Is physical activity higher among public transport or motor vehicle users in a regional setting?

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Background

In case you missed it…

Physical activity (PA) is good for you!

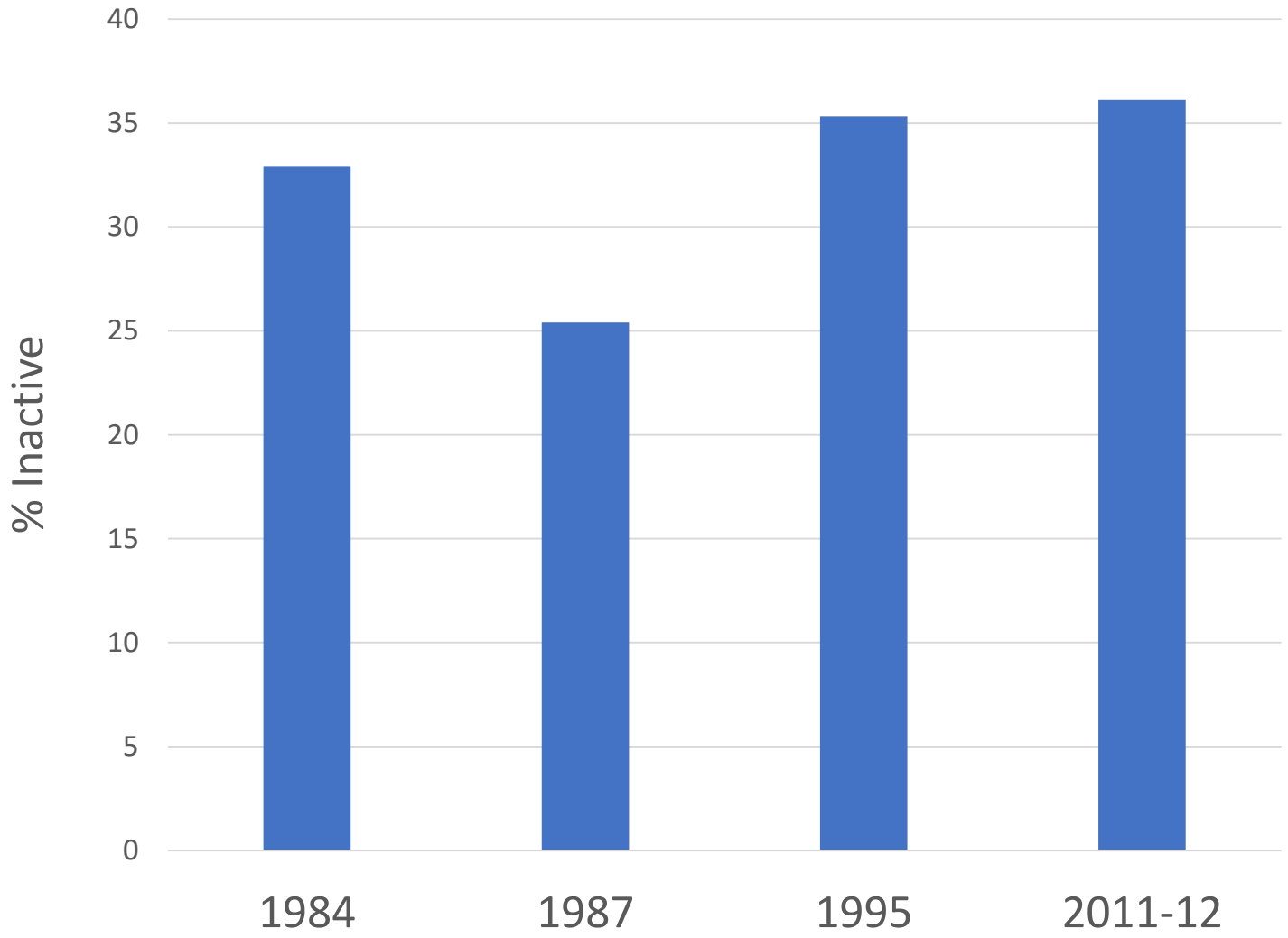
- Proportion of disease burden & mortality attributable to inactivity globally is ~5-10%
- Comparable to smoking in China (3-13%)
- Elimination of inactivity would ↑ life expectancy by 0.7 years; elimination of obesity in the US would ↑ life expectancy by 0.6-1.1 years

Physical inactivity is expensive!

- INT$54 billion/year ($31 billion – public costs)
- AUD$805 million/year

Lee et al 2012; Ding et al 2016; AIHW 2017

But Australians aren't doing enough



Bauman et al 1990; Heart Foundation 2016

Action area 4 –
Active travel

Encourage more walking, cycling and public transport use

Action area 4

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How might we sneak in some more PA?

What do we know about PA & public transport?

Relationship between PA & PT appears well-established

PT users accumulate 8-15 mins/day more PA than non-PT users

PT users 3.5 times more likely to meet PA guidelines

But, most studies from large urban cities with high population densities, multiple modes of transport, traffic congestion issues, high-cost parking

Research, policy & practice gaps

Little is known about the ‘PA-PT’ relationship outside of major cities (is place important?)

Areas characterised by lower population density, less frequent & accessible services, less traffic congestion, more affordable parking/ parking options

Should we be encouraging PT as a way to create ‘health by stealth’?

Aim

- To establish whether public or private transport use is associated with higher physical activity in a regional city

Methods

Study Design & Participants

- Cross-sectional study of Tasmanian adults (18+ years) during a 3-week period in Mar-Apr 2017
- Convenience sample ('pilot' study):
- Recruitment via social & traditional media, professional networks, word-of-mouth
- n=1355 responses; n=1087 with complete data (n=743 from Greater Hobart Region for this analysis)

Measures

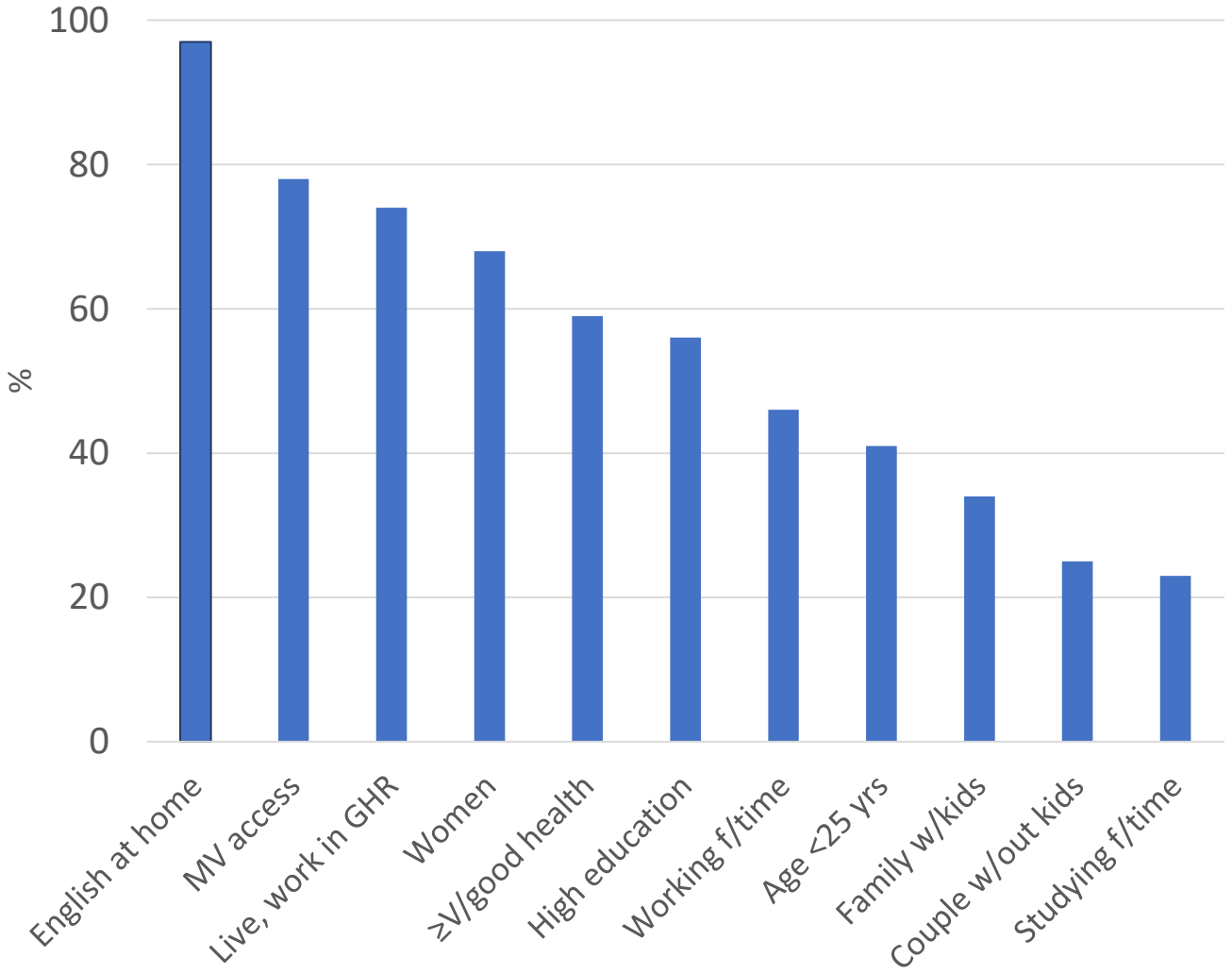
- 54-item online survey collecting information on:
  - Mode share, trip chaining
  - Past seven-day travel diary
  - PT access, user information
  - Hypothetical strategies to ↑ PT use
  - PA (using the IPAQ-S), general health
  - Demographics

Data Analysis

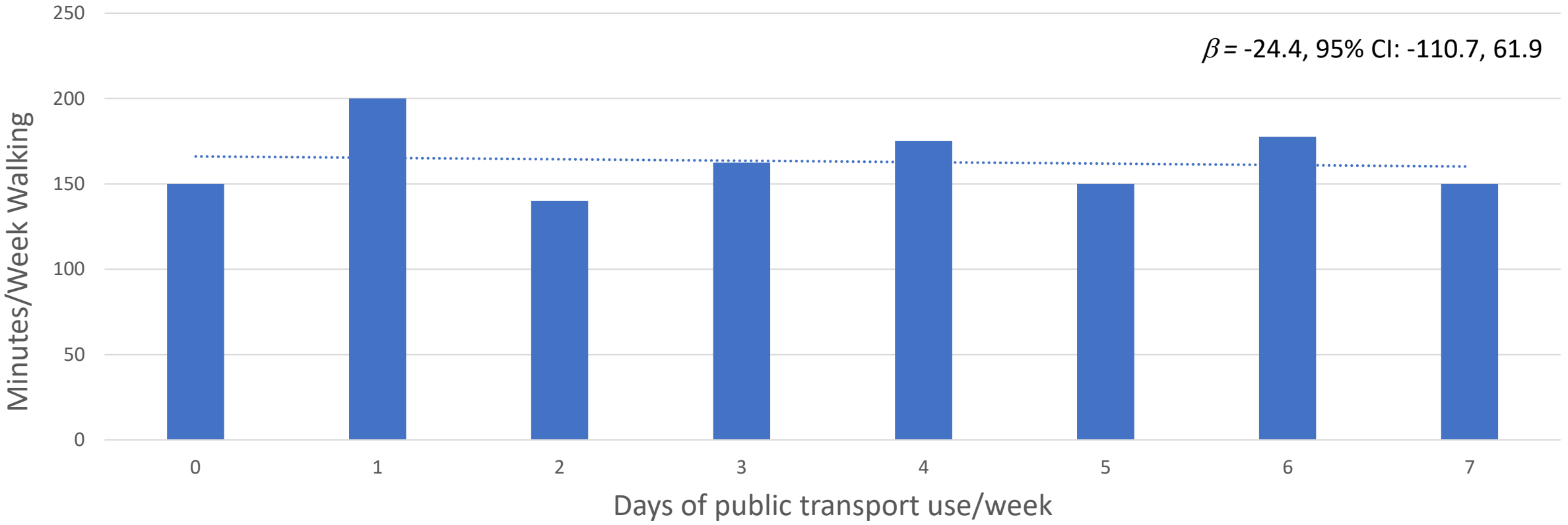
- Outcomes:
  - Past week walking (minutes/week)
  - Past week total PA (minutes/week)
  - Meets PA guidelines of 150 minutes/week (yes/no)
- Exposures:
  - Frequency of public transport use
  - Frequency of private motor vehicle use
- Confounders: variables associated with outcome and exposure
- Truncated (continuous variables) and log binomial (binary variable) regression

Results

Sample Characteristics

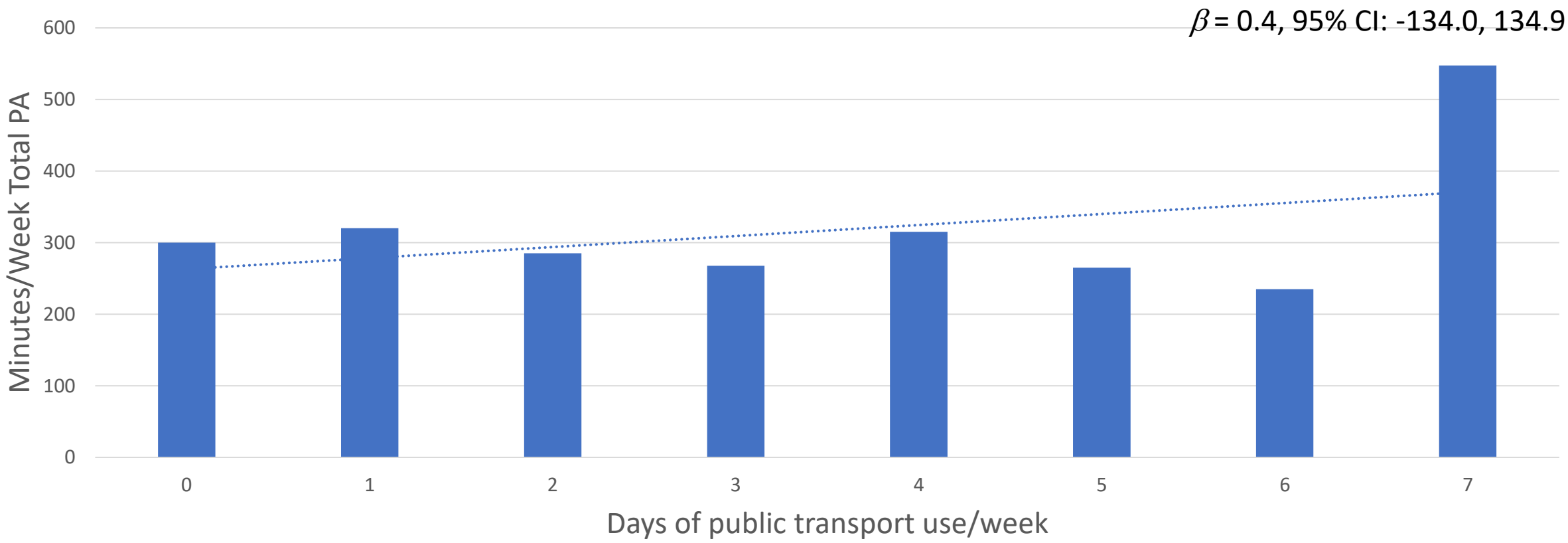


Did walking differ by frequency of public transport use?



β adjusted for household composition, access to motor vehicle, urban zoning

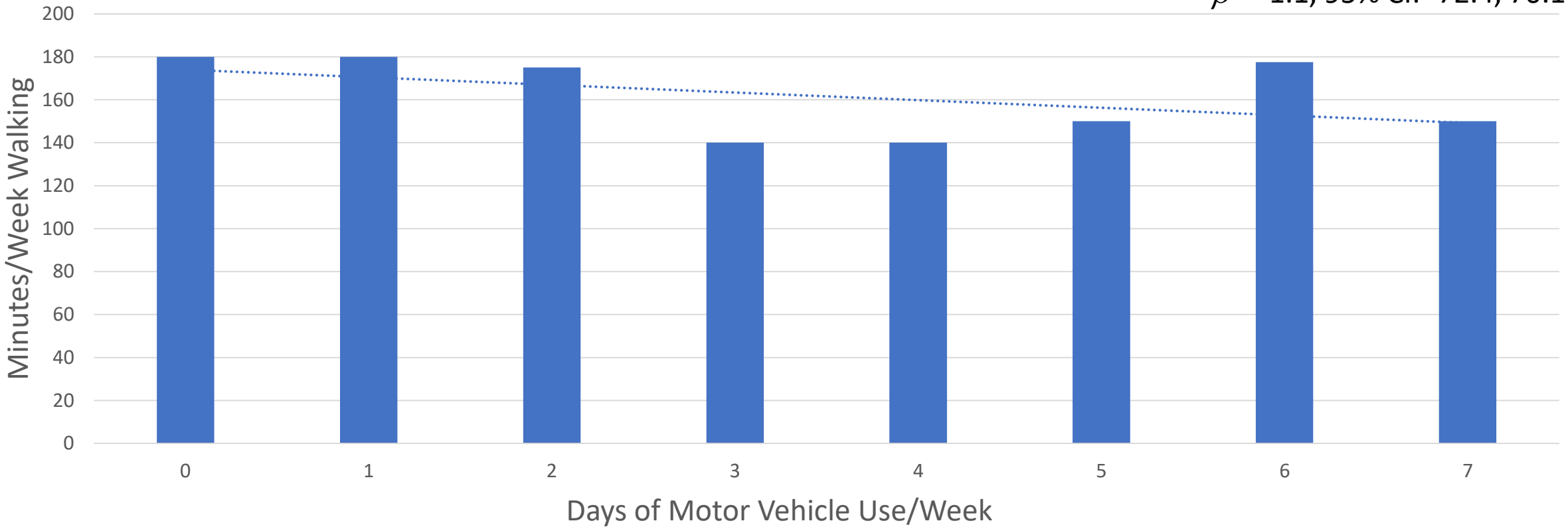
Did total PA differ by frequency of public transport use?



β adjusted for age, education, household composition, urban zoning

Did walking differ by frequency of motor vehicle use?

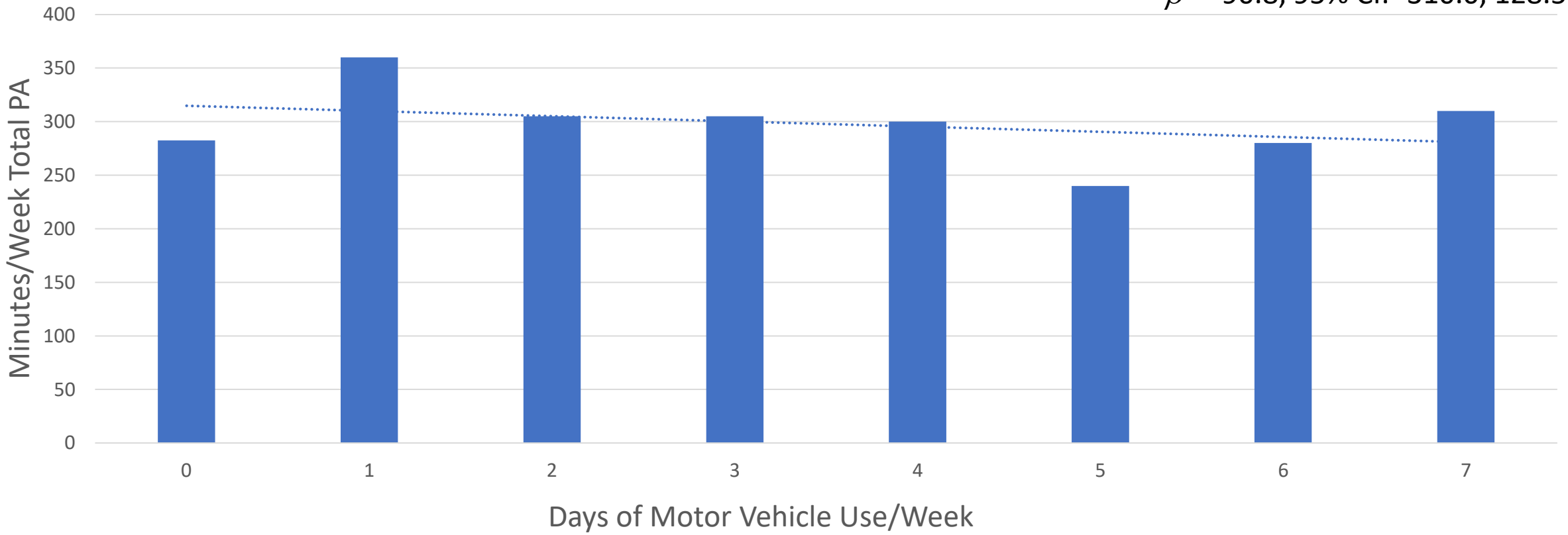
β = -1.1, 95% CI: -72.4, 70.1



β adjusted for household composition, access to motor vehicle, urban zoning

Did total PA differ by frequency of motor vehicle use?

β = -90.8, 95% CI: -310.0, 128.5



β adjusted for gender, age, education, household composition, urban zoning

Was public/private transport use associated with meeting PA guidelines?

Public transport

- RR: 1.02 (0.95, 1.09)
- Adjusted for employment status, urban zoning

Motor vehicle use

- RR: 1.02 (0.96, 1.08)
- Adjusted for gender, employment status, urban zoning

Discussion & Conclusions

Summary

No association evident between either public transport or private motor vehicle use frequency and walking, total PA or likelihood of meeting PA guidelines

Findings were consistent when public transport and private motor vehicle use expressed in different ways (e.g. time, % of trips, etc)

Contrasts with existing literature predominantly from urban areas

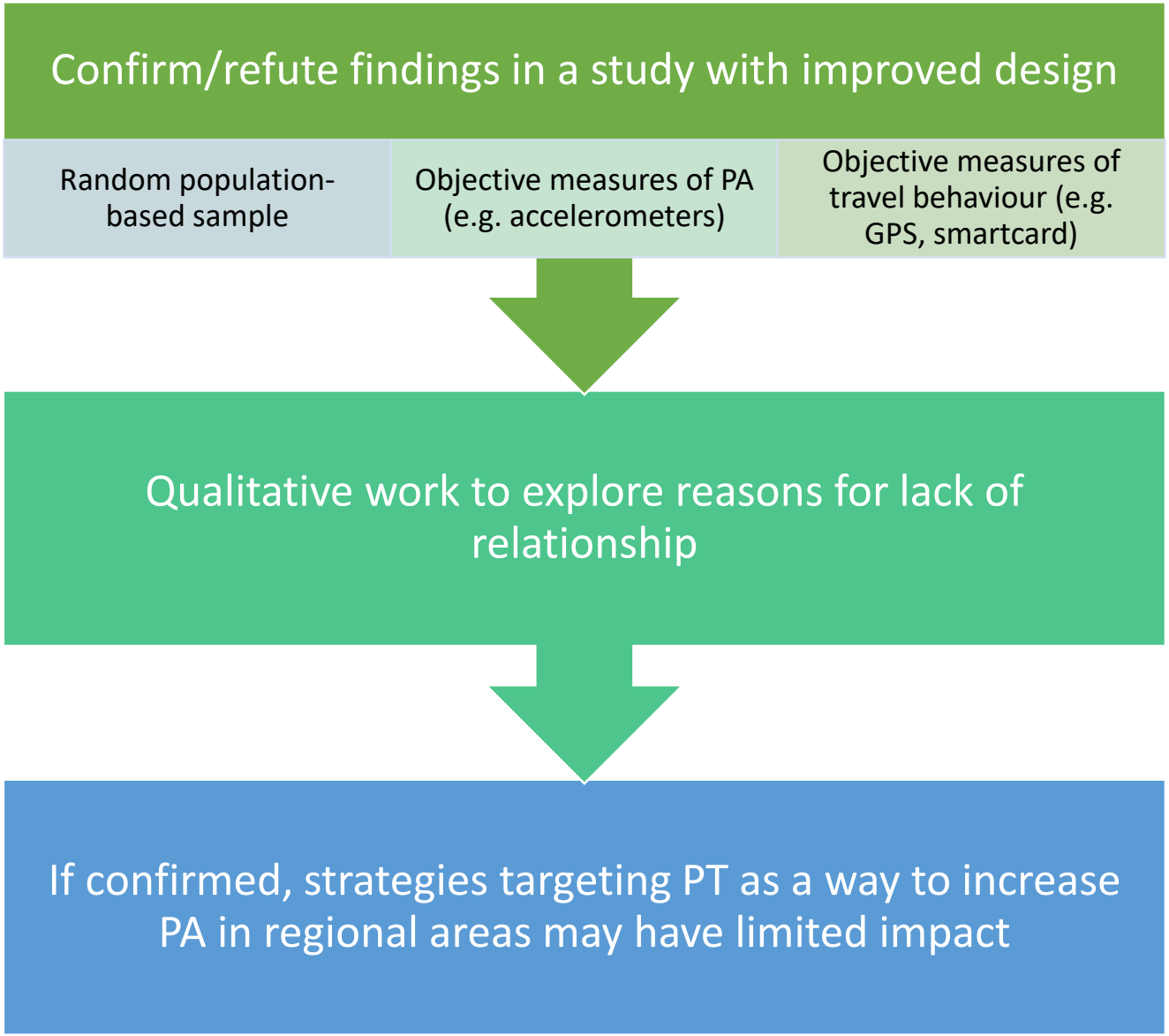
Why no association?

- Study limitations
  - Biased sample?
  - Measures of physical activity?
  - Measures of public transport/motor vehicle use?
- Perhaps place is important
  - Access to low-cost/free parking on the outskirts of the CBD
  - Relatively low traffic congestion/short peak periods

Study Strengths

- Large sample
- Unique focus on a regional city
- Used well-established measures of PA and travel diary
- Appropriate statistical approach, adjusting for potentially confounding variables

Further research



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