

Impact of the (non-) built environment on mental health in Brussels : the NAMED PROJECT

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Air pollution annoyance is related to poor mental health in Brussels

Mental illnesses are a growing problem in modern societies [1]. In Belgium, the Health Interview Survey (HIS) underlined a degradation of the psycho-emotional health of the population: the proportion of respondents presenting psychological difficulties increased from 25% to 32% between 2008 and 2013. Types of manifestations include anxiety, depressive or sleep disorders. Strikingly, they are more prevalent in the Brussels-Capital Region (40%) than in Wallonia (35%) and Flanders (29%) [2].

While the impact of socioeconomic factors on these pathologies is acknowledged [3], the interaction with urbanized environment is little understood. More and more people are exposed to risk factors originating from the urban physical environment contributing to increased stress, which is negatively associated with mental health [4]. In this framework, the interdisciplinary research project NAMED intends to investigate the impact of the (non-)built environment on mental health in Belgium, one of the most urbanized countries in Europe.

As part of this project, this study aims to assess the association between air pollution annoyance and mental health in Brussels.

Methods

- Epidemiological study with **cross-sectional** approach
- Focus on inhabitants of **Brussels** > 15 years
- Data from the national health interview survey (HIS) from 2008 (n=2831) & 2013 (n=2532)
- Outcome : 8 Mental Health indicators

Energy level and general well being

- Happiness, self-fulfilment, optimism, self-esteem, etc.
- Indicators :
 - SF-36 "Vitality scale" for positive mental health (energy)
 - Subjective health: "How do you consider your health?"

Psychological distress

- Unhappiness : no specific diagnosis
- Indicators :
 - General Health Questionnaire (GHQ-12): Current global psychological well-being (last weeks VS usual state)
 - Symptom Check List 90 Revised (SCL-90-R): "Identification" of specific psychological symptoms : depressive, anxiety, sleep disorders

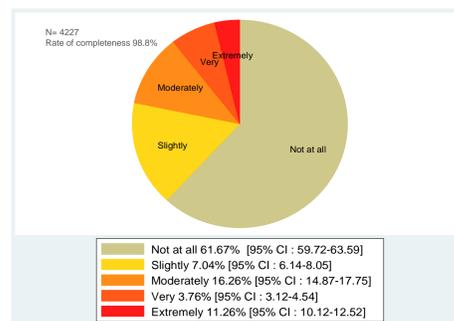
Mental health disorders

- Specific diseases :
 - Self-reported depression in the last 12 months
 - Suicidal ideation the last 12 months

- Environmental perception of HIS participants
 - Air pollution annoyance
- Statistical analysis

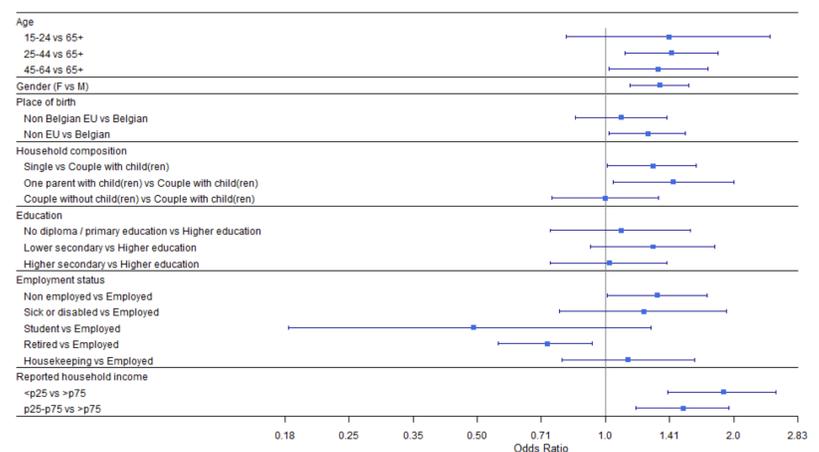
Multivariate logistic regression models adjusted for age, gender, reported household income, highest educational level in the household, professional activity, country of birth, employment status, household composition and year.

Results

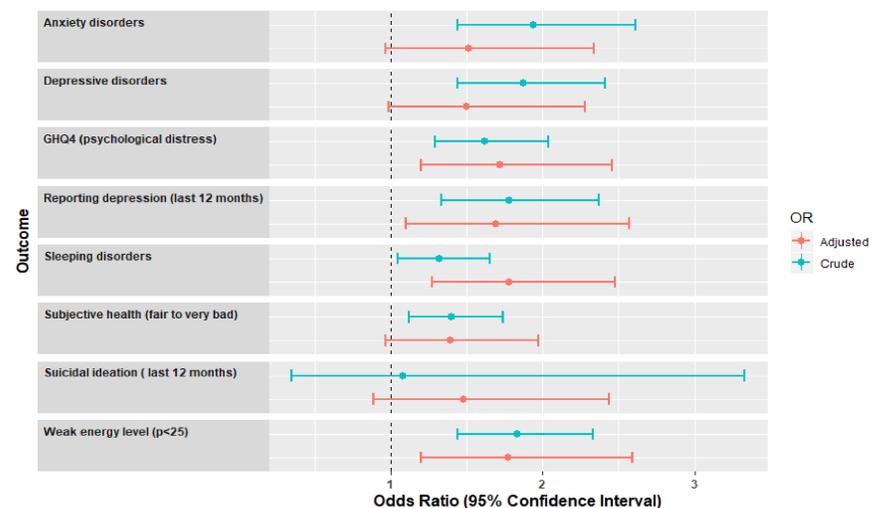


➤ 22.07% (95% CI : 20.51-23.7) of Brussels population is annoyed by air pollution.

- Women, unemployed, non Europeans (birthplace), single-parent families and members of households with low income are more likely to report air pollution annoyance in Brussels.



- Significant associations between air pollution annoyance and mental health disorders, even after adjustment for socio-economic variables.



Discussion

- Air pollution annoyance is strongly associated with socio-economic status.
- Results consistent with previous studies [5] [6].
- The design does not allow to prove a causal link.
- Possible explanations : oxidative stress & cerebrovascular damage, change in behaviour.
- In a second step of the project, results will be compared with objective measures of air pollution (PM_{2.5}, BC and NO₂ exposure levels interpolated for each participant's residential address)

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