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## Experiences from a national online speeding intervention

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### Abstract

Speeding is a key challenge for road safety. We developed an online intervention to reduce repeated speeding among private car drivers. The online intervention includes two elements: 1) an educational programme, and 2) development of an individual strategy for behavioural change. During the period fall 2021 – fall 2022 all private car drivers who received a speeding ticket in Denmark were invited by digital mail to participate in the intervention. So far, 22,183 accepted the invitation and completed the intervention. Preliminary results indicate that participants are representative for the total population with regard to gender, penalty size and speeding location. Preliminary results also indicate that the majority find the advice they receive relevant, that they acquired new knowledge, that they changed their attitude towards speeding, and that their motivation to comply with the speed limit in the future increased. The project is funded by TrygFonden.

### Keywords

Road safety; speeding; intervention; behaviour change; drivers.

## Introduction

Speeding is a key challenge for road safety (e.g. Aarts & van Schagen, 2006). In Denmark, speeding is a contributing factor in approximately 50 % of road traffic fatalities (Vejdirektoratet, 2016). Further, the risk of fatal or serious injury increases with increasing driving speed (e.g. Kashani et al., 2012). According to WHO (2021), fatal crash risk increases by 4 % and serious crash risk by 3 % if the mean speed increases by 1 %.

We developed the intervention presented here as part of a research project funded by TrygFonden. Aalborg University is project leader and the project is done in collaboration with the Technical University of Denmark (DTU) and the Danish Police. In this extended summary, we briefly present the intervention, the study design, and some preliminary descriptive results.

## Method

### The intervention

The aim of the intervention is to support behavioural change thereby reducing speeding behaviour in the future among drivers who received a speeding ticket. The intervention is run online, and it takes 20-30 minutes to complete the intervention.

The intervention includes two main parts, both online:

- 1) An educational programme
- 2) Development of a behavioural strategy to support behavioural change

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The educational programme addresses three elements: 1) road safety knowledge, 2) attitudes towards speeding behaviour and 3) awareness of own speeding behaviour. Participants are exposed to 24 questions or statements (one at a time) and invited to select one of three answers most appropriate for them. After replying to all 24 questions or statements, participants are categorized as “red”, “yellow”, or “green” based on their score resulting from their replies. The categorization is based on an assessment of how likely it is that they will receive a speeding ticket in the future based on their current knowledge, attitudes and behaviour. Participants who are estimated to be most likely to receive a speeding ticket in the future are categorized as “red”, whereas participants who are estimated to be least likely to receive a speeding ticket are categorized as “green”. The participants receive information about the categorization online and immediately after completing the educational programme. After they receive the information, they are provided with suggestions and advice about how to avoid engagement in speeding behaviour in the future. Participants categorized as red, yellow, or green receive different advice.

In the second part of the intervention, participants are invited to develop an individual strategy for behaviour change to avoid speeding in the future. First, participants select three situations in which they believe it is likely that they will be speeding in the future. Second, they select the behavioural strategy they will apply to avoid speeding in each situation. The situations and behavioural strategies to choose between are predefined. After completion, their individual strategy is presented to them online and they are invited to receive it by digital mail too.

The intervention is designed based on cognitive theory and so-called priming of the mindset of speed offenders. It is hypothesized that better knowledge about implications of speeding, consciousness about own behavior and attitude and support to development new behavioural strategies in trigger situations will prevent the offenders of recurrent tickets. A clear conceptual choice was made to not “scare off” the offenders but rather encourage the avoidance of a new ticket through increased motivation to refrain from speeding. We pre-tested the intervention in a group of 100 drivers who had recently received a speeding ticket.

We developed all elements of the intervention specifically for this intervention as part of the research project. We developed the content of the intervention based on a combination of results from individual semi-structured interviews about underlying beliefs associated with speeding behaviour and existing scientific knowledge about speeding, crash involvement and previous interventions aiming at behaviour change.

### Participants and procedure

The design of the study allows a unique possibility to target the intervention towards drivers who are apprehended by the police for speeding within three months after the speeding occurred. Thus, all private car drivers who received a speeding ticket in Denmark during the period from fall 2021 to fall 2022 received an invitation to participate in the intervention by digital mail. Contact information of speeding ticket car owners was transferred from the Danish National Police to Aalborg University. Participation was voluntary and car owners who were not driving the car at the time of the speeding were excluded from the study.

When potential participants had agreed to participate they first filled out a questionnaire asking for background information such as risk perception, attitudes towards speeding and history of speeding tickets. Then, participants were randomly distributed to a test group (TG) or a control group (CG). The TG was exposed to the online intervention and received a follow-up questionnaire approximately three months after participation. One year after completion of the first questionnaire, all participants (TG + CG) receive a follow-up questionnaire. All in all, data collection runs from fall 2021 to fall 2023. All communication with participants is done using digital mail. See Figure 1 for an overview of the study.

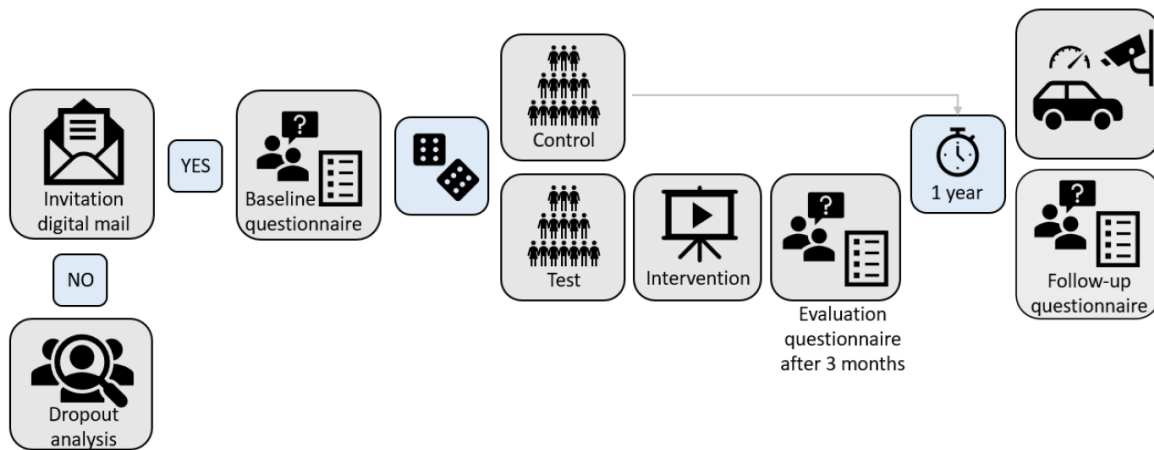


Figure 1 Overview of the study

We assess the effect of the intervention using a randomized controlled design (RCT) including objective measures of speeding behaviour, speeding tickets, attitudes and self reported effect of the intervention. The data includes registerdata, survey data and in-depth interview data. The assessment of the effect will be initiated when the data collection is completed.

### Results

Data collection is still running and we therefore only provide preliminary descriptive results regarding participation and self-reported relevance of the intervention. It is not yet possible to assess the effect of the intervention with regards to behaviour change and reoffending.

### Participants

We send out invitations once a month to the approximately 25,000 drivers who received a speeding ticket. At the time of writing this extended summary a total of approximately 250,000 drivers received an invitation by digital mail. Of these 22,183 (8.7 %) agreed to participate and completed the first questionnaire and both parts of the online intervention. The participants are equally distributed between the CG and the TG; the CG includes 11,024 participants (49.7 %) and the TG includes 11,159 (50.3 %) of the participants.

A comparison of the characteristics of the participants with the general population of private car drivers who received a speeding ticket indicates that the participants in the intervention are representative of the total population with regard to gender, penalty size, and speeding location (rural/urban area). With regard to age the average age of the participants in the intervention is 54. This is higher than the average age of the total population of private car drivers receiving a speeding ticket. The average age in the total population is 49.

### Self-reported effect

The preliminary results indicate that 45 % of the participants are “green”, 44 % are “yellow”, and 11 % are “red”. The preliminary results indicate that 75 % of the participants regard the advice they receive at the end of the first part of the intervention to be relevant to some degree. 63 % of the participants find that the intervention to a high/some degree made them change their attitude towards speeding. 51 % of the participants indicated to have acquired new knowledge about speeding and road safety, and 74% indicate to feel motivated to comply with the speed limits in the future to a high/some degree.

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Approximately 500 (0,2 %) out of the 250,000 potential participants have contacted the project team with complaints about being contacted through digital mail. The communication with these potential participants indicates that they feel intimidated by the invitation.

### Conclusion

The preliminary results do not allow conclusions about behavioural change or reoccurring ticketing for speeding. However, the preliminary results do indicate that inviting potential participants through digital mail is a convenient way to approach all potential participants. However, they also indicate some related potential challenges. Thus, the participation rate is low (approximately 9 %), and feedback indicates that potential participants feel intimidated by being approached unexpectedly. As part of the next step of the project, we plan to look more into how potential participants perceive it when they receive the invitation. We hope this will allow us to adjust the invitation if relevant in the future. However, it is possible that potential participants would feel less intimidated or offended if they new in advance that everybody receiving a speeding ticket would receive such an invitation. Another limitation is, that the invitation is sent to the owner of the vehicle, because that is the information which is available. In some cases the driver receiving the speeding ticket is not the owner of the vehicle and therefore has to be excluded from the intervention/study. It is challenging and most likely not possible to obtain contact information about speeders who do not own the vehicle.

Despite such challenges the preliminary results indicate the the intervention has potential reduce repeated speeding behaviour. Analysis conducted after completion of the data collection are needed tp confirm this.

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