

# Awareness raising and campaigns – Speeding

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*Please note:* The studies included in this synopsis were selected from those identified by a systematic literature search of specific databases (see supporting document). The main criterion for inclusion of studies in this synopsis and the DSS was that each study provides a quantitative effect estimate, preferably on the number or severity of crashes or otherwise on road user behaviour that is known to be related to the occurrence or severity of a crash. Therefore, key studies providing qualitative information might not be included in this synopsis.

# 1 Summary

Pilgerstorfer, M., Eichhorn, A., June 2017



## 1.1 COLOUR CODE: LIGHT GREEN

Results show that anti-speeding campaigns can have significant positive effects on road safety (behaviour). However, some campaigns are combined with enforcement activities, while others do not indicate long-term effects or do not take other indirect effects, like changes in traffic, into account.

## 1.2 KEYWORDS

Speeding, inappropriate speed, campaign, evaluation, awareness raising, attitude, advertisement, speed choice

## 1.3 ABSTRACT

The main purpose of speeding campaigns is to raise awareness regarding speeding and inappropriate speed, that is speed not adapted to the prevailing traffic, road or weather conditions. Results provide some indication that speeding campaigns can have a positive effect on road safety. A meta-analysis showed a significant 16% reduction in speeding. While one individual study reported a 30-45% decrease of fatalities and significant changes in attitudes and behaviour, some other studies did not find any significant changes either in actual behaviour, or in attitudes. Further, it should be noted that some of analysed speeding campaigns were accompanied by enforcement activities. Therefore, it is not clear to what extent the effects are attributable to the campaign itself.

## 1.4 BACKGROUND

This synopsis focuses on the effectiveness of campaigns addressing speeding and inappropriate speed, specifically. For more detailed information on campaigns and awareness raising in general, please also see the synopsis "Effectiveness of road safety campaigns".

### How is 'campaign' as a road safety measure defined?

The EU project CAST<sup>1</sup> provides the following definition of campaigns in the field of road safety: "Road safety communication campaigns can be defined as purposeful attempts to inform, persuade, or motivate people in view of changing their beliefs and/or behaviour in order to improve road safety as a whole or in a specific, well-defined large audience, typically within a given time period by means of organised communication activities involving specific media channels often combined with interpersonal support and/or supportive actions such as enforcement, education, legislation, enhancing personal commitment, rewards, etc." (Elliott, 1993; Rice & Atkin, 1994; Vaa et al., 2008, as cited in Delhomme et al., 2009).

### How do awareness raising and campaigns against speeding affect road safety?

The effect of a campaign can be increased information, knowledge, raised awareness, changes of attitude and changed behaviour to the extent that eventually the frequency of accidents is reduced.

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<sup>1</sup> From 2006 to 2009, the EU Project CAST "Campaigns and Awareness-Raising Strategies in Traffic Safety" was carried out by 19 partners from 15 European countries. This project identified essential parameters of campaigns and effectiveness.

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However, since accident occurrence is multicausal and highly influenced by chance, there is rarely a direct link from a campaign to accident reduction. Many anti-speeding campaigns are combined with other activities like enforcement. Then it is difficult to attribute the effect to a single element of this combination.

Campaigns can also be used to establish favourable preconditions in the public for new legislation. When looking at campaigns as a single measure it has to be pointed out that multi-theme campaigns (addressing several risk factors) do not have any effect at all (Delhomme et al., 2009).

Campaigns addressing only speeding appear to have a positive effect on:

- Attitudes to speeding and speed limits
- Speed choice/speed reduction/speeding
- Reduction of accidents and fatalities

### Which factors influence the effect of anti-speeding campaigns on road safety and which are the modifying conditions?

Important factors for an effective campaign are clearly defined road safety problems and target groups, as well as a corresponding tailored message. Furthermore, it is advisable to use theoretical psychological models in order to explain the risk behaviour or safety problem (Delhomme et al., 2009). It is important to note that communication has to be based on the cultural codes used in the target community (national, regional, sub-groups etc.). Other influencing factors are the duration and intensity of a campaign. Other situational factors such as simultaneous competing events (e.g. tragic accident reported in media) or especially increased enforcement can also have an impact on the campaign effects.

### How is the effect of campaigns against speeding and inappropriate speed measured?

The vast majority of studies in this field apply a before-after design to measure the campaign effect. Only a few studies give a comparison with a control group, as it is very difficult to find a suitable control group for nation-wide interventions. Accident statistics are seldom the means for evaluation in the studies of the present analysis.

The following measures are used in the studies to assess the effectiveness of anti-speeding campaigns:

- Observed behaviour such as mean speed on a defined street section or speed limit violations
- Behaviour and intended behaviour reported in questionnaires and interviews
- Attitudes, opinions, norms, knowledge, behavioural beliefs, risk perception reported in questionnaires and interviews
- Accident occurrence

## 1.5 OVERVIEW OF RESULTS ON SPEEDING CAMPAIGNS

The effectiveness of road safety campaigns can be measured by various means. The ultimate outcome measure is a reduction in crashes, which was used in one considered study. Watsford (2007) reported a 30-45% decrease of fatalities (for all and young drivers respectively) and significant changes in favourable attitudes and behaviour after the Australian "Pinkie Campaign".

A meta-analysis of 11 studies on campaigns against speeding (Phillips et al., 2009) indicated a significant reduction in speeding. According to weighted average effects, calculated after accounting for publication bias, speeding campaigns resulted in a significant 16% reduction in speeding (confidence level: 95%; Confidence Intervals (CI): -0.25 to -0.06).

A Canadian campaign evaluation (Islam & El-Basyouny, 2013) indicated that the implementation of several awareness raising activities combined with enforcement significantly reduced mean speed both in the short (5.8%) and long (4.5%) terms. Another evaluation study (van Schagen et al., 2016) reported a short-term change in speed on 30 km/h roads and a non-significant change in speeding behaviour on 50 km/h roads. Angle et al. (2009) found weak positive trends on some single items targeting attitudes towards speeding. However, most speeding related attitudes have not changed significantly.

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Carey & Sarma (2016) found that a high threat message, when combined with high perceived efficacy, can lead to a decrease in speed choice, as well.

It is noted that some of the analysed campaigns were supported by enforcement activities, which should be taken into account when interpreting the presented results.

## 2 Scientific details

### 2.1 THEORETICAL BACKGROUND

#### Aim and methods of awareness raising measures and campaigns

The main purpose of awareness raising measures and communication campaigns are to encourage road users to engage in safe behaviour in traffic. The underlying concept of campaigns in road safety is social marketing which aims at influencing and changing social behaviours.

When developing a campaign, it is crucial to conduct a detailed analysis of the **road safety problem** and the **target group**. Furthermore, psychological theoretical models are very helpful in the development of the campaign message to increase the effectiveness (Robertson & Pashley, 2015). A description of these models – such as the Theory of planned behaviour – can be found in Theofilatos et al. (2017).

Besides developing the message, the **campaign strategy** has to be defined. Campaigns may use an information approach or emotions, especially fear, to draw the target audience's attention to the message. There are still controversial discussions regarding the effectiveness of fear-based messages (see e.g. Castillo-Manzano et al., 2012).

To evaluate whether or not the message of the campaign can influence the behaviour of the target group as intended, a **pretest of message** and slogan should be conducted (Delhomme et al., 2009; Hoekstra & Wegman, 2011).

For road safety campaigns the following **type of media** is generally used: television, radio, newspaper/magazines, cinema, web/online, social media, billboards, flyers/leaflets/posters, message signs and events involving face to face communication. An overview of advantages and disadvantages of different types of media for road safety campaigns can be found in Delhomme et al. (2009).

#### Campaign effects and influencing factors

Awareness raising activities and campaigns can positively influence a number of road safety relevant constructs, such as favourable attitudes, knowledge and perceptions as well as safe behaviour and therefore also accident rates. However, there are various factors to be considered to maximise impact. According to Phillips et al. (2011) the following factors of campaigns are associated with accident reduction:

- Personal communication
- Road side delivery (billboards, message signs)
- Drink-driving theme
- Combination with enforcement
- Short campaign duration (0-29 days)

#### Limitations of campaigns and challenges of evaluation

In the past, evaluations of campaigns were rarely carried out for various reasons. For one, there is sometimes a lack of awareness of the benefit of evaluating, or there may be budget and time constraints. Uncertainties in terms of methodological application are also a barrier.

As previously described, the effectiveness of road safety campaigns can be measured by various means. The most important **outcome measure** is a reduction in crashes. It is difficult though, to link an accident reduction to a campaign while controlling for all other possible contributing factors. The defined outcome measures to account for campaign effects are therefore often 'indirect', like intended behaviour or attitudes etc. Even though there is evidence concerning the influence of these constructs on actual behaviour, there are always other additional determining factors (e.g. situational factors) that cannot be accounted for.

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A before-after-design ideally includes a **meaningful reference group** to control for confounding factors (e.g. a similar geographical region without exposure to the contents of the campaign), which is however rarely the case.

Next to a lack of (systematical and valid) evaluation of effects, campaigns are often **combined or conducted simultaneously** with enforcement measures and implementation of new legislation. If an effect (improvement) is measured then, it remains unclear to which of the single components it is attributable, and to what extent. Furthermore, even though research indicates in general a positive effect of an additional enforcement strategy on road safety, this might not be the case for specific topics such as speeding (Hoekstra & Wegmann, 2012).

### 2.2 CODED STUDIES

The literature search was carried out in three databases (Scopus, TRID and a KfV-internal literature database) with separate search strategies (for a detailed description see "Supporting documents"). Additionally, a free web-based search was conducted via Google.

Below first information on the characteristics of coded studies is given, and subsequently the main research methods used for evaluating campaigns and awareness raising measures against speeding are provided.

#### Description of studies

Table 1 provides further description of the background characteristics of the coded studies that deal with campaigns and awareness raising against speeding (sorted by author(s), meta-analysis first).

**Table 1.** Information on sample and design of coded studies (sorted by author(s), meta-analyses first)

Author(s), year, country	Measure description	Evaluation design	Research conditions
Phillips, et al., 2009, international	Meta-analysis. 11 studies were evaluated concerning the impact of speeding campaigns (69 effects on speeding)		
Angle, et al., 2009, UK	Before/after questionnaire on attitudes and behaviour	Car drivers 15+	1,994 interviews; 1,308 with drivers; data were weighted to be representative
Carey, & Sarma., 2016, Ireland	4-group (threat+efficacy, threat only, neutral, control) experimental design (before/after) using video based speed tasks; questionnaire	Mostly University students aged 18-24 years	62 male participants
Islam, & El-Basyouny, 2013, Canada	Before/after experimental design; speed and traffic data were collected on a 24/7 basis for a period of 55 days at 12 locations (7 test and 5 comparison sites)	Drivers	> 9,000 vehicles measured
Van Schagen, et al., 2016, Netherlands	Before/during design; speed data were collected on a 24/7 basis for a period of 55 days for 16 weeks at 20 locations (10 with/without posters)	Drivers	> 10 million vehicles measured
Watsford, 2008, Australia	Before/after comparison of road fatalities statistics; questionnaire survey on attitudes and behaviour	Novice drivers aged 17-25 years	

#### Description of the main research methods

In order to evaluate the effectiveness of speeding campaigns before-after designs are used. There are two main approaches: mostly, questionnaires are used for assessing changes in attitudes, opinions and self-reported behaviour. With analysing speed data, changes in the actual speeding behaviour can be observed. Only few studies consider accident/fatality statistics.

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For the majority, it is not clear from the evaluation studies whether or not a theoretical psychological model was the basis for designing the respective campaigns. Experimental designs are rarely used, as they assess only short-term effects of specific campaign elements (video, poster, radio spot etc.).

Young (male) drivers are considered as the main risk group for speeding. Therefore, many campaigns (and evaluations) focus on young and novice car drivers.

### 2.3 OVERVIEW OF RESULTS

The following table presents information on the main outcomes of coded studies on anti-speeding campaigns.

**Table 2:** Summary of coded study results regarding speeding awareness raising and campaigns (sorted by author(s), meta-analysis first)

Author, Year, Country	Exposure variable	Outcome variable	Effects on Road Safety		Main outcome description
Phillips, et al., 2009, international	Road safety campaigns	Speeding	↗	Weighted average effect= -0.16, CL:95%, CI: -0.25- -0.06	There is a significant percent change in speeding.
Angle, H., et al., 2009, UK	"THINK!" campaign	Acceptance of speed limits	–	Percent change=0.04	Most attitudes regarding speed limits have not changed significantly. There is only a weak positive trend on one item: "There is always a good reason for a 30mph limit".
		Personal responsibility	–	Percent change=0.05	Most attitudes regarding personal responsibility have not changed significantly. There is only a weak positive trend on one item: "The driver is always at least partly to blame if they knock over a pedestrian".
		Personal responsibility	–	Percent change=0.02	Most attitudes regarding personal responsibility have not changed significantly. There is only a weak positive trend on one item: "If I were to speed I could do something I'd regret for the rest of my life".
		Behavioural control	–	Percent change=0.04	Most attitudes regarding perceived behaviour control have not changed significantly. There is only a weak positive trend on one item: "Someone who drives at 35mph in a 30mph area is driving dangerously".
Carey, R.N. & Sarma, K.M., 2016, Ireland	Advertisement – experimental setting	Speed choice	↗	Absolute difference=-3,286.92 ms	The threat+efficacy group showed a significant change in speed (responding appr. 3 sec. earlier than at baseline)
	Advertisement – experimental setting	Speed choice	↗	Relative difference	The threat+efficacy group changed their speed significantly more than the neutral group.
	Advertisement – experimental setting	Speed choice	↗	Relative difference	The threat+efficacy group changed their speed significantly more than the control group.

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Author, Year, Country	Exposure variable	Outcome variable	Effects on Road Safety		Main outcome description
	Advertisement – experimental setting	Speed choice	–	Relative difference	There is no significant difference of change in speed choice between the threat and efficacy group and the threat only group.
Islam, M.T. & El-Basyouny, K., 2013, Canada	Speed management plan - local	Speed choice (overall)	↗	Absolute difference= -2.26 km/h CL:95%	There is a significant overall reduction of mean speed of 2.26 km/h (4.5%).
	Speed management plan - local	Speed choice (day/weekday)	↗	Absolute difference= -2.06 km/h CL:95%	There is a significant reduction of mean speed day/weekday of 2.06 km/h.
	Speed management plan - local	Speed choice (day/weekend)	↗	Absolute difference= -2.25 km/h CL:95%	There is a significant reduction of mean speed day/weekend of 2.25 km/h.
	Speed management plan - local	Speed choice (night/weekday)	↗	Absolute difference= -2.86 km/h CL:95%	There is a significant reduction of mean speed night/weekday of 2.86 km/h.
	Speed management plan - local	Speed choice (night/weekend)	↗	Absolute difference= -3.49 km/h CL:95%	There is a significant reduction of mean speed night/weekend of 3.49 km/h.
Van Schagen, et al., 2016, Netherlands	Anti-speeding campaign - nationwide	Speed choice (30 km/h locations)	↗	Absolute difference	Significant decrease in average speed and speed limit violations between Phase 0 and Phase 1 on 30 km/h locations.
		Speed choice (50 km/h locations)	–	Absolute difference	No significant change in average speed and speed limit violations between Po and P1 on 50 km/h locations.
	Poster to remind speed limit	Speed choice	–		There were no significant differences in average speed and speed limit violations between areas with and without posters.
	Anti-speeding campaign	Speed choice	–	Absolute difference	There were no significant long term (P5) effects of the campaign.
Watsford, R., 2008, Australia	Speeding campaign “No one thinks big of you” - regional	Speeding fatalities	↗	Percent accident reduction=0.32	In the campaign region speed related fatalities have decreased significantly after the campaign.
		Speeding young drivers fatalities	↗	Percent accident reduction=0.45	In the campaign region young driver speed related fatalities have decreased significantly after the campaign.
		Attitude	↗	Percent change=0.14	Young males who said “drivers are less likely to speed if they have their friends in the car” increased (from 2% to 16%).
		Behaviour	↗	Percent change= -0.15	Fewer young males reported that they have recently been in a car that has driven over the speed limit (from 84% to 69%).

\* Effects on road safety are coded as: positive (↗), negative (↘), non-significant (–) or no test for significance reported (∅)



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### Meta-analysis results

A meta-analysis of 11 studies on campaigns against speeding (Phillips et al, 2009) indicated a significant reduction in speeding. According to weighted average effects, calculated after accounting for publication bias, speeding campaigns resulted in a significant 16% reduction in speeding (Confidence level: 95%; CI: -0.25 to -0.06). However, no differentiation was made between studies reporting on campaigns with and without combined enforcement strategy. Thus, it remains unclear what the effects of single vs. combined measures are.

### Additional studies on speeding campaigns

The evaluation of the British “THINK!”<sup>2</sup> speeding campaign (“Live with it”; Angle et al., 2009) focused on **attitudes**. Most speeding related attitudes have not changed significantly. Nonetheless, weak positive trends on some items targeting attitudes towards speeding have been identified (acceptance of 30 mph speed limit; driver’s responsibility and behavioural control). The evaluation of another campaign (No one thinks big of you; Watsford, 2007) showed significant changes in attitudes and behaviour (compliance with speed limits).

Regarding **speed choice** findings from a Canadian campaign evaluation indicated that the implementation of several awareness raising activities combined with enforcement significantly reduced speed both in the short and long terms. Overall, the short term mean speed reduction was 2.94 km/h, which is equivalent to a 5.8% reduction. In the long term, the overall reduction of mean speed was 2.26 km/h, which is equivalent to a 4.5% reduction (Islam & El-Basyouny, 2013).

However, van Schagen et al. (2016) indicated that a Dutch campaign did not influence speed and speeding behaviour on 50 km/h roads. They found an effect of a local speed limit reminder on speed choice on 30 km/h roads, but this effect was temporary and had disappeared within a week.

Carey & Sarma (2016) found, that a high threat message, when combined with high perceived efficacy, can lead to a decrease in speed choice, as well.

With respect to **fatalities** Watsford (2007) reported a 30-45% decrease (especially speeding related and young driver speeding related) attributed to the ‘No one thinks big of you’ campaign.

### Modifying conditions

Phillips et al. (2009) outlined conclusions on a meta-regression by Vaa et al. (2004). They found the following factors to be beneficially influencing campaign outcomes:

- Personal communication
- Road side delivery
- Combination with enforcement
- Short campaign duration

## 2.4 CONCLUSION

### General

The considered evaluated campaigns put emphasis on speeding and rarely on inappropriate speed. However, the evaluation studies often discuss speed choice in general.

### Main results

Results provide some indications that anti-speeding campaigns can have significant positive effects on road safety.

A meta-analysis of 11 studies (Phillips et al., 2009) reported a significant 16% reduction in speeding and Islam & El-Basyouny (2013) as well found an overall long-term reduction of mean speed (4.5%). Furthermore, Watsford (2007) reported a 30-45% decrease of (especially speeding related and young driver speeding related) fatalities and significant changes in attitudes and behaviour.

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<sup>2</sup> “Think!” is the name for a bundle of road safety campaigns in the UK which address various risk behaviours and road user groups.

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However, some studies did not find any significant changes either in actual behaviour, or in attitudes (Angle et al., 2009; van Schagen et al., 2016).

### **Biases and transferability**

It is difficult to link changes in accidents solely to a campaign. The defined outcome measures to account for campaign effects are therefore often 'indirect' like self-reported data on behaviour or attitudes. Even though there is evidence concerning the influence of these constructs on actual behaviour, there are also always other determining factors that cannot be accounted for. Indirect effects, such as changes in traffic composition, traffic density or seasonal conditions, may affect speeding behaviour. Furthermore, enforcement activities may influence speeding as well. When campaigns are combined with law enforcement, as evaluated by Islam & El-Basyouny (2013), it is not clear to what extent the effects are attributable to the single measures.

To control for confounding factors ideally a meaningful reference group is included, which is however rarely possible for national campaigns.

All individual campaigns (exposure) were heterogeneous regarding design (exact target group, period, media etc.). Regarding transferability from a speeding campaign and campaign design to another country, cultural codes should be considered. A detailed analysis of the speeding behaviour on the country level helps to identify the target group(s) for intervention.

## 3 Supporting documents

### 3.1 LITERATURE SEARCH STRATEGY

The literature search was conducted in November and December 2016. It was carried out in three databases with separate search strategies. The first one was performed in 'Scopus' which is a large abstract and citation database of peer-reviewed literature. The second literature search was conducted in a KfV-internal literature database ('DOK-DAT'), and the third in the TRID database (combining TRB's and OECD's transportation research databases). Additionally, a complementary free internet search was conducted via Google.

**Database:** Scopus **Date:** 2<sup>nd</sup> of December 2016

Search No.	Search terms, logical operators, combined queries	Hits
#1	"Campaign" OR "awareness" OR "public information"	248,963
#2	"Speed*" OR "inappropriate speed" OR "appropriate speed" OR "adapted speed" OR "inadapted speed" OR "fast driving" OR "velocity"	1,027,124
#3	"road safety" OR "traffic safety"	12.033
#4	#1 AND #2 AND #3	135
#5	Limit to Europe, Russia, USA, Canada, Australia and New Zealand	81

**Table 3:** Used search terms, logical operators, and combined queries of literature search (Scopus).

Detailed search terms, as well as their linkage with logical operators and combined queries are shown in Table 3. Using search field titles, abstract and keywords (TITLE-ABS-KEY) and a general limitation to studies which were published from 2006 to current led to 135 studies. Results were further limited to studies from Europe, Russia, USA, Canada, Australia and New Zealand. This led to a final sample of 81 studies of literature search in database Scopus (Table 3).

**Database:** DOK-DAT **Date:** 7<sup>th</sup> of December 2016

Search no.	Search terms, operators, combined queries	Hits
#1	"Werbung" (advertisement) AND "Sicherheit" (safety)	467
#2 (within #1)	"Wirksamkeit*" (effectiveness) OR "Evalu*" (evaluation) OR "Bewertung*" (assessment)	278

**Table 4:** Used search terms, logical operators, and combined queries of literature search (DOK-DAT).

German search fields 'Titel' (title), 'ITRD Schlagworte' (key words) and 'freie Schlagworte' (free keyword search) were used. Hits were only limited to the years 1990 to 2016 and got 278 more potential studies (Table 4).

**Database:** TRID database **Date:** 20<sup>th</sup> of December 2016

Search no.	Search terms, operators, combined queries	Hits
#1	"safety" AND "campaign" AND "evaluation"	240

**Table 5:** Used search terms, logical operators, and combined queries of literature search (TRID).

Search terms were "safety", "campaigns" and "evaluation". Hits were limited to the years 2000 to 2016 and got 240 potential studies. After limitation to "speeding", 7 studies remained (Table 5).

The literature search strategy, querying three databases, did not result in a sufficient number of evaluated awareness raising measures. Based on the expertise of the consortium, it became evident that some evaluation studies are not published in scientific journals (grey literature, conference

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papers etc.). Therefore, it was decided to complement the results with a non-standardised, free search with the internet search engine Google. In a first step, relevant road safety campaigns were identified. In a second step, the aim was to find according evaluation papers of these campaigns. The following search terms were used in different combinations: campaign, evaluation, effectiveness, awareness raising, speed, speeding, speed limit. The unstandardised search resulted in further 15 studies.

### Results Literature Search

Database	Hits
Scopus (remaining papers after several limitations/exclusions)	81
DOK-DAT	278
TRID database	240
Unstandardised Search via Google & recommended literature	15
<b>Total number of studies to screen title/ abstract</b>	<b>614</b>

**Table 6:** Results of databases and free search after limitations

All in all, this literature search led to 614 potential studies for screening.

### Screening

<b>Total number of studies to screen title/ abstract</b>	<b>614</b>
De-duplication	1
Exclusion criteria: not or other topic, no evaluation	587
<b>Studies to obtain full-texts</b>	<b>26</b>

**Table 7:** Screening of abstracts

After screening the titles and abstracts 26 studies remained for screening the full-text.

<b>Total number of studies to screen full-text</b>	<b>26</b>
Full-text could be obtained	25
Reference list examined Yes/No	Y
<b>Eligible papers</b>	<b>25</b>

**Table 8:** Papers obtained for full-text screening

### Screening of the full texts

<b>Total number of studies to screen full paper</b>	<b>25</b>
Other topic (e.g. enforcement, unsafe behaviour) - excluded	7
Data used in more recent study - excluded	1
Studies with no codable data - excluded	4
Studies without before-after measurement - excluded	4
Studies with other focus - excluded	2
Studies not available in English - excluded	2
<b>Remaining studies</b>	<b>5</b>
Speeding effects coded within "campaigns general" (meta-analysis)	1

**Table 9:** Screening of full texts

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### Prioritising Coding

- Prioritising Step A (meta-analysis first)
- Prioritising Step B (best fitting in coding scheme, in particular quantitative data)
- Prioritising Step C (published more recently)
- Prioritising Step D (Western/Central-European countries before others)

Studies are presented in the following table sorted by authors' name; meta-analysis is mentioned first.

No.	Publication	Coded Yes/No	Reason
1.	Phillips, R., Ulleberg, P. & Vaa, T. (2009). Do road safety campaigns work? A meta-analysis of road safety campaign effects. In: Forward, S. & Kazemi, A. 2009. A theoretical approach to assess road safety campaigns. Evidence from seven European countries. 25-45.	Y	Meta-Analysis
2.	Angle, H., Greggs, J. & Goddard, E. (2009). THINK! Road Safety Campaign Evaluation Post Stage: 'Live With It' speed campaign and Motorcycle campaign. BMRB Report 2009.	Y	
3.	Australian Office of Road Safety (2013). Speeding Enforcement (Post-It Notes) Campaign Evaluation – Summary Report. <a href="https://rsc.wa.gov.au/RSC/media/Documents/Road%20Data/Research%20and%20Reviews/Campaign%20Evaluations/speeding-post-it-campaign-research-2013.pdf">https://rsc.wa.gov.au/RSC/media/Documents/Road%20Data/Research%20and%20Reviews/Campaign%20Evaluations/speeding-post-it-campaign-research-2013.pdf</a>	N	No before-after measurement
4.	Carey, R.N. & Sarma, K.M. (2016). Threat appeals in health communication: messages that elicit fear and enhance perceived efficacy positively impact on young male drivers. BMC Public Health (2016) 16:645.	Y	
5.	Delaney, A., Lough, B, Whelan, M. & Cameron, M. (2004). A Review Of Mass Media Campaigns in Road Safety. Monas University Accident Research Centre. Report No. 220.	N	Other topic (general)
6.	D'Elia, A., Newstead, S. & Cameron, M. (2007). Overall Impact During 2001-2004 of Victorian Speed-Related Package. Monash University Accident Research Centre. Report No. 267.	N	Other topic (enforcement)
7.	Elvik, R. (2014). Evaluating the Effectiveness of Norway's "Speak Out!" Road Safety Campaign: The Logic of Causal Inference in Road Safety Evaluation Studies. Journal of the Transportation Research Board, 1717.	N	Other topic (unsafe behaviour)
8.	Friswell, R., Williamson, A., Allsopp, G., Gavin, A. & Bryant, P. (2008). Impact of a direct mail safety campaign for motorcyclists. 2008 Australasian Road Safety Research, Policing and Education Conference, Adelaide, South Australia.	N	Other topic (safe ride lines)
9.	Guria, J. (1999). An economic evaluation of incremental resources to road safety programmes in New Zealand., Accident Analysis and Prevention Vol.31 No.1/2, 91-99.	N	Main focus is not on campaigns & speeding
10.	Islam, M.T. & El-Basyouny, K. (2013). An integrated speed management plan to reduce vehicle speeds in residential areas: Implementation and evaluation of the Silverberry Action Plan. <i>Journal of Safety Research</i> , 45, 85-93.	Y	
11.	Kaye, S., Lewis, I., Algie, J. & White, M. J. (2016). Young drivers' responses to antispeeding advertisements: Comparison of self-report and objective measures of persuasive processing and outcomes. <i>Traffic Injury Prevention</i> , 17 (4), 352-358.	N	No before-after measurement

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No.	Publication	Coded Yes/No	Reason
12.	Klimmt, C., Maurer, M. & Baumann, E. (2014). Prozessevaluation der Kampagnenfortsetzung 2011-2012 "Runter vom Gas". Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit Heft M 246, Bergisch Gladbach.	N	No before-after measurement
13.	Klimmt, C. & Maurer, M. (2012). Evaluation der bundesweiten Verkehrssicherheitskampagne "Runter vom Gas". Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit Heft M 223, Bergisch Gladbach.	N	No before-after measurement
14.	Phillips, R. O. & Sagberg, F. (2013). Evaluation of the Norwegian Anti-speeding Campaign 'Which Side of the Speed Limit Are You On'. TØI Report.	N	Not available in English
15.	Phillips, R. & Torquato, R. (2009). A review of 45 anti-speeding campaigns. TOI report 1003/2009.	N	Only review, no codable meta-analysis effects. Available studies contained will be coded separately.
16.	Plant, B.R.C., Reza, F. & Irwin, J.D. (2011). A systematic review of how anti-speeding advertisements are evaluated. Journal of the Australasian College of Road Safety Vol. 22 No.4, S. 18-26.	N	No codable data
17.	Rundmo, T. & Iversen, H. (2004). Risk perception and driving behaviour among adolescents in two Norwegian counties before and after a traffic safety campaign, Safety Science 42, 1–21	N	Other topic (unsafe behaviour)
18.	Stead, M. & Eadie, D. (2007). Evaluation of Foolsspeed Campaign. Final Phase Report. Scottish Executive Social Research.	N	No codable data
19.	Stead, M., MacKintosh, A. M., Tagg, S. & Eadie, D. (2002). Changing speeding behaviour in Scotland, an evaluation of the "Foolsspeed" Campaign. Scottish Executive Central Research.	N	Same data as in Stead, 2005 (already coded in Phillips, meta-analysis)
20.	Tay, R. (2005). The effectiveness of enforcement and publicity campaigns on serious crashes involving young male drivers: Are drink driving and speeding similar? Accident Analysis & Prevention 37 (2005) 922-929.	N	Main focus is not on campaigns & speeding
21.	Van Lamoen, N. (2014). Evaluation of the "Safer Summer" Road Safety Campaign. Final report. Road Policing Support, Police National Headquarters, New Zealand Police.	N	Other topic (enforcement)
22.	Van Schagen, I., Commandeur, J.J.F., Goldenbeld, C. & Stipdonk, H. (2016). Monitoring speed before and during a speed publicity campaign. Accident Analysis and Prevention (article in preparation).	Y	
23.	Wandtner, B. (2016). Die Wirkung von Verkehrssicherheitsbotschaften im Fahrsimulator - eine Machbarkeitsstudie., Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit Heft M 266, Bergisch Gladbach, 37 S.	N	No campaign evaluation (no codable data)
24.	Watsford, R. (2008). The success of the 'Pinkie' campaign - Speeding. No one thinks big of you: A new approach to road safety marketing. 2008 Joint ACRS-Trafelsafe National Conference.	Y	
25.	Whittam, K.P., William O. Dwyer, Patricia W. Simpson, Frank C. Leeming (2006). Effectiveness of a Media Campaign to Reduce Traffic Crashes Involving Young Drivers. Journal of Applied Social Psychology, 36(3), 614-628. DOI:	N	Other topic (unsafe behaviour)

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No.	Publication	Coded Yes/No	Reason
	10.1111/j.0021-9029.2006.00021.x		
26.	Wittink, R.D., Levelt, P.B.M. (1994). <i>Influencing Speeding through Information Campaigns</i> . SWOV, Leidschendam.	N	Not available in English

### 3.2 REFERENCES

#### Meta-analysis

Phillips, R., Ulleberg, P. & Vaa, T. (2009). Do road safety campaigns work? A meta-analysis of road safety campaign effects. In: Forward, S. & Kazemi, A. 2009. *A theoretical approach to assess road safety campaigns. Evidence from seven European countries*, 25-45.

#### List of studies included in Phillips et al., 2009

Anund, A. (1996). Zon-96. Accessed via CAST partner Per Henriksson using structured questionnaire.

Marosi, K. & Nielsen, H.S. (1997). 10 = 44. Evaluering af en hastighedskampagne fra forsommeren 1997. Rådet for Større Færdselssikkerhed & De lokale Færdselssikkerhedsudvalg.

Olsson Lokalt hastighetsprojekt på Nynäsvägen (2003). Utvärdering av kampanjaktiviteter, attityd och beteenden, Våren. Accessed via CAST partner Per Henriksson using structured questionnaire.

Rooijers, T. (1988). Effects of different public information techniques in reducing driving speed. In Anonymous, *Road User Behaviour: Theory and Practice*, Second International Conference of Road Safety, Groningen, The Netherlands, August 1987.

Samdahl, D.R. & Daff, M.R. (1986). Effectiveness of a neighbourhood road safety campaign, 13th Proceedings of the Australian Road Research Board, 25-45.

Statens trafiksäkerhetsverk Vilt och trafik (1978). Undersökning av kampanjeffekter. Accessed via CAST partner Per Henriksson using structured questionnaire.

Stead, M., Tagg, S., MacKintosh, A.M. & Eadie, D. (2005). Development and evaluation of a mass media Theory of Planned Behaviour intervention to reduce speeding, *Health Education Research* 20, 36-50.

Stuster, J.W. (1995). Experimental evaluation of municipal speed enforcement program.

Thompson, C. (1998). Results from the development and evaluation of the 1998 speed mass media community education campaign for Western Australia, Office of Road Safety, Transport Western Australia, 84-87.

Van Houten, R. & Nau, P.A. (1983). Feedback interventions and driving speed: a parametric and comparative analysis, *Journal of Applied Behavior Analysis*, 16, 253-281.

Webster, K., & Schnerring, F. (1987). An evaluation of 40 Km/h speed limits. Forum Papers, Australian Transport Research Forum, 807-827. Queensland Department of Transport.

## Awareness raising and campaigns – Speeding

### List of additional coded studies

- Angle, H., Greggs, J. & Goddard, E. (2009). THINK! Road Safety Campaign Evaluation Post Stage: 'Live With It' speed campaign and Motorcycle campaign. BMRB Report 2009.
- Carey, R.N. & Sarma, K.M. (2016). Threat appeals in health communication: messages that elicit fear and enhance perceived efficacy positively impact on young male drivers. *BMC Public Health*, 16, 645.
- Islam, M.T. & El-Basyouny, K. (2013). An integrated speed management plan to reduce vehicle speeds in residential areas: Implementation and evaluation of the Silverberry Action Plan. *Journal of Safety Research*, 45, 85-93.
- Van Schagen, I., Commandeur, J.J.F., Goldenbeld, C. & Stipdonk, H. (2016). Monitoring speed before and during a speed publicity campaign. *Accident Analysis and Prevention*, 97, 326-334.
- Watsford, R. (2008). The success of the 'Pinkie' campaign - Speeding. No one thinks big of you: A new approach to road safety marketing. 2008 Joint ACRS-Trafelsafe National Conference.

### References on further background information (sorted by authors)

- Castillo-Manzano, J., Castro-Nuno, M. & Pedregal, D. (2012): How many lives can bloody and shocking road safety advertising save? *Transportation Research Part F* 15 (2012), 174-187.
- Delhomme, P., De Dobbeleer, W., Forward, S. & Simoes, A. (2009). Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns. EU-Project CAST. Belgium 2009.
- Hoekstra, T. & Wegmann, F. (2012). Improving the effectiveness of road safety campaigns: Current and new practices. *IATSS Research* 34, 80–86.
- Phillips, R.; Ulleberg; P. and Vaa, T. (2011): Meta-analysis of the effect of road safety campaigns on accidents. *Accident Analysis and Prevention* 43 (2011) 1204–1218.
- Robertson, R.D. & Pashley, C.R. (2015). Road safety campaigns – what the research tells us. Traffic Injury Reserach Foundation, Ottawa, Canada.
- Theofilatos, A., Aigner-Breuss, E., Kaiser, S., Alfonsi, R., Braun, E., Eichhorn, A. et al. (2017). Identification and Safety Effects of Road User Related Measures, Deliverable 4.2 of the H2020 project SafetyCube.
- Vaa T., Assum, T., Ulleberg, P. & Veisten, K. (2004). Effekter av informasjonskampanjer på atferd og trafikkulykker - forutsetninger, evaluering og kostnadseffektivitet. TØI Rapport. 727/2004 Institute of Transport Economics. Oslo.