



Contents lists available at ScienceDirect

Journal of Transport & Health

journal homepage: www.elsevier.com/locate/jth

What modes of transport are associated with higher levels of physical activity? Cross-sectional study of New Zealand adults

Caroline Shaw^{a,*}, Michael Keall^a, Hayley Guiney^b

^a Department of Public Health, University of Otago, Wellington, PO Box 7343, Wellington South, New Zealand

^b Department of Psychology, University of Otago, PO Box 56, Dunedin, New Zealand

ARTICLE INFO

Keywords:

Cycling
Walking
Active transport
Public transport
Physical activity

ABSTRACT

Objective: Active travel is seen as a way to increase net population physical activity. This paper examines whether people in New Zealand who walk, cycle or use public transport to get to their main weekday activity have higher net physical activity levels.

Methods: Data come from the nationally representative cross-sectional Health and Lifestyles Surveys undertaken in 2012 and 2014. Logistic regression was used to examine the socio-demographic correlates of walking, cycling or using public transport and to examine associations between mode of transport to main activity and meeting the New Zealand physical activity guidelines.

Results: People who walk or cycle to their main activity are 76% more likely to meet physical activity guidelines, but those who take public transport are no more likely (OR 1.15 95% CI: 0.80 to 1.65). The association between walking or cycling and meeting physical activity guidelines is seen for both those in-work and those not in-work.

Conclusions: There are complex cross-sectional relationships between level of physical activity and mode of transport to main activity in New Zealand. Encouraging walking and cycling to main activity may be a way of increasing population physical activity in New Zealand; however the association with public transport needs further investigation.

1. Introduction

Inadequate levels of population physical activity (PA) pose a huge policy challenge globally (Ding et al., 2016; Reis et al., 2016; Sallis et al., 2016). This is in spite of increased understanding of the myriad positive impacts that PA has on health, particularly at higher levels of activity (Kyu et al., 2016; Sallis et al., 2016). As part of a response to this issue, there is growing interest in increasing PA through incidental PA. In particular, interventions that promote transport-related PA (walking or cycling to work/education/daily activities and the walking that accompanies public transport (PT)) have been the focus of a large amount of recent research (Heinen et al., 2015; Keall et al., 2015; Reis et al., 2016; Stewart et al., 2015). In addition to the PA-related health benefits, interventions that promote walking, cycling or PT use may improve air quality, decrease traffic congestion, avoid carbon emissions, decrease crime and increase social connectedness (Giles-Corti et al., 2016).

The health benefits from transport-related PA, on a population-level, will be maximised if this activity is not offset by reductions in other forms of PA, and it occurs in people who are currently insufficiently active for good health. Evidence from cross-sectional studies generally shows that people who walk or cycle to work have higher levels of PA (Wanner et al., 2012), and results from

* Corresponding author.

E-mail addresses: caroline.shaw@otago.ac.nz (C. Shaw), Michael.keall@otago.ac.nz (M. Keall), hayley.guiney@psy.otago.ac.nz (H. Guiney).

<http://dx.doi.org/10.1016/j.jth.2017.09.010>

Received 26 May 2017; Received in revised form 7 September 2017; Accepted 28 September 2017

2214-1405/© 2017 Elsevier Ltd. All rights reserved.

longitudinal studies suggest, although not unanimously, that people who increase their levels of transport-related PA do not reduce PA from other activities (Foley et al., 2015; Sahlqvist et al., 2013; Saunders et al., 2013; Wanner et al., 2012). The association between public transport and PA has been studied less, but evidence suggests that people who use PT have higher levels of walking (self-reported and objectively measured) than those who use cars (Rissel et al., 2012).

New Zealand (NZ) has comparatively high levels of population PA (Bauman et al., 2009), although less than half the population reach the NZ Ministry of Health guidelines for adequate levels of PA (Ministry of Health, 2016). New Zealand also has a high level of car ownership and urban environments that are not particularly supportive of active travel (Shaw et al., 2016). There have been no previous analyses examining whether there is an association between mode of transport to main week day activity (the survey wording) and levels of PA in the overall New Zealand population. This paper aims to, firstly, describe the population in New Zealand that walk, cycle and use PT to get to their main week day activity and, secondly, to determine whether people who cycle, walk or use PT to get to their main week day activity have higher levels of self-reported PA compared to those who use private motor vehicles.

2. Methods

2.1. Study population

Data for this analysis were from the New Zealand Health Promotion Agency Health and Lifestyles Survey (HLS), which provides ongoing surveillance of a wide range of health behaviours and attitudes of New Zealand adults aged 15 years and over. This cross-sectional survey, using face-to face interviews, is carried out every two years on a sample of the New Zealand population, sampled independently on each occasion. We used two waves of the survey to increase the sample size for active and public transport modes, as there are low levels of both of these modes in New Zealand. These two cross-sectional surveys were analysed together with a dummy variable for survey year to adjust for differences related to the year of sample.

The survey sample is designed to have increased representation of Pacific and Māori people to allow ethnic specific analyses. The sample is obtained by stratifying all meshblocks in New Zealand by whether there were more than 20% Pacific people within the meshblock. Meshblocks are the smallest geographic unit for which statistical data is collected and processed in New Zealand, each one contains between 60 and 110 people. Three hundred and fifty meshblocks are then randomly selected from these strata (56 from high Pacific stratum and the remainder from all the other stratum). Households are then randomly selected within the meshblocks, and within each household one eligible adult is randomly selected to complete the interview. Specific techniques are used to oversample Māori and Pacific people at the meshblock level (for example in a randomly selected house in a meshblock if there were multiple eligible adults with different ethnicities, the adult of Maori or Pacific ethnicity would be selected to be in the survey). Participation is voluntary, no incentives are offered. Further information on the surveys can be obtained elsewhere (Health Promotion Agency, 2013, 2015). Anonymised data from the 2012 and 2014 surveys were provided to the researchers under Health Promotion Agency microdata access protocols.

Ethics approval for the survey was obtained by the Health Promotion Agency from the New Zealand Ethics Committee (Health Promotion Agency, 2015).

2.2. Data and variables

2.2.1. Exposure

Information on transport-related PA was collected in the HLS using the question “Which mode of transport do you most regularly use to travel to your main week day activity? If you use several modes of transport, please think about the one that you travel by for the longest amount of time each week.” Responses were categorised into public transport (bus, train, ferry), active modes (walking/cycling/jogging/skateboarding), motor vehicle (primarily car, truck, van, motorbike, or taxi), and not applicable/missing. Walking and cycling were aggregated into a combined active mode as only 1.5% of the sample reported cycling as their main mode of transport.

2.2.2. Outcome

PA information was collected using the New Zealand version of the short-form International Physical Activity Questionnaire (IPAQ). This is a validated, modified version of the IPAQ to suit the New Zealand context (Maddison et al., 2007). Data were cleaned and processed as per the IPAQ guidelines (IPAQ Research Committee, 2005). Participants were defined as meeting the NZ Ministry of Health PA guidelines if they did at least 30 min moderate PA (such as 30 min brisk walking) or 15 min vigorous PA on five or more days in the past week (Ministry of Health, 2015).

2.2.3. Covariates

Data were collected on participant sociodemographic characteristics, including age (in 5 yearly groups), gender, household income (collected in 19 bins), NZDep (a 10-level area deprivation measure calculated for every meshblock in New Zealand based on responses to Census questions by meshblock residents (Salmond and Crampton, 2012)), educational qualifications (nil/secondary school/trade and professional/university), ethnicity (multiple responses for each individual are allowed consistent with the New

Download English Version:

<https://daneshyari.com/en/article/7487059>

Download Persian Version:

<https://daneshyari.com/article/7487059>

[Daneshyari.com](https://daneshyari.com)