



Habitual, safety and security factors related to mode use on two types of travels among urban Norwegians



Trond Nordfjærn^{a,e,*}, Hans Brende Lind^b, Özlem Şimşekoğlu^c, Stig Halvard Jørgensen^{a,d}, Ingunn Olea Lund^e, Torbjørn Rundmo^{a,b}

^a NTNU Samfunnsforskning, Studio Apertura, Dragvoll Allé 38 B, 7491 Trondheim, Norway

^b Norwegian University of Science and Technology, Department of Psychology, Dragvoll, 7491 Trondheim, Norway

^c Izmir University of Economics, Department of Psychology, Sakarya Caddesi, No: 156, 35330 Balçova, Izmir, Turkey

^d Norwegian University of Science and Technology, Department of Geography, Dragvoll, 7491 Trondheim, Norway

^e Norwegian Institute of Alcohol and Drug Research, Øvre slottsgate 2 B, 0105 Oslo, Norway

ARTICLE INFO

Article history:

Received 15 January 2014

Received in revised form 28 February 2015

Accepted 4 March 2015

Keywords:

Habit

Car use

Risk perception

Worry

Risk mitigation

ABSTRACT

This study aims to investigate psychological factors related to mode use on urban work/education and leisure travels, and to examine such factors related to intentions of using public transport. A survey was conducted in a random representative sample of the Norwegian population living in urban regions recruited from the Norwegian population registry ($n = 1039$). A two-cluster solution for mode use was revealed: individuals who mainly used public or health-promoting transport, and individuals who primarily used a car on the respective travels. The results suggest that car habit strength is more strongly related to car use on work/education travels. The probability component of risk perception was related to mode use on leisure travels, and there was a weak association between the consequence component and use. High perceived probability of accidents in public transport was associated with use of public transport, while high corresponding risk estimates in private motorized transport were associated with car use. Strong car habit strength and high perceived probabilities of accidents and security issues in public transport were related to a reduced intention of using public transport. Increased worry of private motorized transport and a high demand for risk mitigation related to public modes were associated with an increased intention to use public transport. Work/education travels could be more habitual than leisure travels. Risk perception may be a result of exposure to specific modes, rather than a predictor of mode use. Safety and security factors also appeared as more relevant for leisure travels than for work/education travels.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

One of the major challenges in the urban transportation system is to promote mode change from car to more environmentally sound and safer transport (e.g. public transport, such as trams, metro, buses). Technological advances have contributed to fewer emissions and reductions in other negative consequences caused by cars, but these positive effects are reduced by tendencies of increased car ownership and increased use of the car in urban environments (Abrahamse et al., 2009). A reduction in the number of travels by car and other motorized private travel modes, and an increase in use of public and health-promoting travel modes (e.g.

walking and bicycling), could be important for reducing urban accidents. This could also contribute to a reduction in traffic congestion and other urban problems (pollution and noise) and the burden on the road transport systems. The current study will provide insights into the relative importance of habits as well as safety and security factors for transportation mode use and intentions to use public transport on work/education and leisure travels.

Psychological theory and empirical evidence have demonstrated that behaviour in the past is a strong predictor of future behaviour (Verplanken et al., 1997). On this basis, it has been argued that car use, to a large extent, is a scripted behaviour and may be considered as an automatic non-deliberate psychological process (Gärling and Axhausen, 2003; Verplanken et al., 1994). In this line of enquiry, car habit strength is an important construct, referring to the tendency of repeated use of car as a non-deliberate choice without considerations of alternative available transportation modes

* Corresponding author at: NTNU Samfunnsforskning, Studio Apertura, Dragvoll Allé 38 B, 7491 Trondheim, Norway. Tel.: +47 95 93 47 66; fax: +47 73 59 63 30.

E-mail address: tn@sirus.no (T. Nordfjærn).

(Eriksson et al., 2008; Gärling and Axhausen, 2003). The empirical support for this assumption, however, has been inconsistent. For example, no association between previous car use and car habit strength with concurrent travel mode use was found in an experimental study (Bamberg et al., 2003). Moreover, the majority of studies have not examined the role of car habit strength on different types of urban travels (e.g. trips to and from the work-place or educational institution and leisure trips related to shopping, occasional errands etc.). Since work/educational trips may be more systematically repeated on a daily basis, it is possible that the car use behaviour becomes more scripted and habitual than on leisure travels.

Trait theory argues that inherent stable personality traits have a causal link to behaviour (Costa and McCrae, 1992). Personality traits are often defined as habitual tendencies of emotions, cognitions and behaviour (Kassin, 2003). Consequently one could argue that, in addition to car habit strength, studies focusing on habits should incorporate underlying traits which may predispose individuals to behave in a habitual consistent pattern. The resistance to change trait (i.e. individuals' tendencies to avoid changes, to generally put low value into changes, and to express aversiveness to change across contexts) (Oreg, 2003) could as such be important as a habitual factor in car use. To our knowledge, this factor has not previously been studied in relation to use of transportation modes. Individuals who have a general stable tendency to de-evaluate changes, and even experience negative emotions faced with change, may be less likely to consider a change of transport mode than individuals who experience less distress related to change in their daily routines.

In addition to habits, there is a strong case that safety and security factors could be important for transportation mode use and intentions to use specific modes. Previous studies mainly examined habits and safety and security factors in isolation (e.g. Rundmo et al., 2011a; Verplanken et al., 1997). Incorporating these factors into the same model allows for examinations of their relative importance for transportation mode use behaviour and intentions to use public modes on different type of travels in one coherent study. Here, safety refers to unintentional events, such as accidents or hardware failure, while security factors are defined as intentional human acts such as terrorism and theft.

People who do not experience a high probability or potentially severe consequences regarding safety and security factors are expected to have a lower perceived risk with regards to using a particular mode of transport. Two of the more important factors in social cognitive health models about risk and safety are the Health Belief Model (Rosenstock, 1974) and the Protection Motivation Theory (Rogers, 1975). Both of these theories highlight the importance of risk perception, which refers to cognitive evaluations of the probability and potential severity of consequences of accidents and security incidents (Sjöberg, 1999). Risk perception of safety and security incidents is primarily interesting because such perceptions are theoretically assumed to predict behaviour. By this rationale, individuals who report a high risk perception by public transport could be expected to use motorized private modes, such as a car, more often than public modes.

Alternatively, risk perception increases in line with exposure, implying that those who use, for instance, public modes more than private motorized modes would report a higher risk perception of public modes. In opposition to this assumption, however, individuals who use public transport more often than private motorized modes have been found to report a lower probability of safety incidents at public modes (Rundmo et al., 2011a). This yields support for the assumption that people use the modes in which they perceive less risk. In contrast, it has also been reported that individuals who mainly use public transport on work travels assess the probability of experiencing security issues, such as criminality, on public transportation as higher than those who mainly

use private motorized modes (Roche-Cerasi et al., 2013). This supports the assumption that exposure is more relevant for risk perception. Furthermore, it has been suggested that the probability-component of risk perception is more important for mode use than the consequence-component (Rundmo et al., 2011a; Roche-Cerasi et al., 2013). This disputes previous empirical findings stating that perceived severity of consequences is more important than perceived probabilities in behaviour involving risk (Sjöberg, 1999, 2000). In the current study, we included both components of risk perception allowing us to compare their relative importance for mode use behaviour and intentions.

In the risk perception literature there is a concurrent debate regarding the role of emotions in processing of risk stimuli. Slovic et al. (2001) argued that 'risk-as-analysis' should be distinguished from 'risk-as-feelings'. Risk-as-analysis refers to a process where cognitive reasoning, reflection and logic is used to evaluate a risk source, whereas the risk-as-feelings framework (Loewenstein et al., 2001) refers to intuitive and instinctive reactions to a risk source. Consequently, emotions such as worry (i.e. the level of concern experienced by thinking about accidents by private motorized and public travel modes) should be included in studies focusing on safety and security factors in transport. Recent studies in the transport domain has shown that worry is related to cognitions about safety (Backer-Grøndahl et al., 2009; Moen, 2007; Rundmo and Nordfjærn, 2013). For instance, a study showed that worry was predicted by risk perception, which in turn was related to the demand for risk mitigation activities exerted by the public upon the authorities (Rundmo and Nordfjærn, 2013). The literature on the role of worry for urban travel mode use is meager, and studies that have examined such relations (e.g. Roche-Cerasi et al., 2013; Rundmo et al., 2011a) did not discriminate between types of travels. Both risk perception, transport-related worry and demand for transport risk mitigation were therefore included in the present study.

It is plausible that habitual, safety and security factors are related to cognitions about using specific travel modes in addition to reported travel mode use. For instance, a person who evaluates a high risk of security issues, such as theft or terrorism at public transport, may reduce the intentions of using such transportation modes. Variations in such cognitive intentions may not immediately be reflected in concurrent manifest travel mode behaviour, but could be instrumental in a future mode change. Consequently, we were also interested in whether the above-mentioned psychological factors relate to an overall promoted or reduced intention of using public transport. Improved understanding of such factors may aid policy-makers who aim to promote a shift from motorized private modes to public transportation modes in the urban public.

The psychological factors elaborated above may be influenced by demographic characteristics. For instance, it is plausible that risk constructs such as risk perception, worry and demand for risk mitigation could be subject to gender differences. Previous work has shown that males tend to report lower risk perception, less worry and have lower demands for risk mitigation than females (e.g. Moen and Rundmo, 2004; Lund et al., 2012). Some studies have also suggested that males have stronger car habits than females (e.g. Matthies et al., 2002). Therefore, in the current study we also tested gender differences in the habit and risk constructs.

1.1. Aims of the study

The main aim of the present study is to investigate whether habitual (i.e. car habit strength and resistance to change), and safety and security factors (i.e. perceptions about safety and security incidents, transport-related worry, and demand for risk mitigation in public and motorized private transport) are associated with

Download English Version:

<https://daneshyari.com/en/article/6975850>

Download Persian Version:

<https://daneshyari.com/article/6975850>

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