

Summary

Insecurity and risk in transport: A discussion

TØI Report 1525/2016

Author: Truls Vaa, Astrid H. Amundsen

Oslo 2016/2016 54 pages Norwegian language

The present report discusses risk perception, insecurity and behavioral adaptation in transport. The first part of the report contains a survey of current knowledge about risk and insecurity in transport, as well as factors that affect insecurity, risk perception and behavioral adaptation. The second part of the report discusses how individuals perceive insecurity in transport and how such perceptions are influenced by major incidents and societal changes such as the flow of refugees coming to Europe, war in Syria, and a large number of terrorist attacks in transportation and other sectors. The third and final part of the report describes and discusses theoretical models and approaches to risk and insecurity in transport. According to recent research, individual perceptions of risk and insecurity are mainly affected by emotional aspects, rather than rational considerations. A neuroscientific model is proposed for the explanation and prediction of transport behavior and several new research questions and knowledge gaps are proposed. The most important practical conclusion is that transport policies should take into account that perceived risk and insecurity under transport, as well as choices of means of transport, may be affected by events outside the transport sector.

The report has been prepared within the project «Behavioral adaptation, risk perception and vulnerable road users: Prediction of outcomes of Intelligent Transport Systems (ITS)», which took place from January 2013 to February 2016. The project was funded by the Norwegian Research Council and focused on three major themes: (1) Risk perception, insecurity and behavior adaptation, (2) Behavior and accidents among vulnerable road users, and (3) Effects of Intelligent Transport Systems (ITS) on vulnerable road users.

The first part of the report describe current knowledge about risk and insecurity in transport, as well as factors that affect insecurity, risk perception and behavioral adaptation. The second part discusses how individuals perceive insecurity in transport and how such perceptions are influenced by major incidents and societal changes such as the flow of refugees coming to Europe, war in Syria, and a large number of terrorist attacks in transportation and other sectors. The third and final part of the report presents and discusses theoretical models and approaches to risk and insecurity in transport.

Factors influencing insecurity and risk

Feelings of insecurity and risk depend upon knowledge, experiences, context of living, specific incidents and media, to mention a few. The *psychometric paradigm* has been predominant in research on insecurity. In this paradigm a large number of sources of risk has been ranked according to two dimensions: *Fear* (dread risk) and *unknown* (unknown risk, understood as «degree of knowledge of the risk source»). However, the psychometric paradigm has limitations regarding explanation of factors affecting feelings of insecurity.

The degree of insecurity depends on subjective appraisals of the probability and consequences of possible incidents and individual experiences with similar incidents. Serious illnesses is what worry people most, then comes traffic accidents, while terror attacks and natural catastrophes were ranked at the bottom. These ranks are, however, about 10 years old, and new assessments are needed.

Several studies show that there are large individual differences in feelings of insecurity in transport and ways to reduce insecurity, as well as differences between transport modes. Insecurity among females and males are more rooted in exposures of robbery, violence, threats, thefts and harassment than in fearing accidents. Female appraisals of risk are based more on feelings, while male appraisals are based more on cognitive evaluations. Sexual harassment in public transport are primarily directed towards females. This issue has to some extent been exposed in Norwegian media, but the prevalence of sexual harassment and sexual assaults are much higher in other countries. Sexual harassment in public transport in Norway has only to a minor extent been a topic in media.

A Norwegian study found that *neuroticism* was the only personality trait, which was associated with feelings of insecurity in transport. In another Norwegian study *sensation-seekers* had a more positive appraisal of their own abilities, they were more negative towards rules and regulations as speed limits and seat belt use, and they had lower priorities regarding safety. People classified as *worried* were more concerned about risks in road traffic and prioritized safety higher than sensation-seekers, but, in general terms, Norwegians are not very worried about accidents or unpleasant incidents when travelling. The exception is travelling by motorcycle, which is regarded as a very risky mode of transport in terms of the possibility of experiencing an accident. T-bane (metro) is the mode of transport which is experienced as the most insecure regarding being exposed to unpleasant incidents and harassment.

A survey in Oslo and Kristiansand in 2007 found that a high number of respondents sometimes or often changed their way of travel, by changing between modes of transport because of insecurity, a result which remained in a follow-up study in 2012. Riding a motorcycle, walking, and bicycling, were the transport modes of which respondents said they would avoid because of insecurity. The reasons of feeling insecure may vary as insecurity can be rooted in heavy weather conditions as well as worries about meeting unpleasant people. Females are more prone to change their behavior because of insecurity.

Insecurity in a contemporary time

The report discusses how people experience and appraise security in a time which is characterized by events that affect people and society to a much larger and comprehensive extent than the one comprising transport only. We have seen exodus of refugees from the Middle East and Africa to Europe, we have seen the horrors of the war in Syria, and terror attacks both within and outside the sector of transport. Having been exposed to comprehensive and often graphic scenes in media, this has been events which hardly cannot escape one's mind, thoughts and feelings.

Descriptions and citations in mass media – both from eyewitnesses and public reactions at large – show how major events of terrorism affects people, their behavior, perceptions of risks, thoughts and feelings, and sometimes also how they might prepare and react if they should be exposed to an attack. Some express adaptation not so much in terms of insecurity and fear, but more in terms of increased vigilance, consideration about avoiding places where many people are gathered, and by looking for possible shelters if anything should happen.

However, we still do not know how the public at large thinks, feels and prepares for future, expected events, which in itself calls for more research on how people are affected. Individual strategies regarding preparation and travel behavior may differ between individuals and may change as a function of time. Tourist travel behavior is an indicator of behavioral change which often is affected by terrorist attacks. However, the changes are usually not long lasting, but this is also a topic to be investigated in more detail and with more recent data. The report argues that the years 2013-2016 are very significant and different compared to earlier time periods and that we need more knowledge about how people adapt to the new developments.

Theoretical approaches and models

When attempting to explain theoretically how people perceive insecurity and risk it is important to take into account how people understand the concept of «risk». This may be very different from how «risk» is understood and defined in a scientific context. The general public are more prone to perceive risk in terms of feelings in terms of consequences of events.

The psychometric paradigm has been important in appraising how people perceive risk, but it is also criticized. One of the major deficiencies is that it is not well suited for explaining or predicting how people experience insecurity and risk, or how these entities influence behavior. The neuroscientific model, which calls upon Damasio's paradigm as its base, is regarded as more appropriate in terms of studies that incorporate feelings and how these influence behavior. Hence, the neuroscientific model is regarded as better in terms of explaining and predicting behavior, experiences of risk and insecurity, and consequences.

The field «*Insecurity and risk*» is very comprehensive and complex. It affects everyone and is basically a matter of survival. It does not have a final conclusion, it is a «continuous project», which needs to be updated regularly. To limit this field to insecurity and risk in the transport sector only, is an option, but, which is discussed in the report, there are events in other arenas, especially terrorist attacks, which may affect the transport sector as well. This means that limiting the field may be unfruitful and too restricted when the ambition is to understand insecurity an risk seen in the transport sector.