DOES CYCLE COMMUTING BENEFIT MENTAL HEALTH?

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BACKGROUND AND MOTIVATION

Cycling is cheap, healthy, can be quicker than motorised transport, emits no pollutants or noise

Established health links & improved subjective well-being

This study: novel quasi-experimental design on linked administrative data with objective measure of mental health

ADMINISTRATIVE DATA

2011 SCOTTISH POPULATION CENSUS

All working people aged 16-74 living and working in Glasgow City and City of Edinburgh council areas who commuted to work

Excludes those who work from home

Mode of transport (cycle vs. other mode)

Road distance from home address to nearest cycle path (provided by NRS GIS Analyst)

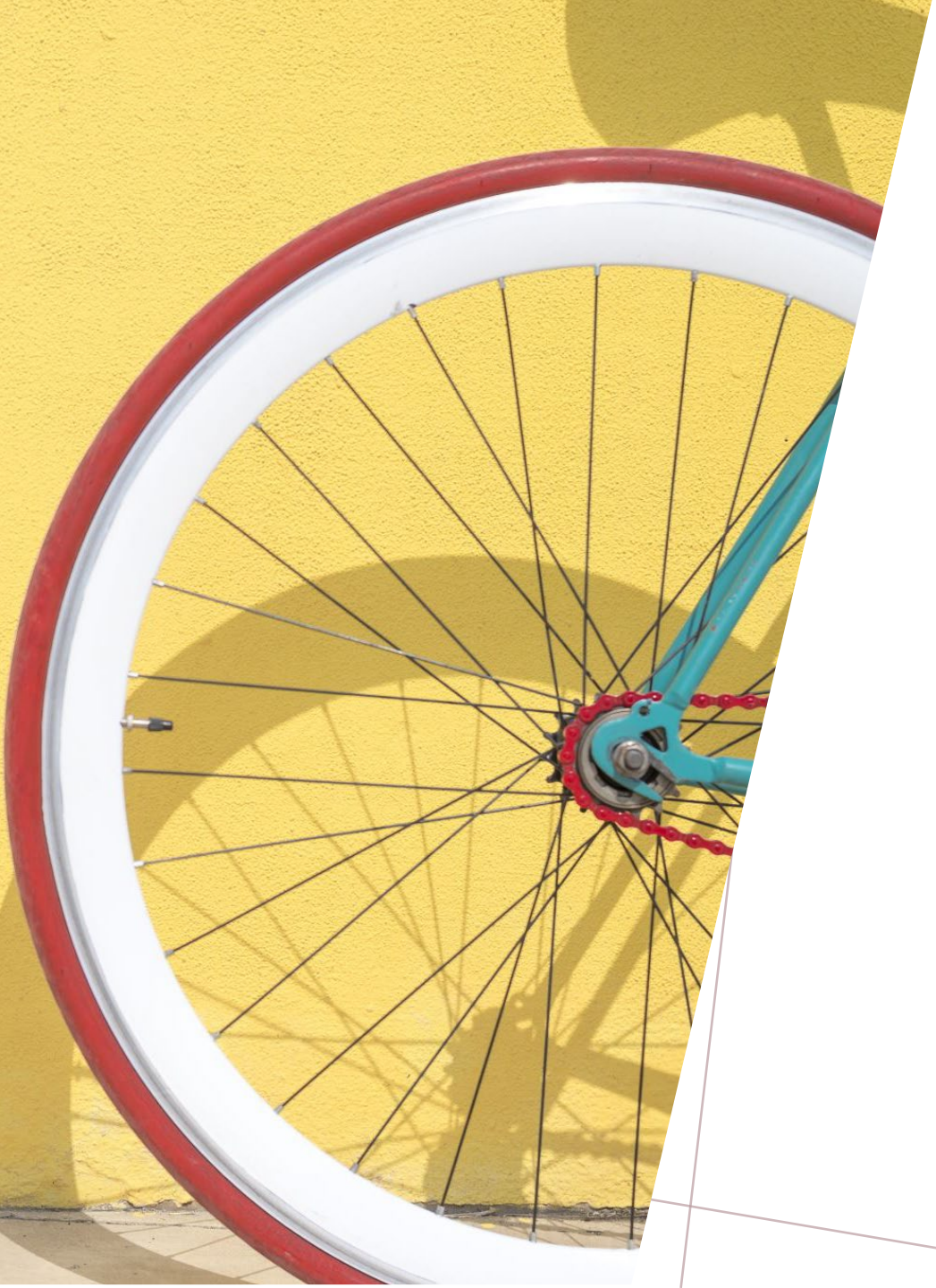
n = 378253

PRESCRIBING INFORMATION SYSTEM (PIS)

At least one mental health prescription received from 2011 to 2016

BNF Chapters: 4.1 (anxiolytics) and 4.3 (antidepressant drugs)

Removed people with prescriptions likely dispensed for other conditions



DESCRIPTIVES

More than 50% of commutes in each city are less than 5km

Percentage of 16-74 year olds who work and commute by bicycle (2011 census):

Glasgow: **1.9%**

Edinburgh: **4.8%**

13.9% have anxiolytic and anti-depressant prescriptions:

Cyclists: **9%**

Non-cyclists: **14%**

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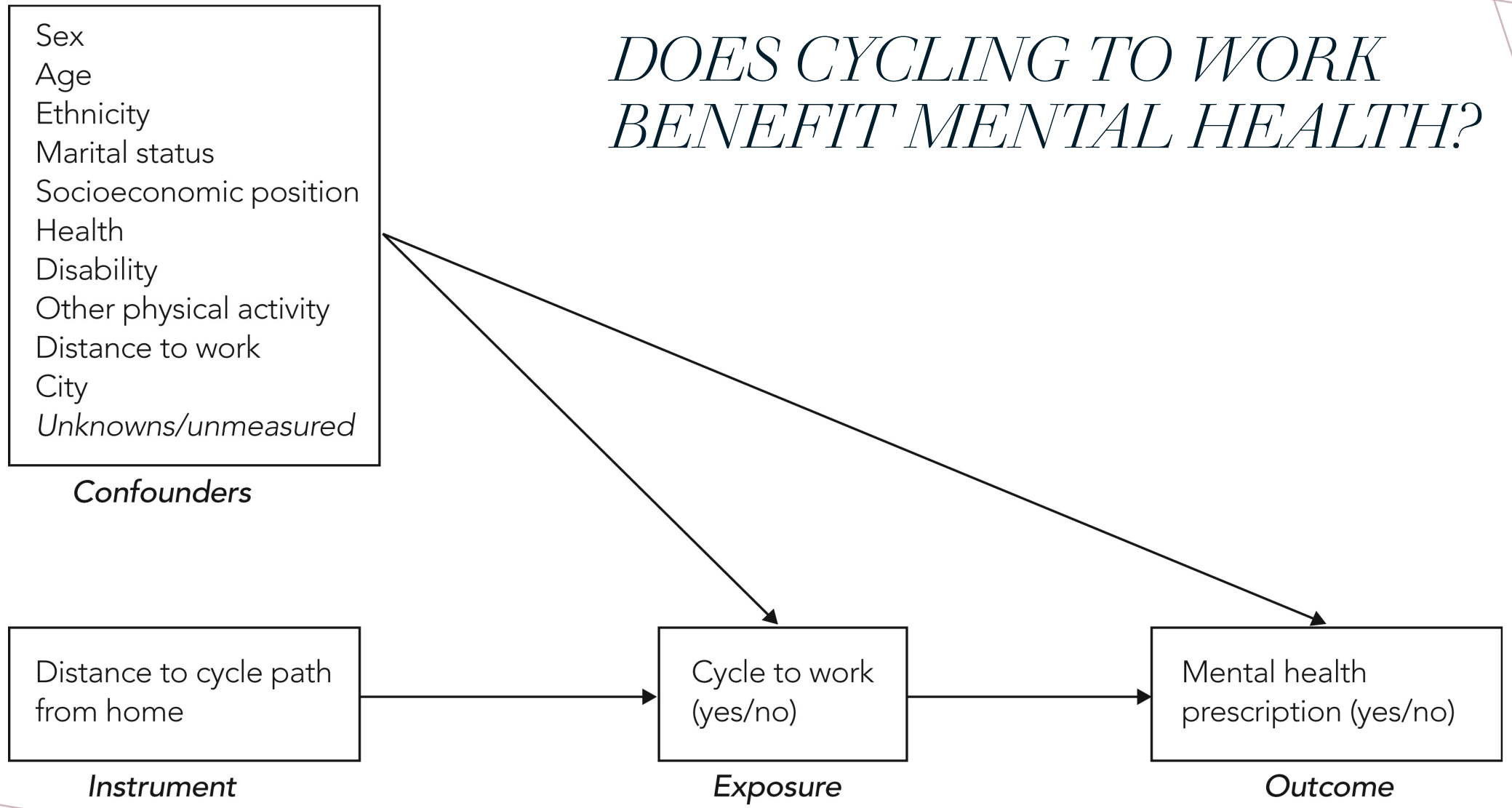

TRIANGULATION OF RESULTS

INSTRUMENTAL VARIABLE ANALYSIS

Average Treatment Effect:

-15.1%

95% Confidence Interval:

-15.3% to -15.0%

CONFOUNDER ADJUSTED REGRESSION

Average Treatment Effect:

-11.9%

95% Confidence Interval:

-16.9% to -6.7%

NEGATIVE CONTROL OUTCOME

Average Treatment Effect:

0.00%

95% Confidence Interval:

-0.003% to 0.001%

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Original article

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Does cycle commuting reduce the risk of mental ill-health? An instrumental variable analysis using distance to nearest cycle path

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Abstract

Background: Previous studies have linked cycling with improved mental wellbeing but these studies tend to use cross-sectional survey data that have small sample sizes and self-reported health measures, and are potentially susceptible to omitted-variable bias and reverse causation. We use an instrumental variable approach and an objective measure of mental ill-health taken from linked administrative data to ask: 'Does cycle commuting reduce the risk of mental ill-health?'

Methods: Our study links data on commuting in Edinburgh and Glasgow from the Scottish population census with mental health prescriptions from the National Health Service Prescribing Information System records. We use road distance from home to nearest cycle path as an instrumental variable for cycle commuting.

Results: In total, 378 253 people aged 16–74 years living and working in the City of Edinburgh and Glasgow City council areas at the 2011 census were included in our study; 1.85% of commuters in Glasgow and 4.8% of commuters in Edinburgh cycled to work. Amongst cyclists, 9% had a prescription for mental health compared with 14% amongst non-cyclists. Using a bivariate probit model, we estimate a mean average reduction in prescriptions for antidepressants and/or anxiolytics in the 5 years following the census of −15.1% (95% CI: −15.3% to −15.0%) amongst cycle commuters compared with those who use any other mode to commute.

Conclusions: This work suggests that cycle commuting is causally related to reduced mental ill-health and provides further evidence in support of the promotion of active travel to encourage commuters travelling shorter distances to shift to cycle commutes.

Keywords: Commuting, cycling, cycle commuting, active travel, mental health, instrumental variable analysis.

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THANK YOU

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