

Environment-wide association study for well-being

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WHAT ENVIRONMENTAL FACTORS IN THE NETHERLANDS ARE ASSOCIATED WITH WELL-BEING?

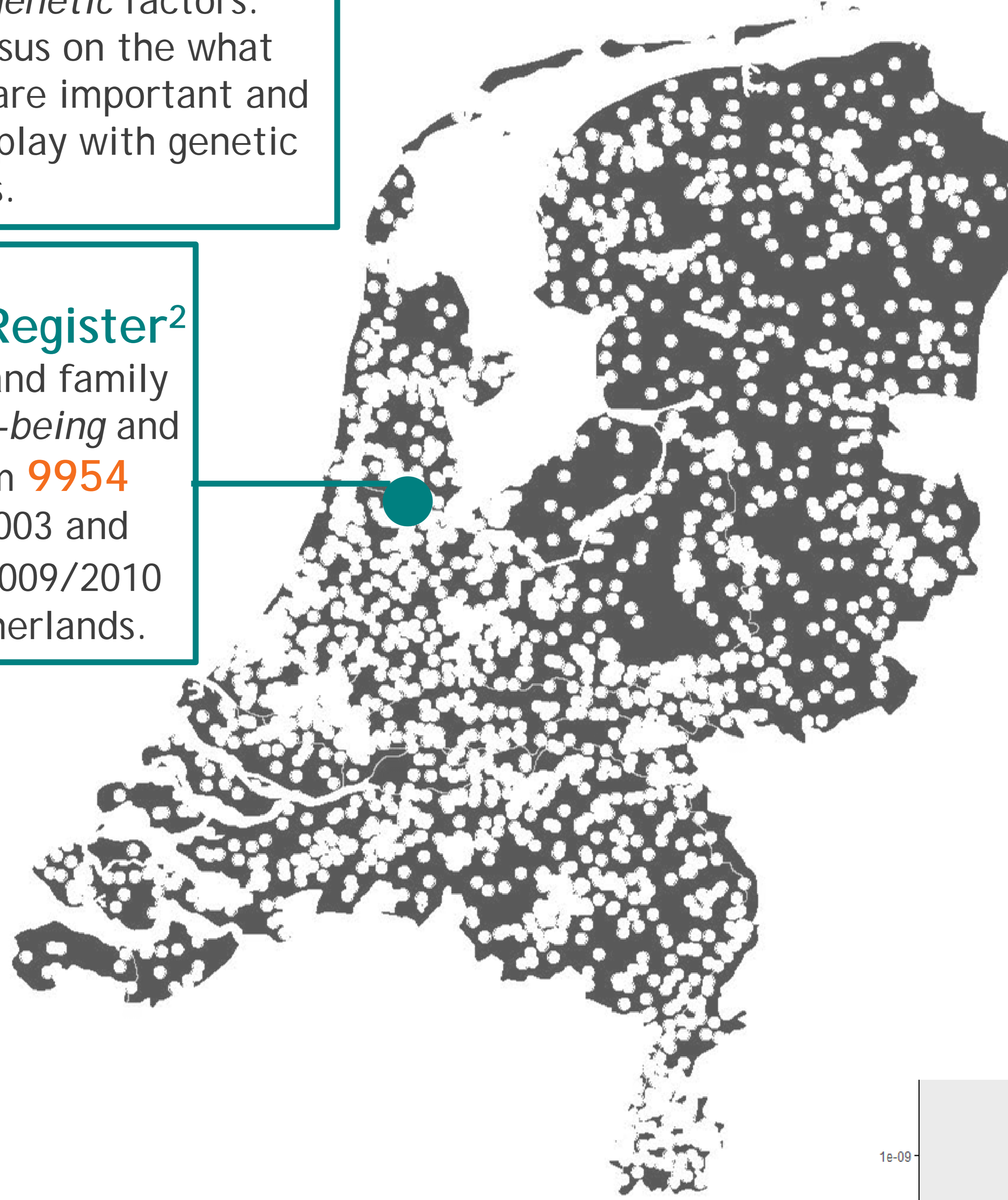
Background:

Differences in well-being between individuals are influenced by **both** *environmental* and *genetic* factors. There is little consensus on the what environmental factors are important and how these are at interplay with genetic factors.

The

Netherlands Twin Register²

collects data on twins and family members. We used *well-being* and *postal-code data* from **9954** individuals in 2002/2003 and **11975** individuals in 2009/2010 spread across the Netherlands.

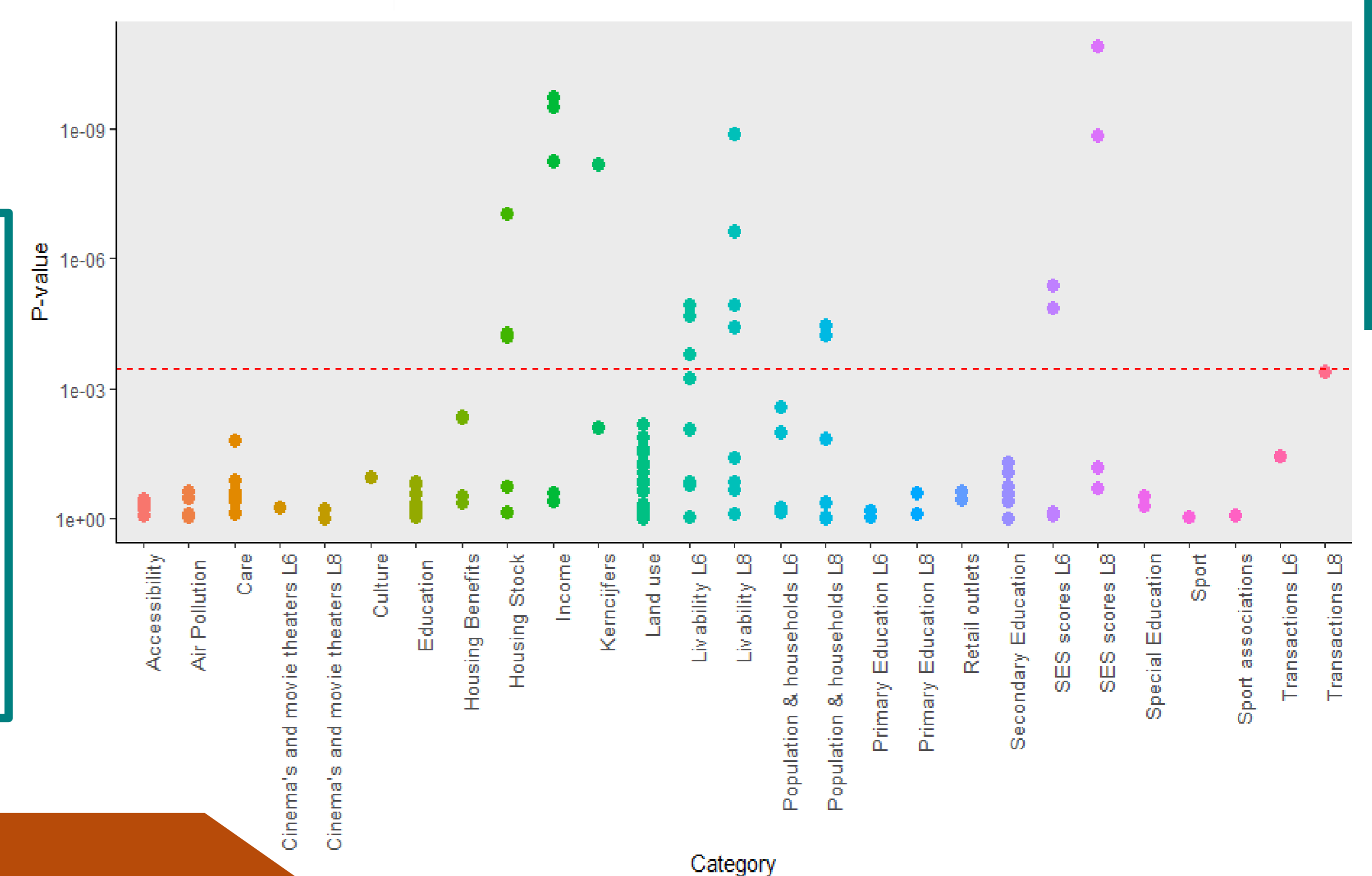


The **Geoscience and Health Cohort Consortium¹** (GECCO) brings together environmental data from different data resources. We associated **146 environmental factors** with well-being data in the Netherlands



Results

In our multilevel analyses, **20 of the 146** variables crossed the Bonferroni-corrected threshold of statistical significance. The significant correlates were part of the following 6 categories: housing stock, income, key figures, liveability, population and households, and socioeconomic status scores.



Additionally, we examined **gene-environment interplay** using a well-being polygenic score.

No significant interplay, in the form of gene-environment correlations, was observed

IMPACT

- ❑ Inform policymakers about potentially relevant environmental factors
- ❑ Potential for "poly-environmental" scores or "environmental networks"
- ❑ More research necessary into the correlational structure of the environment
- ❑ More power necessary to examine potential gene-environment interplay

References

1. Timmermans, E. J. *et al.* Cohort profile: the Geoscience and Health Cohort Consortium (GECCO) in the Netherlands. *BMJ Open* **8**, e021597 (2018).
2. Willemsen, G. *et al.* The Adult Netherlands Twin Register: Twenty-Five Years of Survey and Biological Data Collection. *Twin Res. Hum. Genet.* **16**, 271–281 (2013).