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Short communication

Bicycle helmet law does not deter cyclists in Finland

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ABSTRACT

Bicycle helmet legislation (BHL) in Finland went into effect in January 2003 and applies to cyclists of all ages. There are no mechanisms to fine cyclists riding without a helmet; however, helmet wearing rates are 64% in Helsinki and 42% across Finland. Our aim was to discuss possible effects of BHL on cycling in Finland. We used data from the 1998/1999, 2004/2005 and 2010/2011 Finnish National Travel Surveys. Data across three surveys suggest cycling has declined from before to after BHL. In a 2004/2005 survey, however, only 0.063% (95% CI: 0.02–0.10%) of responders identified helmet use as their most important obstacle to cycling. It is unlikely BHL is a causal factor in the downward trend in Finnish cycling. Lack of cycling infrastructure and concerns for safety are much more common reasons given.

1. Introduction

Bicycle helmet use has been shown to be an effective strategy for reducing head and face injury in a crash and the estimated benefit increases with the severity of injury (Attewell, Glase & McFadden, 2001; Olivier & Creighton, 2017; Thompson, Rivara & Thompson, 2000). Some authors have been critical of bicycle helmet effectiveness studies while suggesting helmet use increases neck injury or rotational acceleration (Curnow, 2003); however, these hypotheses have not been supported by subsequent research (Olivier & Creighton, 2017). Accordingly, 28 countries have introduced bicycle helmet legislation (BHL) in order to increase helmet use among cyclists (Esmaeilikia, Grzebieta & Olivier, in press). These laws differ in terms of the cyclist's age and level of enforcement.

The Finnish law went into effect in January 2003 and applies to cyclists of all ages. Surveys have indicated increases in helmet use in Helsinki (prevalence of 16% in 1993, 40% in 2002, 64% in 2016; City of Helsinki, 2016; Fig. 1) and in the whole of Finland (4% in 1990, ~22% for 1996–2002, 42% in 2016; Finnish Road Safety Council, 2017; Fig. 1) following the introduction of the helmet law. Increased helmet wearing is consistent with an effective helmet law; however, other factors such as an existing trend or fewer cyclists cannot be ruled out.

There is an ongoing international debate regarding whether BHL reduces cycling (Robinson, 2006; Olivier et al., 2014). Cycling is considered a healthy activity (Johan et al., 2010) and there is concern the benefits of cycling will be lost if it is

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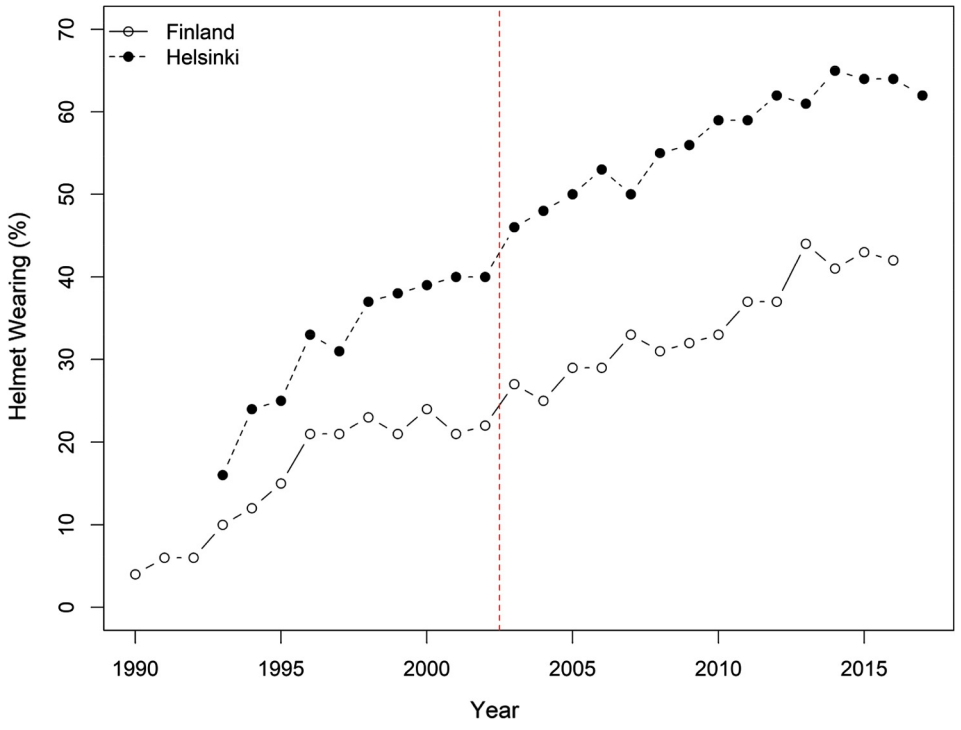

Fig. 1. Prevalence of helmet use in Helsinki (Data supplied by City of Helsinki) and whole Finland (Finnish Road Safety Council, 2017).

replaced with an inactive mode of transport (Adams and Hillman, 2001). The impact of the Finnish helmet law on cycling has not previously been accessed in the literature.

The Finnish helmet law includes the qualifier *yleensä* which translates to either "usually" or "in general". The wording of the law has made typical enforcement methods difficult to implement and, in 2017, a repeal of the law was proposed, in part, due to the vague wording (Finnish Government, 2017). The Government also believed the law would prove problematic for existing and future bicycle-share schemes and cited research suggesting that such laws deter cycling and thus supposedly reduce the health benefits of cycling.

The aim of this brief report is to discuss the possible impact of the Finnish BHL on cycling. In particular, we examine trends in estimates of cycling exposure (distance and time travelled, number of trips) before and after BHL and reported obstacles to cycling in the year following BHL.

2. Methods

We used data from the 1998/1999, 2004/2005 and 2010/2011 Finnish National Travel Surveys. These surveys involve Finns over the age of six years but exclude residents of Åland (Finnish Transport Agency, 2012). Data were collected by telephone interview. The initial sample was drawn from the population register and included 18,250 responders in 1998/1999, 20,075 responders in 2004/2005, and around 20,000 responders in 2010/201. Response rates were 64%, 65% and 56% for those years, respectively. Participants were chosen by stratified random sampling (e.g., sex, age and place of residence in the 2004/2005 survey) with oversampling to ensure reliable results in low population density areas with large exposure variability. Sampling weights were estimated in accordance to the survey design to ensure the results are representative of the Finnish population. More information about the survey methodology can be found in the final reports for each survey available on the Finnish Transport Agency website (http://www.liikennevirasto.fi/tilastot/henkilo-liikennetutkimus/julkaisut).

For all three surveys, we extracted aggregated data on distance travelled (km/person/day), number of trips (trips/person/-day), and time travelled (min/person/day) by bicycle from the PC-Axis table (HLT1KULK980410) on the Finnish Transport Agency webpage (http://www.liikennevirasto.fi/tilastot/henkiloliikennetutkimus/itsepalveluanalyysit).

Additionally, as we had access to complete 2004/2005 survey data, we report results regarding questions concerning the reported primary obstacles to using various modes of transport, including cycling. Participants were asked to indicate the "most important obstacle or problem limiting travel by bicycle." Multiple responses were not allowed.

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