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# Differences in PA behaviour in Belgian adults living in 'high walkable' versus 'low walkable' neighbourhoods.

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# Introduction & aims

- Limited number of large-scale studies on relation walkability – PA
    - US: NQLS (Sallis)
    - Australia: PLACE (Owen)
    - Europe: ?
  - Strong need for European studies
    - Large differences in physical environments ↔ US and Australia
    - Differences in PA behaviour: cycling in Europe
    - European study results: probably different from US and Australian studies
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## Introduction & aims (2)





- Belgium (Europe): Belgian Environmental Physical Activity Study (BEPAS)
    - Design similar to NQLS and PLACE study
    - 1st large-scale European study on relation walkability – PA in adults
  - Aims of BEPAS
    - Association neighbourhood walkability – PA
    - Association neighbourhood SES – PA
    - Interactions neighbourhood SES – walkab – PA
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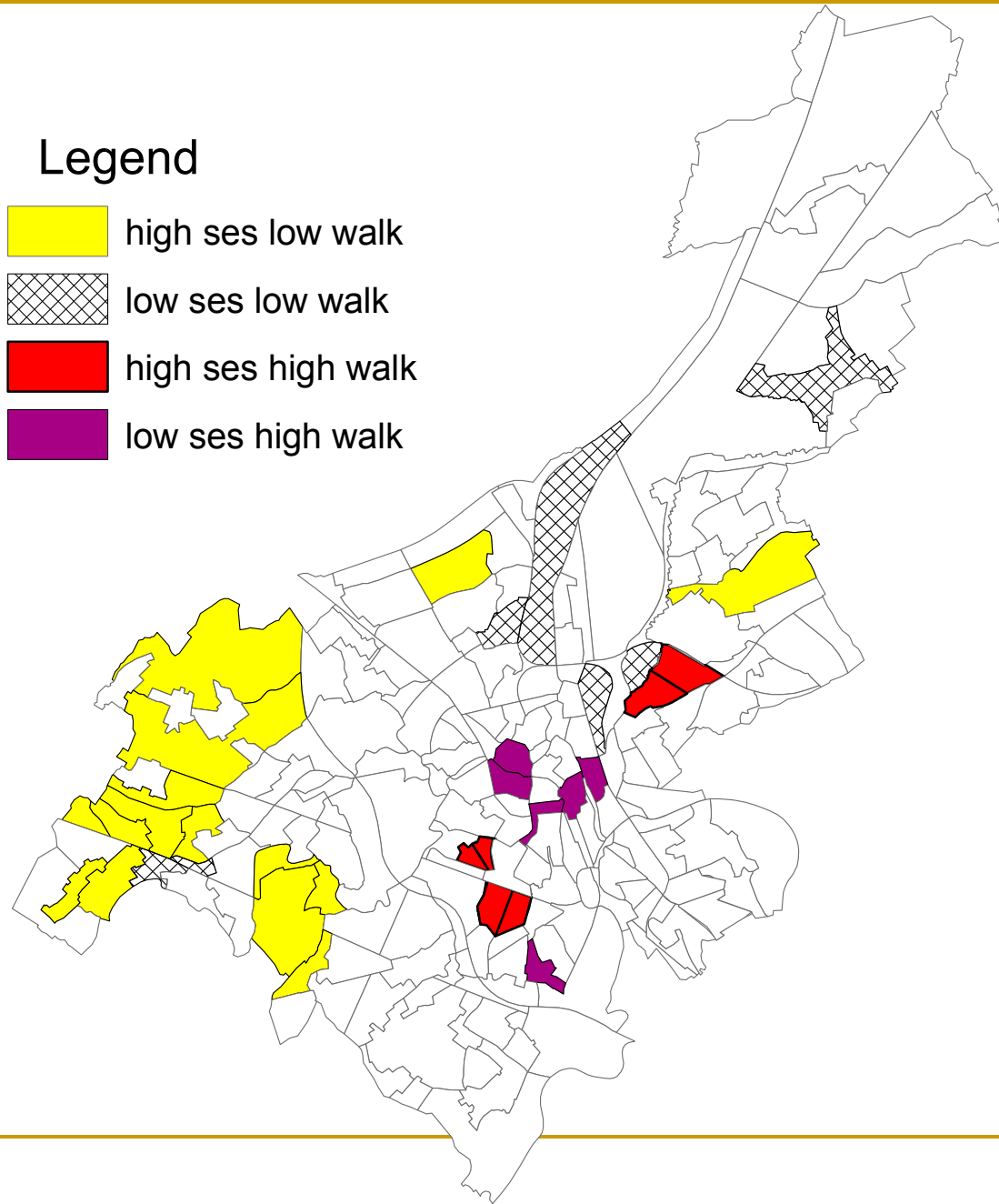
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# Methods

- Ghent, Belgium: 24 neighbourhoods
    - 6 high walkable / high SES
    - 6 high walkable / low SES
    - 6 low walkable / high SES
    - 6 low walkable / low SES
  - Neighbourhood selection:
    - Walkability: GIS: connectivity, land use mix, residential density
    - SES: median annual household income
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## Legend

-  high ses low walk
-  low ses low walk
-  high ses high walk
-  low ses high walk



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## Methods (2)

- 1200 participants (20-65 years), 50 per neighbourhood
  - 2 home visits, 1 week between visits
    - IPAQ interview, NEWS, 7 day accelerometer, demographic and psychosocial questionnaire, waist circumference
  - Instruments (used for results presented here)
    - Long IPAQ interview version (last 7 days)
    - Accelerometer: Computer Science Application, model 7164
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# Methods (3)

## ■ Analyses

- ❑ Multilevel modeling MLwiN 2.02.
  - ❑ Two-level models
    - Level 1: individual-level variables
    - Level 2: neighbourhood-level variables
  - ❑ Multivariate regression analyses
  - ❑ All analyses: controlled for possible confounders: gender, age, education, working status, BMI
  - ❑ Logarithmic transformation of skewed variables
  - ❑ Statistical significance  $p < .05$
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# Results: neighbourhood walkability - PA

	High walkability (mean (SD))	Low walkability (mean (SD))	$\beta$ (SE)
IPAQ (min/week)			
walking transport	117.3 (169.2)	37.6 (90.1)	0.764 (0.157)***
cycling transport	82.3 (126.7)	43.9 (95.2)	0.447 (0.105)***
motor transport	309.2 (295.3)	344.8 (315.7)	-0.125 (0.067)*
walking recreation	85.3 (137.2)	67.6 (128.4)	0.334 (0.111)**
Activity monitor (min/day)			
MVPA	38.6 (23.8)	31.8 (23.1)	0.095 (0.030)***

\* p<0.05; \*\* p<0.01; \*\*\* p<0.001



# Results: neighbourhood SES - PA

	High SES (mean (SD))	Low SES (mean (SD))	$\beta$ (SE)
IPAQ (min/week)			
walking transport	54.5 (105.9)	100.9 (166.7)	-0.630 (0.155)*
cycling transport	65.4 (119.9)	60.8 (107.0)	0.029 (0.102)
motor transport	361.2 (320.0)	292.3 (287.4)	0.215 (0.065)***
walking recreation	65.7 (117.9)	87.4 (146.4)	-0.004 (0.109)
Activity monitor (min/day)			
MVPA	33.4 (22.1)	37.1 (25.2)	-0.026 (0.029)

\* p<0.05; \*\* p<0.01; \*\*\* p<0.001

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## Results: interactions neighbourhood walkability – neighbourhood SES on PA

- No significant results were found ( $\beta$  (SE))
    - Walking for transport 0.027 (0.220)
    - Cycling for transport -0.051 (0.144)
    - Motor transport -0.052 (0.092)
    - Walking for recreation -0.184 (0.153)
    - MVPA (accelerometer) -0.014 (0.040)
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# Discussion & conclusions

- 1st aim: relation walkability – PA
    - Living in high walkable neighbourhoods:
      - 80 min/week more walking for transport
      - 40 min/week more cycling for transport
      - 20 min/week more walking for recreation
      - 35 min/week less motor transport
      - 50 min/week more MVPA (accelerometer)
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## Discussion & conclusions (2)

- ❑ Associations with walking for transport and MVPA
    - ~ NQLS and PLACE study
  - ❑ Associations with cycling for transport
    - European finding?
  - ❑ Associations with walking for recreation
    - ~ NQLS (leisure-time PA)
    - Promising results: more opportunities for future interventions if more types of PA behaviour are influenced
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# Discussion & conclusions (3)

- 2<sup>nd</sup> aim: relation neighbourhood SES – PA
    - Low SES neighbourhoods
      - 45 min/week more walking transport
      - 70 min/week less motor transport
    - ↔ previous studies: high SES → more PA
    - ~ Dutch study (van Lenthe et al, 2005)
    - Possible explanation:
      - Transport by car = expensive
      - Public transport in Ghent = cheap and well organised
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# Discussion & conclusions (4)

- 3rd aim: interactions walkability – SES
    - No significant results
    - ~ NQLS
    - ↔ PLACE: high SES neighbourhoods more influenced by walkability
    - Interesting finding
      - Explanation?
      - Robust effects of walkability independent of SES
      - Future interventions: both high and low SES neighbourhoods can profit
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# Discussion & conclusions (5)

- Main BEPAS conclusions:
    - Also in Belgium: association walkability – PA
    - Walkability: related to whole range of PA behaviours
      - Possibilities for future interventions
      - Multiple interventions: not only physical environmental factors!
    - Strong need for longitudinal studies: causal relations
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