Are people healthier when they live closer to forests?
A longitudinal study of Scotland

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Forests, health and inequalities

Shinrin-yoku – Forest Bathing

Key mechanisms

Physical activity
Social interaction
Mental health

Are changes in forest access associated with changes in health?

- Places change over time as well as people’s health
- However, a lack of longitudinal studies

3 Key mechanisms

Aims

- Are improvements in forest access associated with improvements in general health?
- Does the association vary between social groups?
- Does visiting forests explain the association?
Measuring forest access

20-year time period

Forestry data
- National Forest Inventories
- Land Cover Map
- Roads, tracks and paths (Ordnance Survey)

Euclidean distance to the nearest forest was calculated for every postcode in Scotland.

Linkage to the SLS

- Distance to the nearest forest
- Postcode for place of residence
- Scottish Longitudinal Study (SLS): http://sls.lscs.ac.uk
  - 5.3% semi-random sample representative of the population

My SLS sample (n=97,658)
- Excluded those living on islands, in communal establishments & with missing data.

Exploring forest access and health

1. Random-effects model
   - Access to forest
     - 0 < 150m, 150 < 300m, 300 < 500m, 500 < 750m, 750 < 1500m, >= 1500m
   - Has a long-term illness (yes/no)

2. Hybrid-effects model
   - Within-person change in forest access [deviation from person specific mean]
   - Has a long-term illness (yes/no)

Models controlled for age group, gender, ethnicity, children in the household, highest level education, housing tenure, urban rural classification and coastal proximity.

Differences between groups

Models were stratified by age group, gender; highest-level education, urban rural classification (2-fold) and the Carstairs deprivation index (quintiles).

Estimating forest use

"In the last 12 months how often have you visited forests or woodlands for walks, picnics or other recreation?" (n=4694)

- 41% visited forests at least monthly

Age Ethnicity Tenure

Probabilities of visiting forests at least monthly

Mediation analysis

The direct pathway (C) and the potential mediating role of visiting forests (A+B) in the relationship between forest access and health.
Were people healthier when they lived closer to forests?

No...

Random-effects model
• People improving forest access (from >1500m to <150m) had better health.

Hybrid-effects model
• Variation due to differences between those with and without good forest access rather than changes.

Source: Scottish Longitudinal Study (SLS)
Findings are provisional and not available for dissemination or publication.

Differences between forest types and social groups

• Accessible forests had slightly stronger associations with reducing likelihood of long-term illness.
• Men and those without qualifications benefited more from living closer to forests.
• Within-person change insignificant for all sub-groups.

Source: Scottish Longitudinal Study (SLS)
Findings are provisional and not available for dissemination or publication.

Did visiting forests explain the association?

To some extent...

• Likelihood of visiting forests monthly significantly increased as forest access improved.
• Effect of forest access on health reduced in size when forest use added to the model suggesting partial mediation.

Source: Scottish Longitudinal Study (SLS)
Findings are provisional and not available for dissemination or publication.

A few discussion points...

• Improvements in forest access did not improve health, why?
• Why did men and low SES benefit more?
• What about other mediators?

Some limitations...
• Synthetic estimate
• Time points
• Childhood experiences

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Thanks for listening. Any questions?

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