The role of the physical environment in adolescent mental health

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Motivation

- Associations of the physical environment with mental health
  - In adolescents: perceived stress, aggressive behaviour, mood, delinquent behaviour, major depressive disorder, psychotic experiences...

- But many open questions...
  - What are the mechanisms?
  - What are the links between physical and social environment factors?
  - What is the role of people’s subjective experiences of their environments?
The present study

- Green space, air pollution, and adolescent mental health
- Data on 3,683 adolescents (10 to 15 years old) from England and Wales
- Green space quantity (ward-level) and NO$_2$ concentrations (LSOA-level)

- Included variables of both green space and air pollution
- Included variables of the social environment
- Included variables of adolescents’ perceptions of their neighbourhoods
Methods: Data

- Understanding Society (www.understandingsociety.ac.uk)
- Neighbourhood green space at ward-level (Richardson & Mitchell, 2010)
- Neighbourhood air pollution at LSOA-level (Mukhopadhyay & Sahu, 2017)
- Neighbourhood deprivation at LSOA-level (2011 Carstairs Index)


Methods: Variables

**Outcomes**
Five scales of the Strengths and Difficulties Questionnaire
(emotional symptoms, conduct problems, hyperactivity, peer problems, total difficulties)

**Objective measures**
Greenspace, air pollution, deprivation, urbanicity/rurality

**Subjective measures**
Neighbourhood cohesion, liking of neighbourhood, perception of safety, fear of being a victim of crime, noise from neighbours

**Covariates**
Gender, age, mother’s education, ethnicity

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Methods: Regression

Model A (objective measures)  
N = 1676
- Greenspace
- Air pollution
- Deprivation
- Urbanicity

Model B (subjective measures)  
N = 1392
- [Model A]  
- Neighbourhood cohesion
- Liking of neighbourhood
- Perception of safety
- Fear of crime
- Noise from neighbours

Model C (covariates)  
N = 1082
- [Model B]  
- Gender
- Age
- Mother’s education
- Ethnicity

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# Results

<table>
<thead>
<tr>
<th>Emotional symptoms</th>
<th>Conduct problems</th>
<th>Hyperactivity/inattention</th>
<th>Peer relationship problems</th>
<th>Total difficulties</th>
</tr>
</thead>
</table>

*Note. Significant predictors in Model C for all outcome variables. Numbers in parentheses are beta values.*

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Discussion

1. Objective measures of the physical environment were not associated with adolescent mental health

2. Neighbourhood social deprivation was associated with conduct problems and peer relationship problems

3. Subjective experiences of the environment (especially fear of being a victim of crime) were associated with adolescent mental health

The full paper: https://doi.org/10.1016/j.healthplace.2019.102153
Thank you

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