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The effectiveness of road safety interventions using three different messages: Emotional, factual or a combination of both messages

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ABSTRACT

The present study is an evaluation of a road safety intervention programme dealing with alcohol in traffic. The intervention was based on a programme developed by the Swedish Road Administration using three different messages. The aim of the study was to evaluate which message (emotional, factual or a combination of both messages) had the largest effect on the variables included in the theory of planned behaviour (TPB). Of the 930 Senior High School Students who took part in the study 265 received an emotional message, 251 received a factual message, 254 received a combination of both messages and 160 were assigned to a control group who did not receive any message. Two scenarios were used describing situations where the participants would receive a lift from someone who had drunk two 'strong' beers and was either someone they did not know very well or their best friend. The results showed that the intervention combining the emotional and the factual message had the largest effect on the variables included in the theory of planned behaviour (TPB). Attitude was affected the most by the interventions while further activities need to be taken in order to better target perceived behavioural control and especially subjective norm and thereby also intention.

1. Introduction

Driving under the influence of alcohol is an important risk factor for traffic injuries (e.g. Evans, 2004). The legal limit for alcohol varies from country to country and in Sweden the blood alcohol concentration (BAC) is set to 0.2 g/L whereas 0.5 g/L is the general norm within the European Union (EU). Despite the fact that less than 0.25% of the annual average daily traffic is driven by drivers under the influence of alcohol (Forsman, Gustafsson, & Varedian, 2007), these drivers contribute to a large number of fatal accidents. During 2011 more than 12% of all fatal accidents in Sweden involved car drivers with a blood alcohol concentration (BAC) over the legal limit (Transportanalysis, 2011). Studies have also found that drunk driving is a major road safety issue amongst young drivers. According to an in depth study carried out by the Swedish Road Administration (2004) 30–40% of motorists aged 18–29 years who had been involved in fatal accidents had been driving under the influence of alcohol. Being a passenger to a drunk driver is another related problem which puts young people at greater risk of being involved in an accident. A recent Swedish survey showed that approximately 10% of young people had travelled with a drunk driver in the past year (Swedish Transport Administration, 2012).

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Road safety communication campaigns can be an effective method to combat the problem of alcohol in traffic. The campaign can reach a large audience through the use of mass media or a smaller audience using a more personal approach like moderated peer group discussions. The effect of various road safety related campaigns has been evaluated using meta-analysis (Delhomme et al., 1999; Phillips, Ulleberg, & Vaa, 2009; Vaa, Assum, Ulleberg, & Veisten, 2004). These studies found 8–9% reductions of accidents during the campaign (8.9%, 9.0% and 8.5%, respectively) and a 14.8% reduction after the campaign (Delhomme et al., 1999; Vaa et al., 2004). Vaa et al. (2004) were also able to show that drunk driving behaviour decreased by 14% while Phillips et al. (2009) found that drunk driving behaviour decreased by 17%. The results from meta-analysis also indicated that a campaign was more likely to succeed if it included only one theme, selected a specific target audience and was based on a theoretical model (e.g., Delaney, Lough, Whelan, & Cameron, 2004; Delhomme et al., 1999). However, a theory-led approach to campaigns appears to be the exception rather than the rule (e.g. Delhomme, De Dobbeleer, Forward, & Simões, 2009; Foon, 1988). For example, Phillips et al. (2009) found that only 81 out of the 437 campaigns were based on a psycho-social theory or model. One of the few interventions that has used a theory-led approach is the Australian intervention against alcohol in traffic led by Sheehan et al. (1996) which used the theory of planned behaviour (TPB; Ajzen, 1991) to evaluate the effect of the intervention.

TPB is an important theory that is underpinned by a large body of evidence and has been used to predict a range of behaviours including drunk driving (Åberg, 1993; Armitage, Norman, & Conner, 2002; Beck, 1981; Chan, Wu, & Hung, 2010; Moan & Rise, 2011; Parker, Manstead, Stradling, Reason, & Baxter, 1992). According to TPB, people's attitude towards the behaviour, their subjective norm, and their perceived behavioural control determine their behaviour indirectly via their intention (Ajzen, 1991). A positive attitude and subjective norm together with a large perceived behavioural control result in a strong intention to perform the behaviour. Given enough actual control over the behaviour, people are expected to carry out their intention as soon as an opportunity is given. For behaviours over which people have incomplete control it is also useful to consider perceived behavioural control as a co-determinant (together with intention) of the behaviour.

The Australian intervention (Sheehan et al., 1996) involved twelve lessons using strategies based on TPB to teach students to use alternatives to drunk driving and being a passenger to drunk drivers. A total of 1774 students (the majority were 17 years old) were randomly assigned to intervention and control schools and followed up three years later. The results showed a trend toward reduced drunk driving as well as a significant reduction in being a passenger to drunk drivers in the intervention group.

Communicating with a group of people requires messages that are very clear, consistent, unambiguous, and well understood by the target audience. The aim should be to increase the audience's willingness to process the information (Delhomme et al., 2009). The style of the message can be rational including factual information and/or emotional emphasising feelings and images. Emotional messages used in road safety campaigns are many times based on fear. For example, campaigns linking traffic violations with road crashes by presenting images of injured people. The underlying assumption for its use is that a person who is afraid is easier to persuade due to an increased drive to find different ways to avoid the danger. However, studies have found that the use of fear appeals can have negative effects, by leading to increases in maladaptive, rather than adaptive responses (Witte, 1992). If fear appeals are used, then the message needs to include some effective recommendations (safe behaviour) describing how to cope with the threat but more importantly how to avoid it from happening in the first place. It also needs to increase the target's confidence in his/her abilities to successfully and easily perform the recommended safe behaviour.

The present study is an evaluation of a road safety intervention programme dealing with alcohol in traffic. The intervention was based on a programme developed by the Swedish Road Administration using three different messages. The aim of the study is to evaluate which message (emotional, factual or a combination of both messages) had the largest effect on the variables included in the theory of planned behaviour (TPB).

2. Method

2.1. Participants

A total of 930 Senior High School Students participated in the study by taking part in one of three groups receiving interventions concerning alcohol in traffic or being part of the control group. The first of these groups received an emotional message ($N = 265$), the second group received a factual message ($N = 251$), the third group received a combination of the two messages ($N = 254$) while the control group ($N = 160$) did not receive any message at all. All participants also completing a questionnaire before and after the intervention. Most of the participant where between 16 and 19 years old with one participant being 15 and one 21 years old. Table 1 shows the distribution of age, gender, area of living, access to public transport during evening and nights, attending parties where people drink alcohol and getting a lift during the previous 12 months with someone who had consumed alcohol or drugs. No significant differences were found between the groups with regard to age ($F[3,926] = 0.02$, $p > .05$), gender ($chi^2 = 3.40$, $p > .05$), area of living ($chi^2 = 4.90$, $p > .05$), attending parties where people drink alcohol ($chi^2 = 5.45$, $p > .05$), or getting a lift during the previous 12 months with someone who had consumed alcohol or drugs ($chi^2 = 5.06$, $p > .05$). There was, however, a significant difference between the groups with regard to access to public transport during evening and nights ($F[3,917] = 4.93$, $p < .01$) where Tukey post hoc test showed that the control group ($M = 3.82$) had significantly better access to public transport than the groups which received the emotional message ($M = 3.28$) and the factual message ($M = 3.41$).