

Road Safety Research Review

Threat appeals in behavioural change initiatives

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Aim & Purpose

This document provides a short summary of the main findings in published research into the use of threat appeals for road safety behavioural change campaigns.

There is no clear threshold above which the presentation of a negative consequence becomes a threat appeal or fear stimulus; different researchers have analysed the effects of different source material. This document will include research that is presented as an examination of threat appeals or fear stimuli as motivator for behavioural change. Typically this includes the use of media depicting the aftermath of injury collisions.

There already exists some detailed and insightful reviews of research into this topic and it is not the purpose of this document to replace or re-create this work. This document is designed to serve as a quick reference guide for use by SERP officers. For further reading into the topic the following document is a good starting point:

Christmas, S., Fosdick, T. and Campsall, D., 2016. DEVELOPMENT OF A COMMUNICATION APPROACH TO TACKLE YOUNGER DRIVER SAFETY ON RURAL ROADS. Road Safety Analysis Limited, pp 34-45.

<https://agilysis.co.uk/download/16/research-evaluation/5243/development-of-a-communication-approach-to-tackle-younger-driver-safety-on-rural-roads.pdf>

This short article by Dr. Elizabeth Box of the RAC foundation gives a concise summary of the current challenges in driver education campaigns:

https://issuu.com/firstcar/docs/young_driver_focus_2021_magazine/32?ff

Summary of research

What are threat appeals?

There is no single definition for a threat appeal, but the published literature fairly consistently uses examples where road safety media depicts the physical and emotional consequences of collisions. Examples of this include:

- 1) **Safe Drive Stay Alive** (Safe Drive Surrey): “....a series of live educational performances featuring a sequence of films and live speakers, These emotional, engaging and thought provoking performances feature people recounting their stories and the many serious, long term impacts to themselves and all those around them.”¹
- 2) **It's 30 for a reason** (Think!): graphic advert depicting injuries sustained by a child occurring in slow motion, in reverse.



- 3) **Classroom** (DoE Northern Ireland): graphic advert showing a car losing control and rolling into a class of school children on a picnic blanket.



- 4) Other poster campaigns from India, the US and UK:



¹ <https://safedrivesurrey.org/>

How are threat appeals supposed to work?

There appears to be three main reasons for basing a campaign around a threat appeal:

- 1) Attention grabbing: Use of shocking imagery to get the audience's attention.
- 2) Information about consequences: To educate road users who are unaware of the potential consequences of the targeted behaviour.
- 3) Prompt a change in behaviour: Expectation that the audience will modify target behaviour to mitigate the threat to their safety presented in the campaign.

None of the research reviewed for this document called into question the ability of threat appeals to grab attention. Being noticeable is an important feature for any campaign, however it is not a measure of content quality or of impact on the desired behaviour.

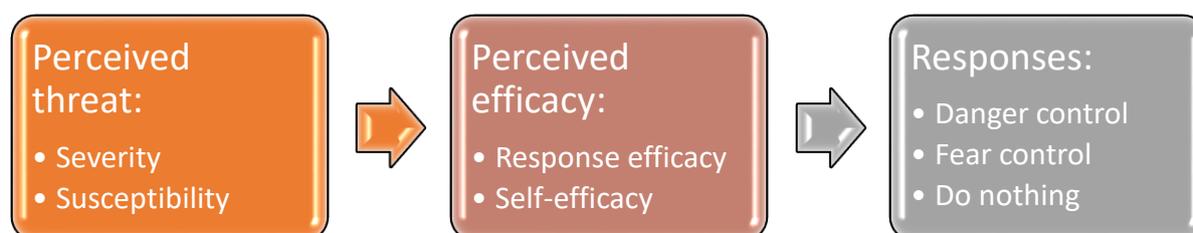
Information about consequences may only be useful if the audience are not already aware of those consequences. The SERP's own survey data on the Roadster programme delivered to 6th Form students indicates that knowledge of risks and consequences is by no means lacking among the target audience even *before* the intervention is delivered. Knowledge based interventions are further doubted by Zeedyk et al., (2001) in the paper "Children and road safety: Increasing knowledge does not improve behaviour".

This leaves the third reason above for more detailed examination, and this is the area of threat appeals that much of the literature focuses upon.

Existing research

What is the rationale for threat appeals?

Much of the rationale for threat appeals seems to be based upon the Extended Parallel Process Model (EPPM) (Witte, 1992). This model is summarised below:



The **Severity** of the perceived threat is essentially how bad the consequence is believed to be. This could be measured on a scale ranging from "I don't mind if this happens" to "Nothing worse could happen to me".

The **Susceptibility** of the threat is how likely the individual believes they are to be impacted by the threat. This could be measured on a scale ranging from "Could never happen to me" to "Will almost certainly happen to me".

Response efficacy is the degree to which the individual feels the recommended behaviour would be an effective way to mitigate the threat. This could be measured on a scale ranging from "The response will have no effect" to "The response is guaranteed to work".

Self efficacy is the degree to which the individual feels they are able to carry out the recommended behaviour. This could be measured on a scale ranging from "I am incapable of doing this" to "Doing this is easy for me".

The three responses in EPPM depend on the individual's feelings about the four threat and efficacy variables (Christmas, Fosdick and Campsall, 2016). When threat and efficacy are both perceived as high then a **danger control** response can be expected. Danger control is the desired response for a road safety campaign as it involves modifying behaviour to reduce risk. If the perceived efficacy is low then a **fear control** response is to be expected. This is a dysfunctional response from a road safety perspective and one where some logical fallacies or cognitive biases may be invoked to dismiss the threat. The third response – **do nothing**, can be expected when the perceived threat is already low in terms of severity (e.g. a modest financial penalty for a wealthy person) and/or susceptibility (e.g. risk of being hit by a larger vehicle for an HGV driver).

Where do threat appeals sit in the EPPM?

Threat appeals aim to induce fear in the audience by presenting intolerable consequences for anyone choosing to engage in the targeted behaviour (Wundersitz et al., 2010). The EPPM deems that fear will only be induced if the threat is sufficiently severe, *and* is of a nature that the audience members feel personally susceptible to. Threat appeals focus on the severity aspect of the EPPM (Christmas, Fosdick and Campsall, 2016).

How effective are threat appeals?

While threat appeals are known to successfully grab attention, this does not reliably translate into positive behavioural change (Box, 2021). A meta-analysis of 13 studies into the use of threat appeals in road safety found the effect on metrics of driver behaviour were non-significant, meaning any observed changes were small enough to be accounted for by random error (Carey, McDermott and Sarma, 2013). The same study found that there *was* a significant effect on measures of fear, indicating that fear does not necessarily translate into a change in behaviour. Another review of multiple studies found the effects of threat appeal campaigns were inconsistent, but that it was the relevance ('susceptibility' in EPPM) of the threat to the audience, and coping strategies offered, that accounted for any effects on behaviour, rather than the severity of the threat depicted (Lewis et al., 2007).

These findings are consistent with another area of road safety, in that it is the certainty of apprehension (susceptibility), not the severity of punishment, that primarily influences the deterrence effect of law enforcement on offending (Nagin, 2013).

Studies of specific campaigns have struggled to find value in the use of strong threat appeals. An evaluation of a Russian campaign recommended a move towards more efficacy based messages (Ngondo and Klyueva, 2019) – i.e. focussing on how to mitigate the threat rather than emphasising the severity of the threat. An evaluation of Safe Drive Stay Alive in the UK found none of the seven negatively framed approaches had any significant effect on metrics of driver intentions (Dale, Scott and Ozakinci, 2017).

The review conducted by Lewis et al. (2007) concluded that the unreliable and inconsistent results of threat appeals have led many behavioural scientists and public health professionals to recommend threat appeals are either used with great caution or avoided completely. In some cases, particularly with a young male target audience, avoiding threat appeals completely may be the most prudent approach. This is because there is evidence that for young males in particular threat appeals can do more harm than good, especially for those who derive self-esteem from driving prowess (Carey and Sarma, 2011).

What can make threat appeals ineffective?

The EPPM gives clues as to why a threat appeal may be ineffective. When presented with a fear stimulus people will take action to remove the discomfort that the fear creates (Rippetoe and Rogers, 1987). Behavioural modification is only one of the options available to deal with the fear. If the threat is easy to characterise as not personally relevant (low susceptibility), then the severity of the threat becomes irrelevant so the entire threat can be ignored. If perceived efficacy is low in personal and/or response options, then cognitive biases may be invoked as more effective way to deal with the fear than a behavioural response that is seen as ineffective or unachievable (Wundersitz et al., 2010).

Cognitive Biases

These are a range of human biases and errors in logic that can lead to conclusions and actions that are either not supported or directly contradicted by evidence and observations. They include:

- **Bandwagon effect:** Attaching more value to popular ideas (e.g. “Everyone breaks the speed limit so it must be safe to do so”).
- **Optimism bias:** Underestimating the probability of negative consequences for one’s self (e.g. “I can see it might happen to others, but not to me”).
- **Anecdotal bias / Availability heuristic:** Substituting statistics for easily recollected stories (e.g. “My friend speeds all the time and has never had a crash”).
- **Reactive devaluation:** Devaluing an idea based on who it came from, not its qualities (e.g. “Public authorities just want to control us, this isn’t about my safety”).
- **Gambler’s fallacy:** Believing future probabilities are affected by past events (e.g. “I got away with it before so I will get away with it again”).

There is evidence that some of the more extreme threat appeals undermine the credibility of the message by appearing fake and over-the-top (Harman and Murphy, 2008), making them easily dismissed by the audience. This could have longer term implications for future messaging from the same organisation. There is evidence that increasing the level of fear aroused actually decreases the rate of message acceptance (Tay and Watson, 2002). This indicates higher levels of threat can in themselves be counter-productive, regardless of how well designed the rest of the intervention is.

Young males tend to form the core target audience of many road safety campaigns due to the relatively high risk per mile travelled they pose to themselves and others. This group is particularly resistant to threat appeals, especially physical threats (Lewis et al., 2007). A possible reason for this response among young men was shown in five of the studies examined by Carey, McDermott and Sarma (2013). These studies found that people who derive self-esteem from driving prowess were significantly less affected by threat appeals and in some cases reported an increase in intended risk taking behaviour. It has been suggested that these threat appeals are interpreted as a challenge to the driving prowess of the audience (Christmas, Fosdick and Campsall, 2016), whose overconfidence is a deliberate means of gaining a desirable position in the social hierarchy (Christmas, 2007).

What approaches does the research recommend?

A recurring theme in the literature is that a high threat appeal on its own is likely to have a very limited and inconsistent influence on positive behaviours, and may increase the chances of the intervention actually stimulating more risk taking behaviours.

The lack of support for using high severity threats is in contrast to the apparently essential need for the threat to be interpreted as a relevant and realistic consequence by the audience. Consequences of undesirable behaviour that are perceived as both highly likely and highly relevant need only be of very modest severity to gain traction. In fact, higher threat levels may increase the risk of being ignored or prompting greater risk taking. Social, rather than physical threats may therefore be the most effective consequences of risk-taking to highlight (Lewis et al., 2007). This is especially true for adolescents whose seemingly irrational behaviour can be attributed to the fact their desire to avoid peer-group social risks outweighs their desire to avoid health, safety and legal risks (Blakemore, 2018).

Given the nature of the risks are almost universally well known, even among adolescents, it should be no surprise that the literature recommends a focus on coping strategies to avoid the risks, rather than to sensationalise the nature of the risks (Lewis et al., 2007 & Wundersitz et al., 2010).

In a nutshell.....

Existing research gives a clear and consistent message: Mildly undesirable consequences that are perceived by the audience as both personally relevant and highly likely to occur, combined with effective and achievable mitigation strategies, are much more likely to have a beneficial impact on behaviour than relying on increasingly shocking and explicit content to provoke fear.

Conclusions & Recommendations

Conclusions

Existing research indicates that high-threat appeals alone can have little to no positive effect on driver behaviour and in some cases will prompt greater risk taking. More effective approaches focus on self-efficacy by showing people how they can make the required positive changes, rather relying on fear as a motivator.

Carefully designed threat appeals can be an effective stimulation for positive behavioural change within certain specific target audiences. There may be ethical reasons to avoid this approach (not discussed in this document), but there are also risks that it will make the behaviour worse, or at least represent a missed opportunity to use more effective tactics. Without credible coping strategies, high-threat appeals may simply be ignored through the application of cognitive biases to remove the discomfort initiated by the threat stimulus.

There is no apparent lack of awareness around what the worst consequences of risky behaviour might be, but young males who display these risky behaviours most prominently, are particularly resistant to fear based messages. Those who derive self-esteem from driving prowess may even be inspired to increase their risk taking after receiving a threat appeal road safety message.

Negative social consequences from undesirable behaviour, that are personally relevant and perceived as highly likely, are much more likely to be accepted than high-threat messages. If these milder but more relevant and plausible scenarios are combined with effective and achievable coping strategies, there is a much greater chance of inspiring a reduction in risk taking behaviour.

Recommendations

1. Media and education campaigns, particularly those aimed at young male drivers, should avoid high-threat appeals, especially threats to physical safety.
2. Media and education campaigns should highlight highly probable and audience-relevant social risks associated with unsafe road use behaviours. They must also provide effective and achievable coping strategies that give the audience credible options for avoiding (rather than ignoring) the risk.

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