

Supplementary File 8: Robustness checks excluding high-volume studies

To assess whether studies reporting the largest number of associations disproportionately influenced the aggregated findings, we conducted robustness checks for all PA resource categories. For each category, we removed the study contributing the largest number of associations and recalculated the distribution of advantage, disadvantage, and no statistically significant difference findings.

Regression associations

Greenness indices

- Before excluding Quinton et al., 2022¹: 138 associations; 6.5% advantage, 38.4% disadvantage, 55.1% no statistically significant difference
- After excluding Quinton et al., 2022¹: 76 associations; 7.9% advantage, 51.3% disadvantage, 40.8% no statistically significant difference
- Pattern: disadvantage increased; no statistically significant difference decreased.

Bikeability

- Before excluding Houde et al., 2018²: 45 associations; 42.2% advantage, 22.2% disadvantage, 35.6% no statistically significant difference
- After excluding Houde et al., 2018²: 21 associations; 23.8% advantage, 47.6% disadvantage, 28.6% no statistically significant difference
- Pattern: shifted from advantage-dominant to disadvantage-dominant.

Walkability indices

- Before excluding Robinson et al., 2018³: 57 associations; 29.8% advantage, 14.0% disadvantage, 56.1% no statistically significant difference
- After excluding Robinson et al., 2018³: 28 associations; 32.1% advantage, 14.3% disadvantage, 53.6% no statistically significant difference
- Pattern: stable.

Playgrounds

- Before excluding Schneider et al., 2019⁴: 19 associations; 42.1% advantage, 21.1% disadvantage, 36.8% no statistically significant difference
- After excluding Schneider et al., 2019⁴: 7 associations; 100% advantage
- Pattern: all remaining associations showed advantage.

Public transport

- Before excluding Robinson et al., 2018³: 52 associations; 30.8% advantage, 25.0% disadvantage, 44.2% no statistically significant difference
- After excluding Robinson et al., 2018³: 23 associations; 26.1% advantage, 39.1% disadvantage, 34.8% no statistically significant difference

- Pattern: disadvantage increased; no statistically significant difference decreased.

Other PA facilitators

- Before excluding Rodgers et al., 2012⁵: 40 associations; 35.0% advantage, 20.0% disadvantage, 45.0% no statistically significant difference
- After excluding Rodgers et al., 2012⁵: 29 associations; 13.8% advantage, 27.6% disadvantage, 58.6% no statistically significant difference
- Pattern: advantage decreased; no statistically significant difference increased.

Non-regression associations

Green, blue and public open spaces

- Before excluding Aamodt et al., 2023⁶: 291 associations; 15.8% advantage, 34.7% disadvantage, 49.5% no statistically significant difference
- After excluding Aamodt et al., 2023⁶: 213 associations; 17.8% advantage, 44.1% disadvantage, 38.0% no statistically significant difference
- Pattern: disadvantage increased; no statistically significant difference decreased.

Sports facilities

- Before excluding Schneider et al., 2015⁷: 61 associations; 39.3% advantage, 26.2% disadvantage, 34.4% no statistically significant difference
- After removing Schneider et al., 2015⁷: 46 associations; 19.6% advantage, 34.8% disadvantage, 45.7% no statistically significant difference
- Pattern: advantage decreased; disadvantage and no statistically significant difference increased

Walkability components

- Before excluding Carroll et al., 2023⁸: 35 associations; 45.7% advantage, 17.1% disadvantage, 37.1% no statistically significant difference
- After excluding Carroll et al., 2023⁸: 27 associations; 44.4% advantage, 11.1% disadvantage, 44.4% no statistically significant difference
- Pattern: largely stable

References

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