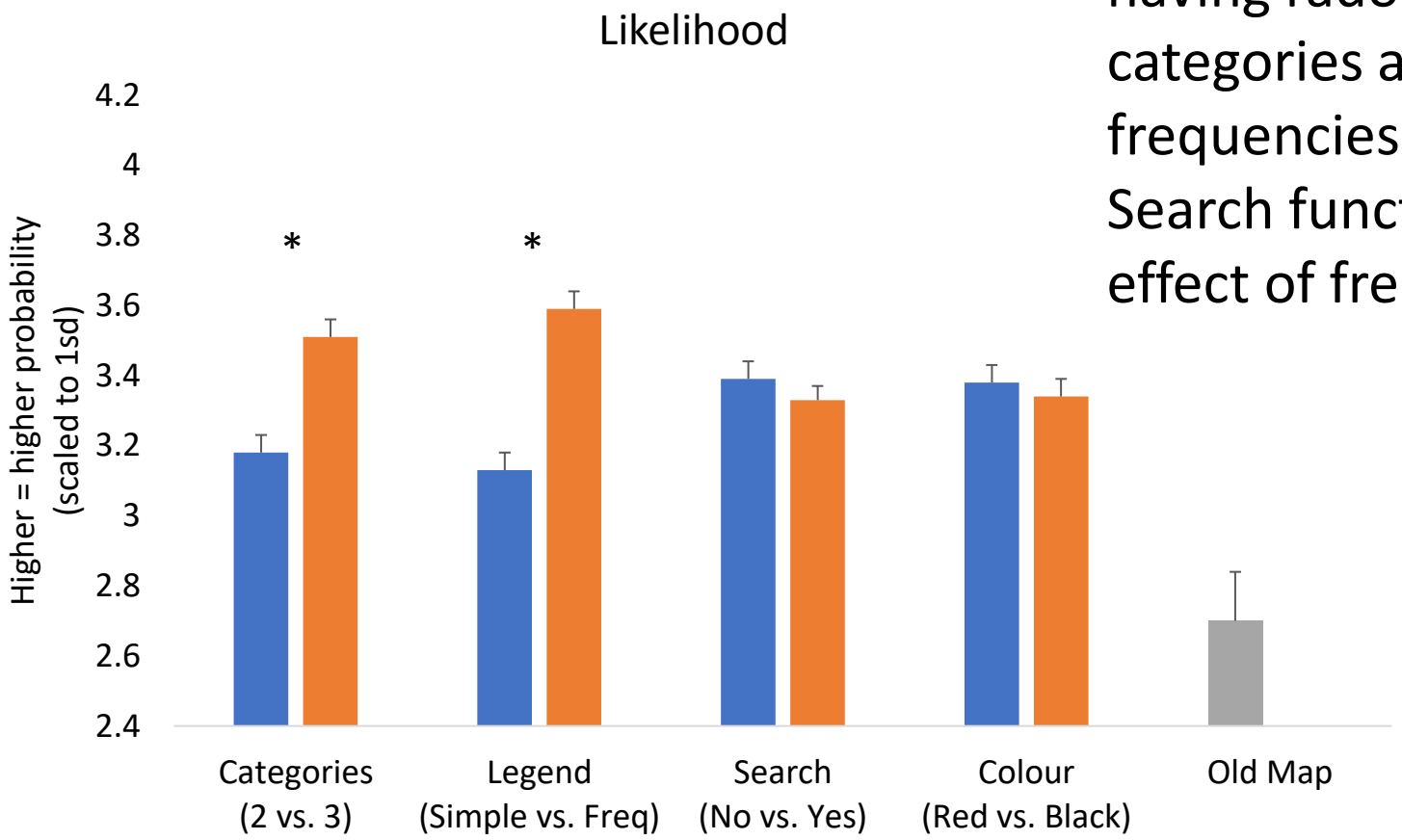
Wilson et al. 2019. *Risk Analysis.*

Map Testing: Risk Perception



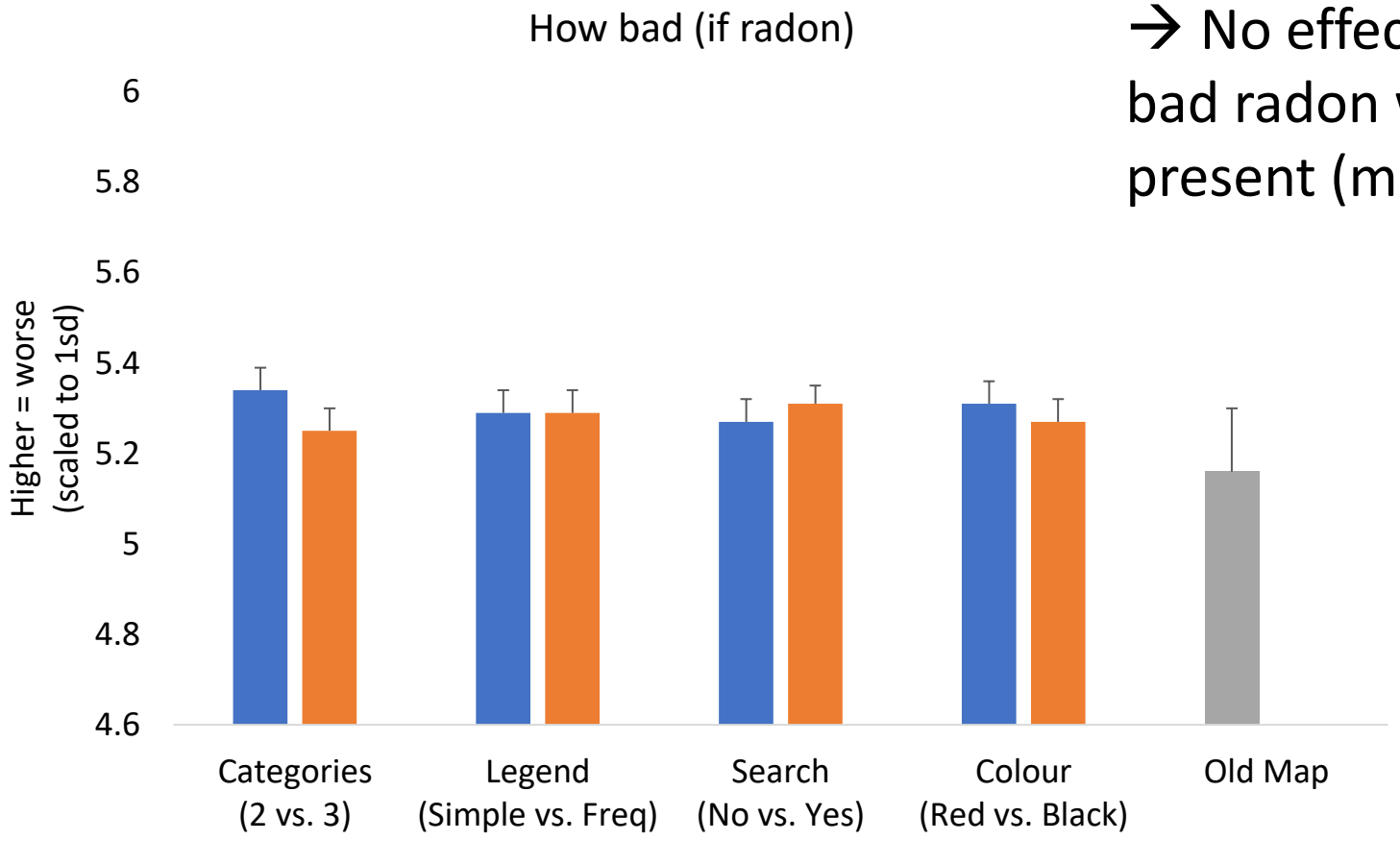
→ More worried after using map with 3 categories and with numeric frequencies (i.e. 1 in X houses at risk)

Map Testing: Risk Perception



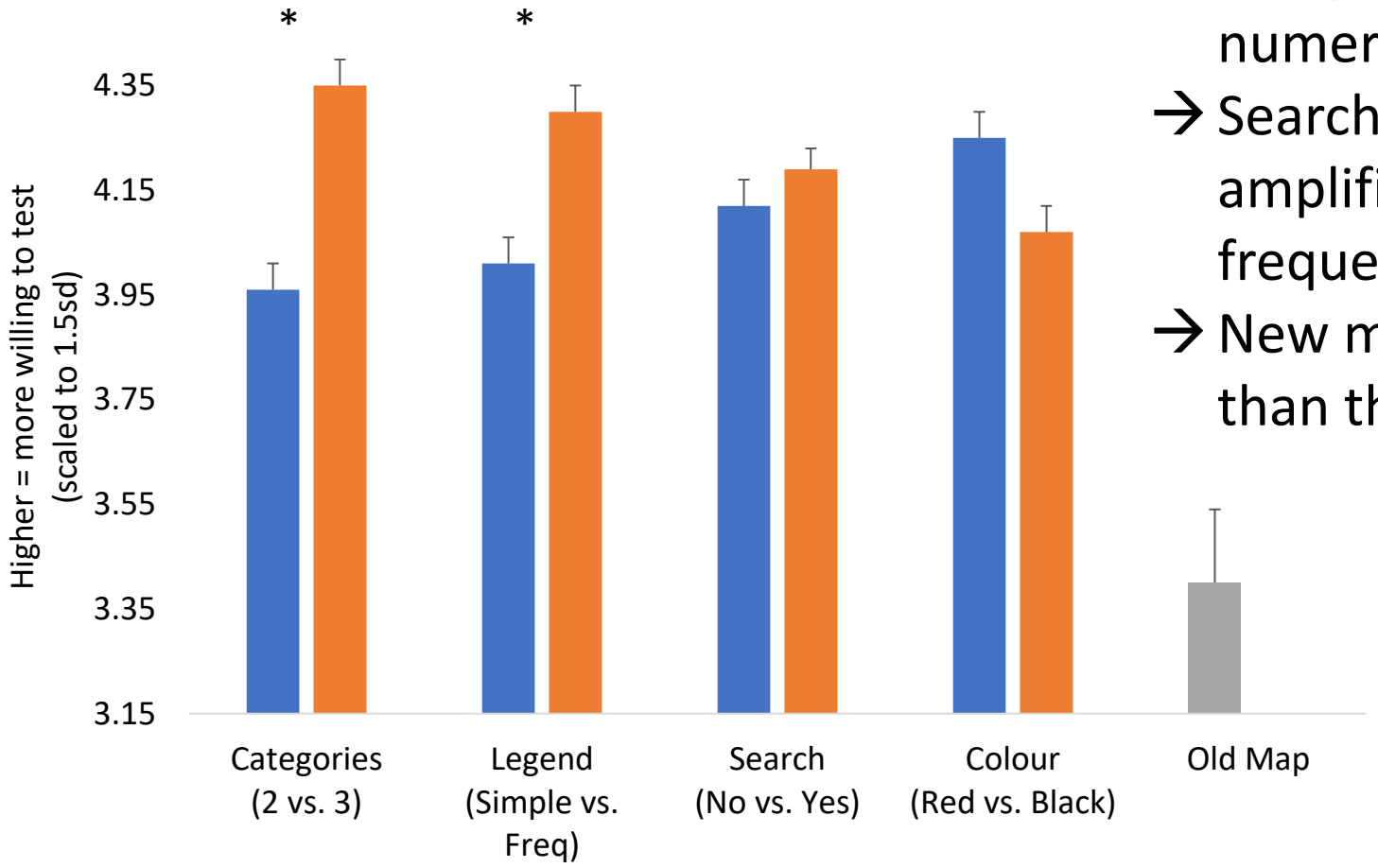
→ Perceived likelihood of having radon increased after 3 categories and with numeric frequencies (1 in X houses). Search function amplified the effect of frequencies.

Map Testing: Risk Perception



→ No effect of map on how bad radon would be if it's present (makes sense!)

Map Testing: Willingness to Test

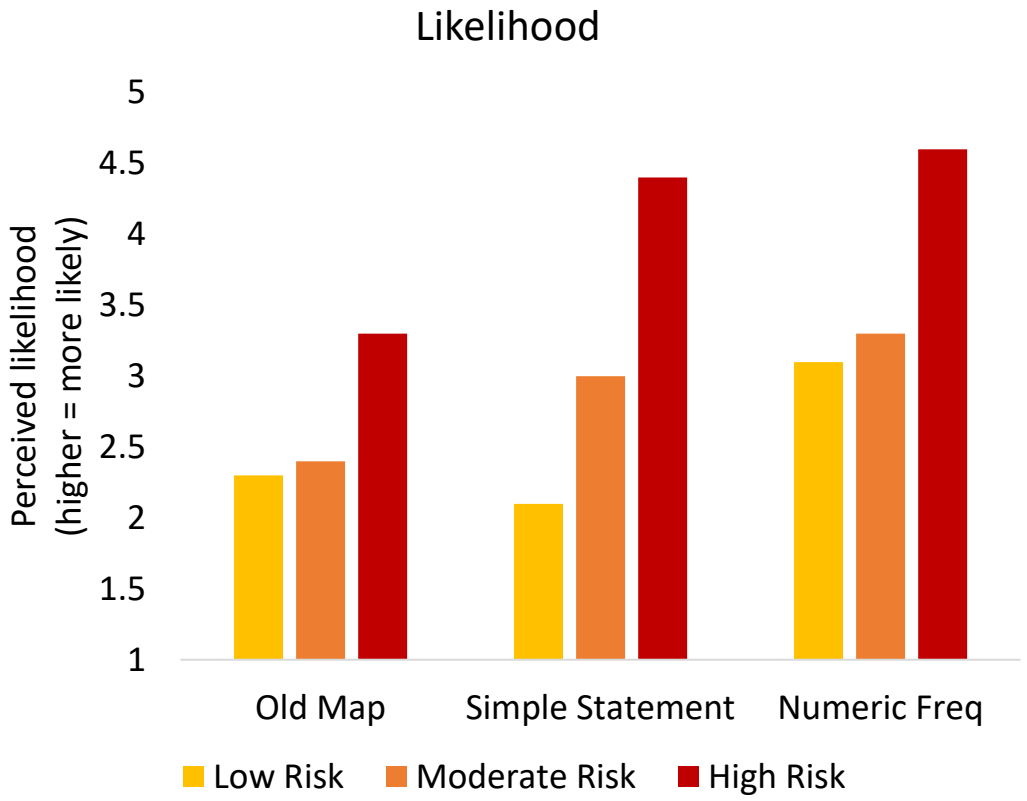


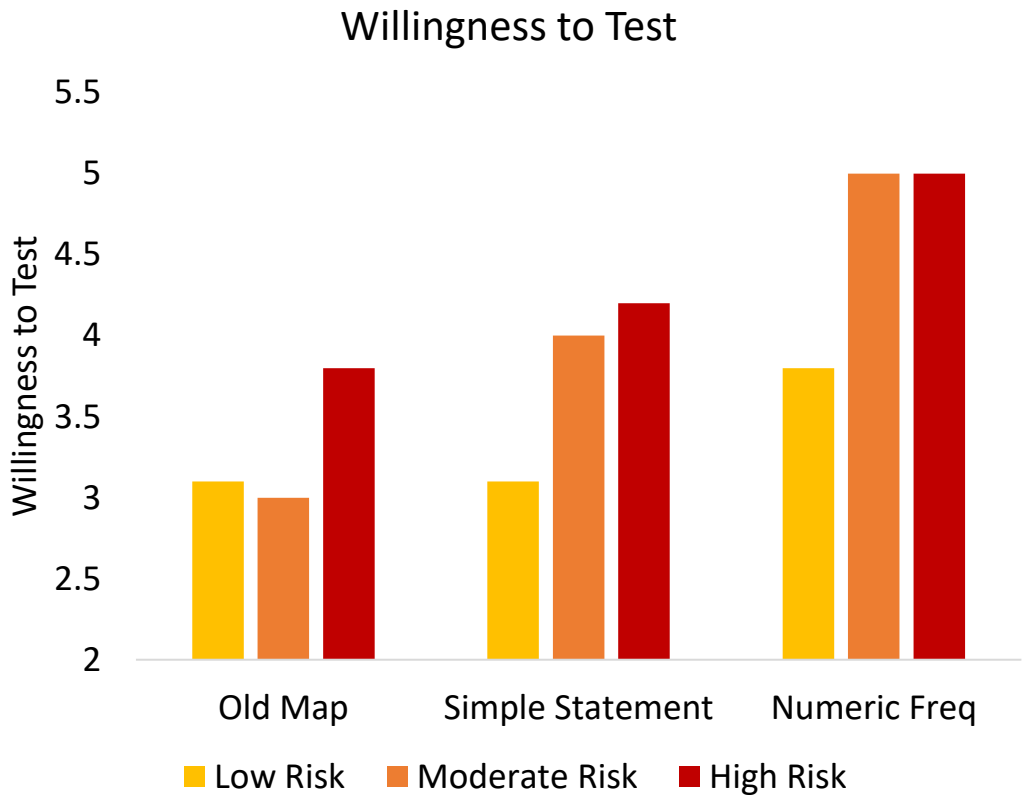
→ Higher willingness to test for radon after 3 categories and with numeric frequencies.

→ Search function again amplified the effect of frequencies.

→ New maps much stronger than the old map.

Map Testing: Risk Area Differences



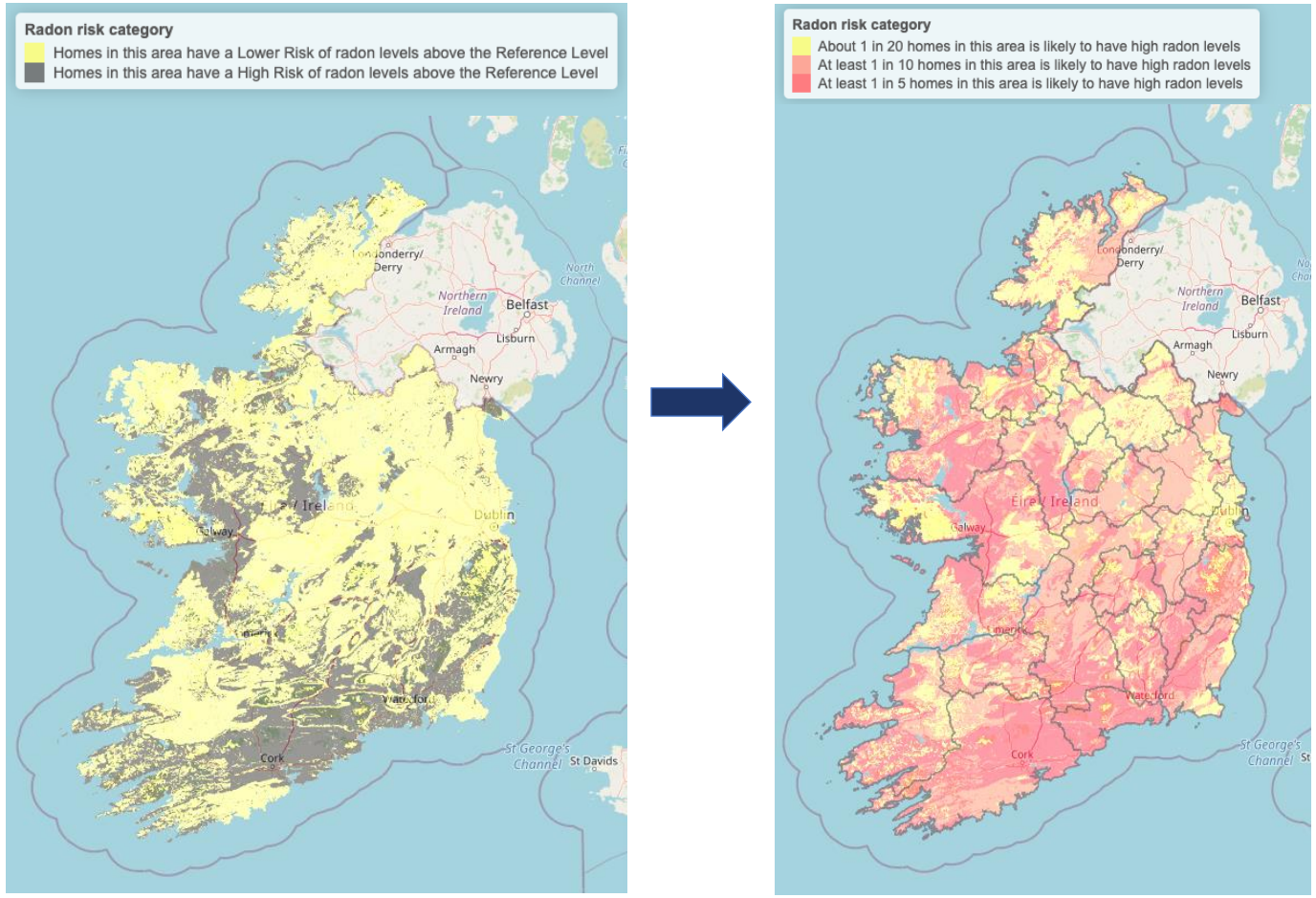


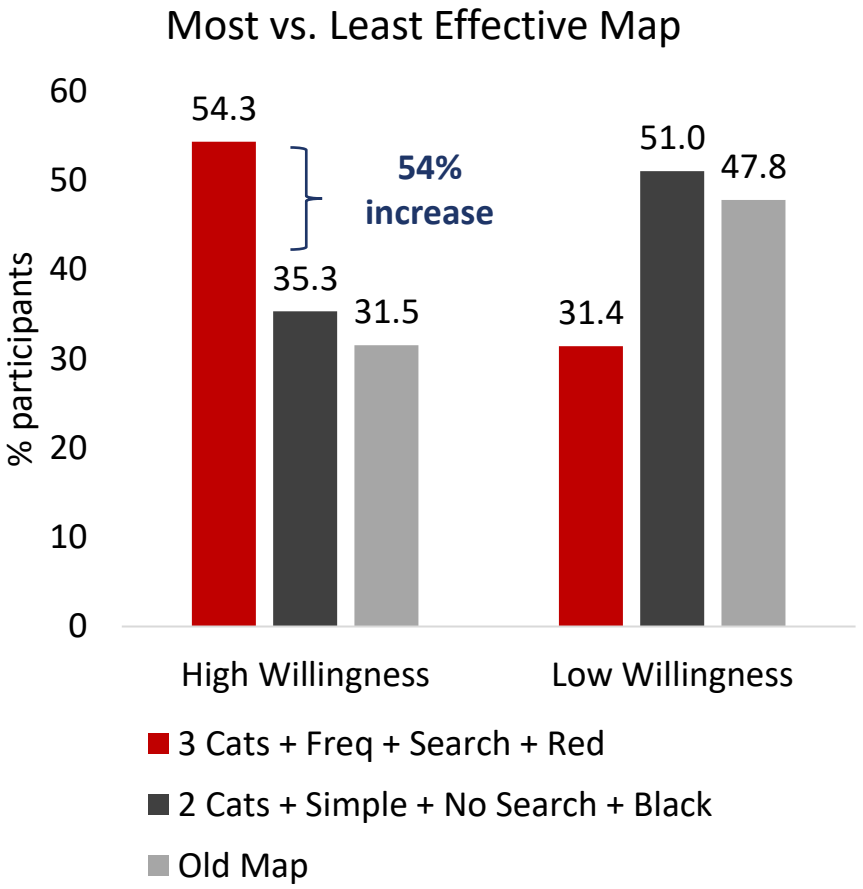
→ Both statements increased perceived likelihood of radon in moderate & high risk areas compared to the old map.

→ Only numeric frequency had an effect in low risk areas.

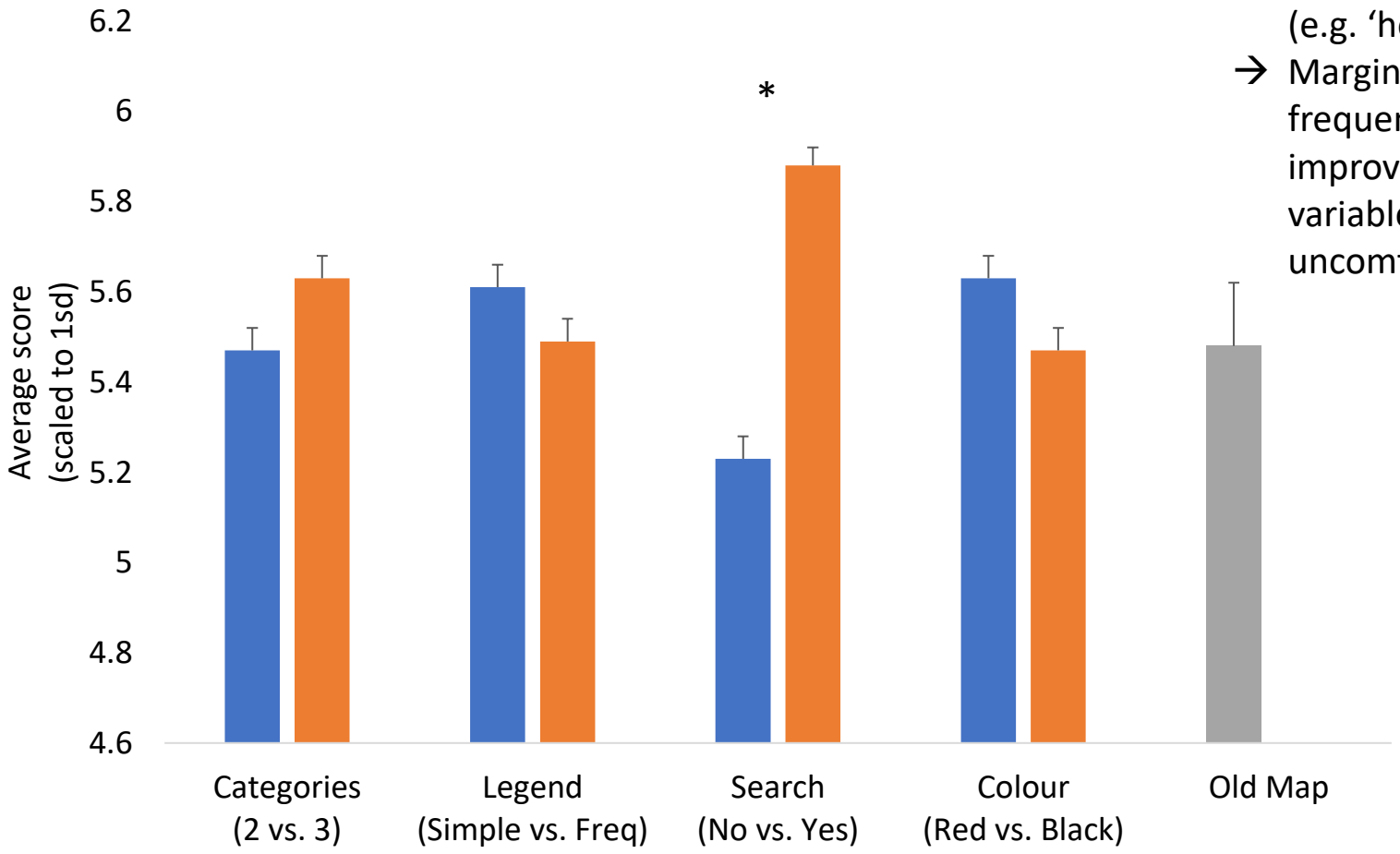
→ Numeric frequencies increased willingness to test in all risk areas, relative to the old map and the simple statement.

Map Testing: Willingness to Test





Map Testing: Evaluations



→ Only searching made a difference on standard survey evaluation of maps (e.g. 'how clear was this map').

→ Marginal dislike of numeric frequencies, going against improvement in psychological variables (it may have made people uncomfortable!)

Socio-Demographics…

Lower perceived risk
Less willing to test
Less willing to remediate

No difference on willingness to test
(Social Grade: Willing to remediate)

Lower worry
Higher perceived severity
No differences on willingness to test

No differences on willingness to test
More willing to remediate

No differences on testing/remediate

Higher perceived risk
More willing to test
More willing to remediate

Summary

- Map design influences willingness to test. Use:
  - 3 categories (yellow to red)
  - numeric frequencies
  - search functionality

- Compared to old map, new maps score higher on everything… except evaluation!

- Over 50% increase in p's highly willing to test depending on map design (70% vs old map)

- Strong evidence that new maps can encourage testing

ESRI

Working Paper No.720

March 2022

Using information provision and interactive risk maps to motivate testing for radon

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Acknowledgments: We thank EPA Officers Alison Dowdall and Stephanie Long for helpful feedback on the study design and survey materials and Fiona O' Rourke and Claire Byrne for facilitating the use of the radon risk maps. We also thank Seán Lyons for help navigating GIS software. We are grateful to other members of the EPA-ESRI Research Programme for helpful comments on early presentations of this research and attendees at the Enhancing our Local Environment: Evidence for Policy Conference.

Funding: This research was funded by the Environmental Protection Agency in Ireland, through the EPA-ESRI Research Programme.

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