

Sampling happiness in natural environments

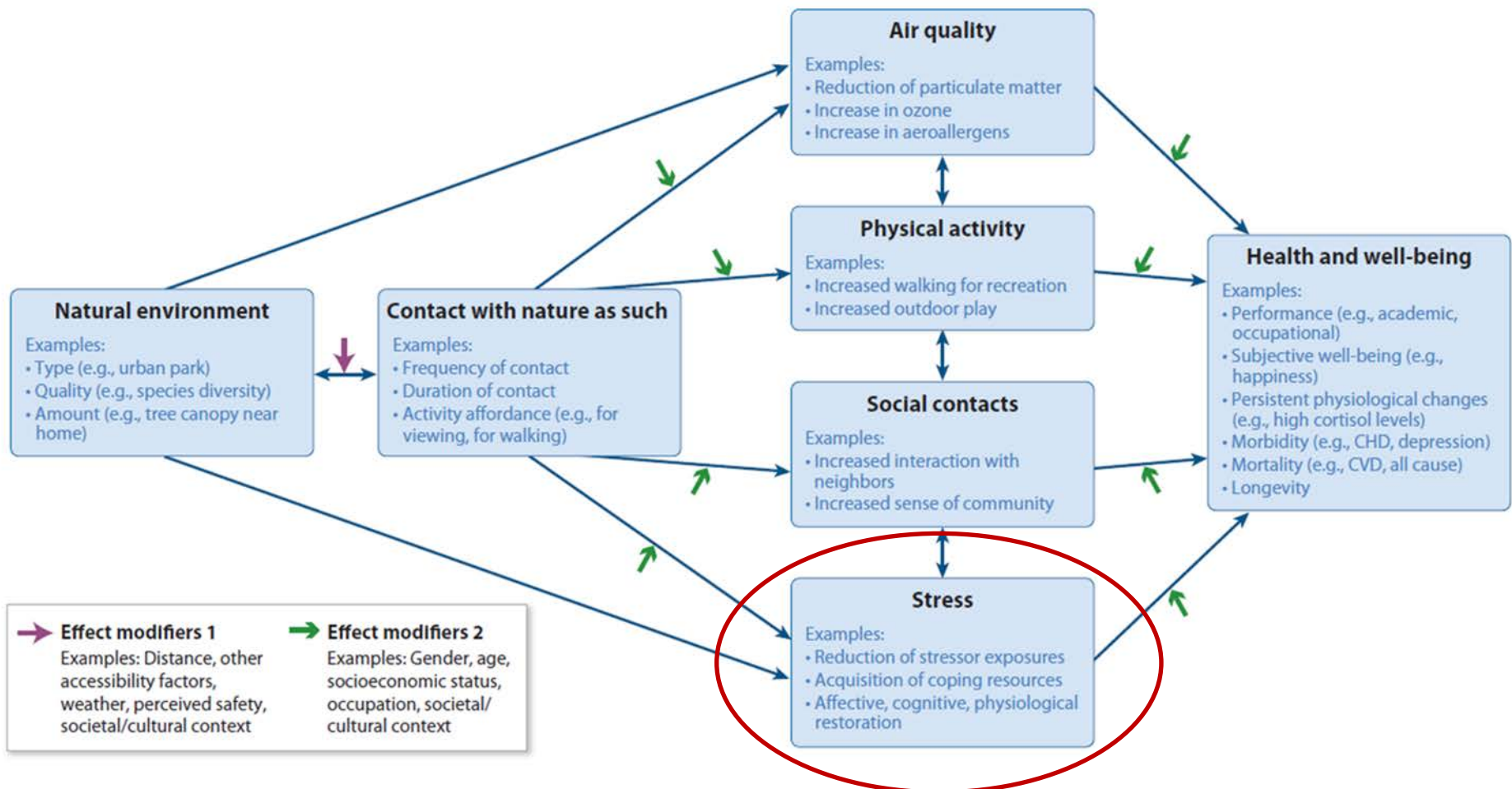
Some preliminary results of the HappyHier study

Sjerp de Vries, Wim Nieuwenhuizen, Hans Farjon, Lennard Kuijten, Iggy van der Wielen & Eric Balster



Nature and Human Health

- Hartig et al. (2014) in *Annual Review of Public Health*

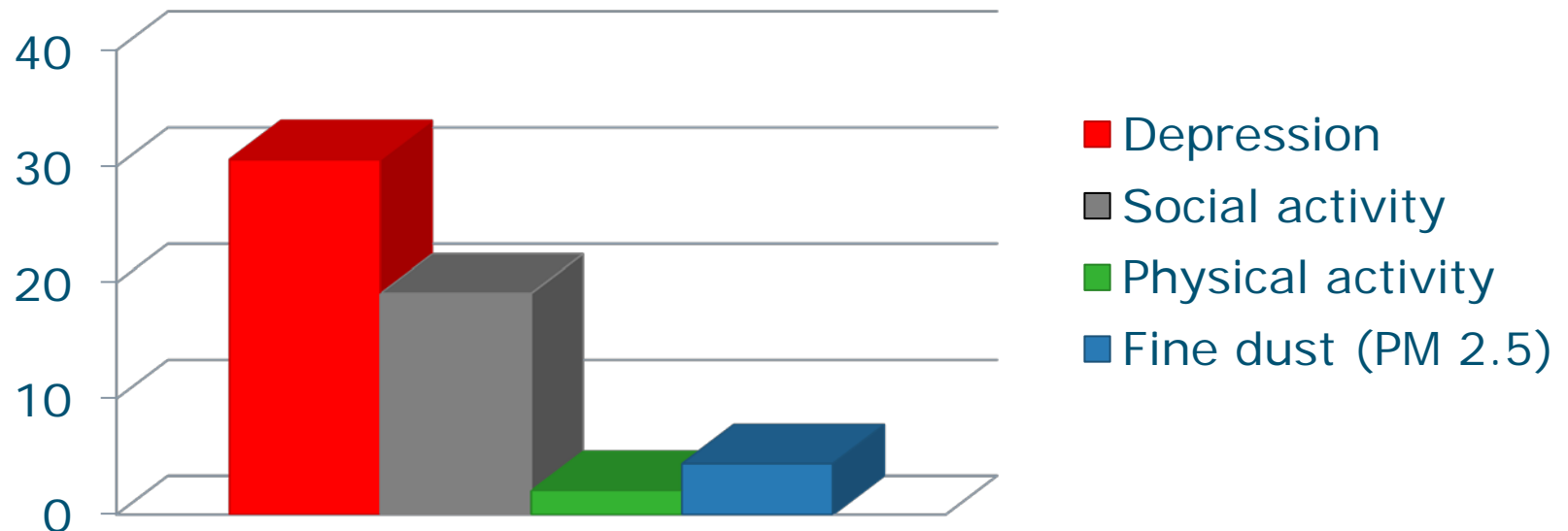


Why stress: relevance of different mechanisms

- James et al. (2016) in *Environmental Health Perspectives*:
 - prospective study on exposure to greenness and mortality for women (cohort of nurses)
 - accessibility metric: greenness indicated by average NDVI-score within 250 meters (in quintiles)
 - 12% lower rate of all-cause non-accidental mortality in highest quintile, compared to lowest quintile of greenness

Relevance of different mechanisms (2)

- Percentage of greenness-mortality relationship explained by mechanism



Stress pathway: includes an effect on mood

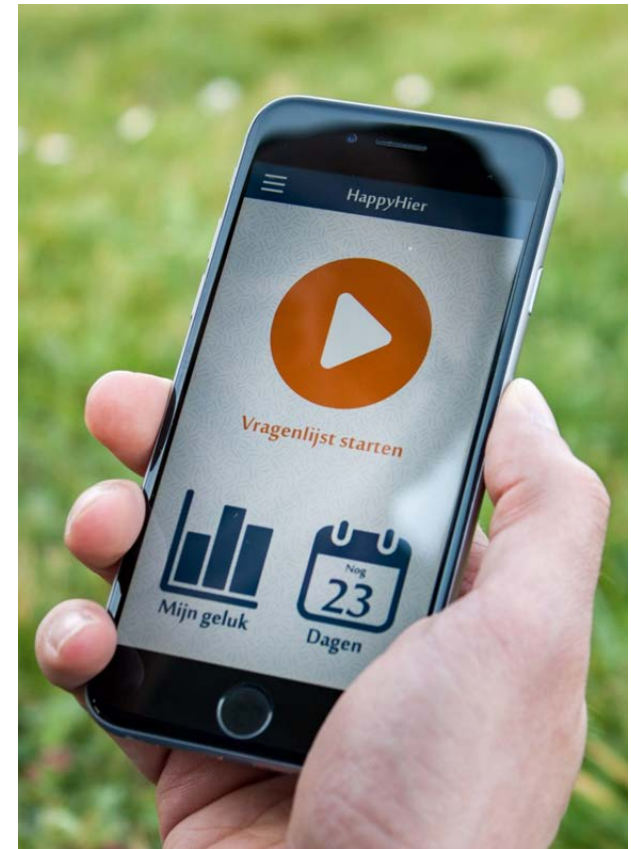
- Assumption 1: it is by way of **contact with nature** that health benefits are realized
 - Epidemiological studies: often no data on actual exposure; access used as proxy for exposure
 - **Type of nature** (and the type of contact/interaction with nature) may matter
- Assumption 2: it is by way of **accumulated contact** that short-term mood effects contribute to mental health (dose-response relationship)

Ecological Momentary Assessments

- New method for gathering EMA's: app for smartphone
- First large-scale study: **Mappiness** (MacKerron & Mourato, 2013)
 - Central question: how happy do you feel?
 - Lot of participants and over 1 million EMA's
 - but: over 95% of EMA's in built-up area
 - Results: happiness is greater in natural environments
- **HappyHier**:
 - For Android as well as iOS
 - Trigger mechanism: dependent on land use
 - Land use also recorded when trigger does not result in response
 - Tracing participants during the day

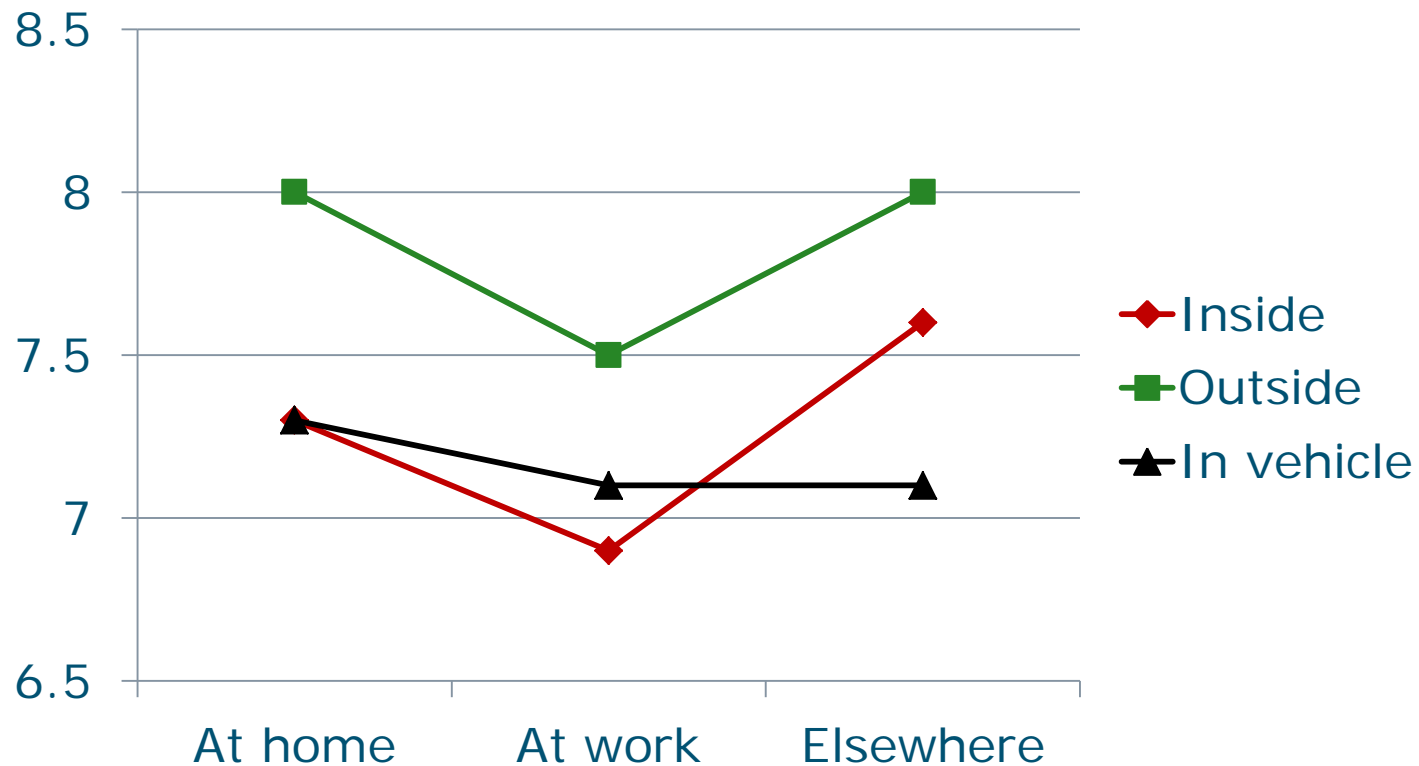
Preliminary results: HappyHier response

- About 4,000 participants
 - That filled out the questionnaire on background characteristics
 - And at least 1 EMA
- Average number of EMA's about 25
 - In total over 100.000 EMA's
 - Of which about 33% within a 'natural' environment
 - (according to map in app)
- Overrepresentation of highly educated and of women



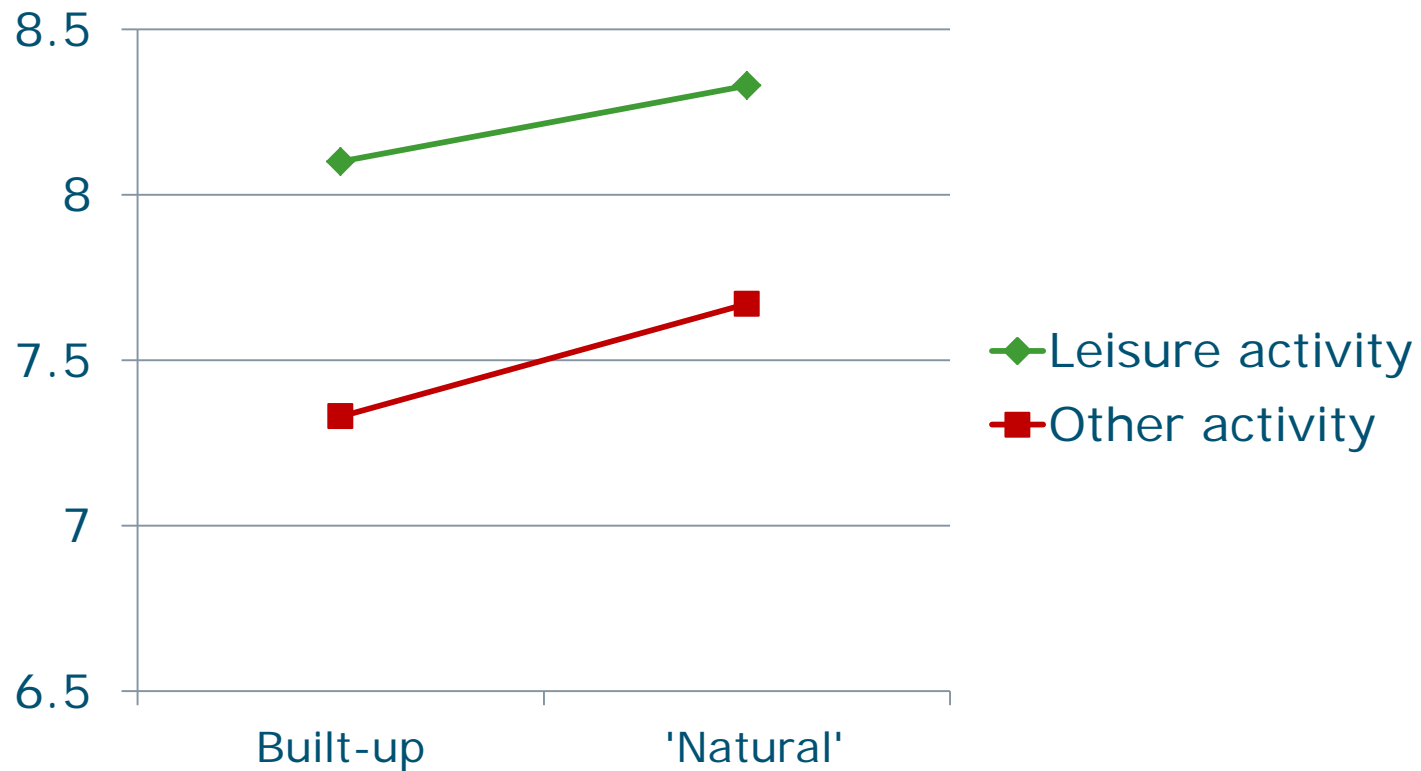
Preliminary results: total sample of EMA's

- Average happiness scores for different types of location



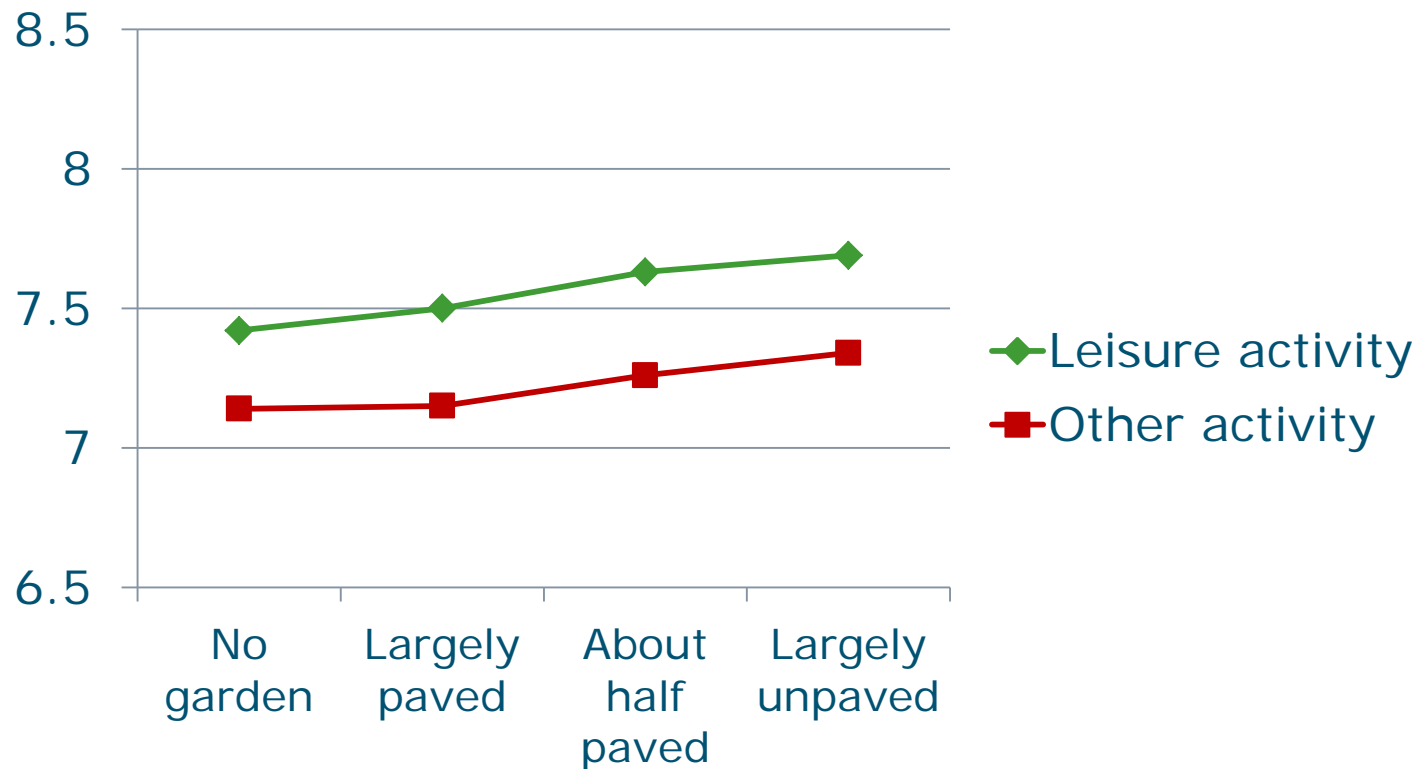
Preliminary results: EMA's when elsewhere and outside

- Happiness by dominant type of land use within 250m



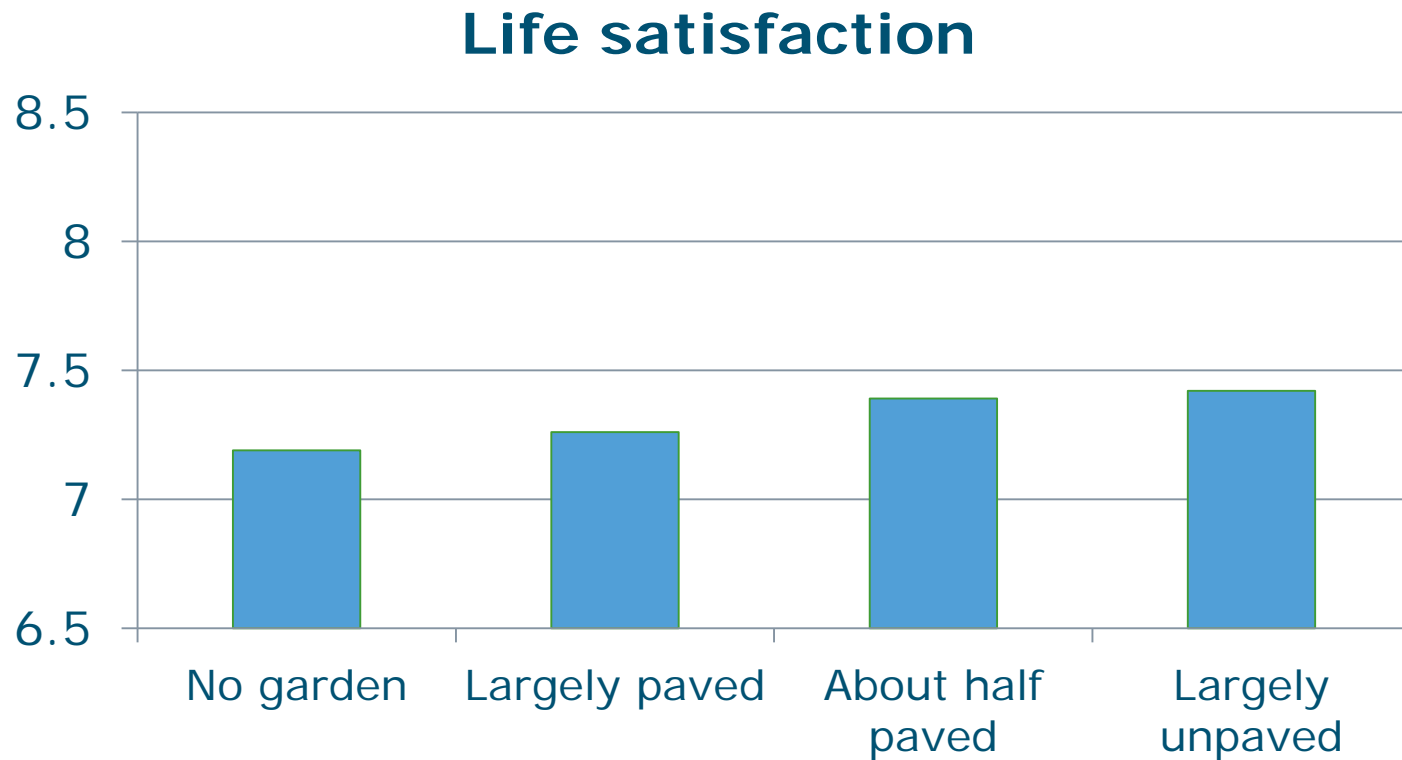
Preliminary results: EMA's when at home and outside

- Having a garden or not, and the extent to which it is paved



Preliminary results: life satisfaction (not momentary)

- Having a garden or not, and the extent to which it is paved



Outlook for HappyHier

- Analyses of EMA-data
 - Look at differences between different types of 'nature'
 - More refined analyses, among others:
 - Correct for weather conditions and noise levels
 - Use individual as his own control (multi level)
- Analyse propensity to respond to trigger
 - Higher in certain types of environment?
- Analyse usefulness of GPS-tracks to determine amount of time spent in different types of environment
 - And, if useful, their relationship with life satisfaction

Discussion points

- Nature very nearby may be relatively effective in generating positive mental health effects
 - More research attention to domestic garden, window view, even indoor plants?
 - More research attention to urban green infrastructure and total amount of contact with nature (exposome)
- Amount of contact with nature may be more important than the specific type of nature (in a ecological/biological sense)
 - Quality aspects influencing amount of contact perhaps more important than those influencing effect once there
 - Conservation goals and using nature for salutogenic purposes may not always align (and what to do if not?)

Thank you for
your attention.



sjerp.devries@wur.nl