Accident Analysis and Prevention 58 (2013) 148–157

Contents lists available at ScienceDirect

Accident Analysis and Prevention

journal homepage: www.elsevier.com/locate/aap

Wheels, skills and thrills: A social marketing trial to reduce aggressive driving from young men in deprived areas

Alan Tapp [a,*], Ashley Pressley [b], Mike Baugh [c], Paul White [d]

[a] Bristol Social Marketing Centre, Faculty of Business and Law, University of the West of England, Coldharbour Lane, Bristol BS16 1QY, UK
[b] Cardiff Business School, Faculty of Marketing and Strategy, Cardiff University, Colum Drive, Cardiff CF10 3EU, UK
[c] City Transport, Bristol City Council, 3rd Floor, Bazaar Wing, Brunel House, St George's Street, Bristol BS1 5UY, UK
[d] Applied Statistics Group, Faculty of Environment and Technology, UWE, Coldharbour Lane, Bristol BS16 1QY, UK

ARTICLE INFO

Article history:
Received 24 October 2012
Received in revised form 11 April 2013
Accepted 13 April 2013

Keywords:
Road safety
Young male drivers
Social marketing

ABSTRACT

Young men from poorer backgrounds are associated with high road traffic collision levels. However, solving this problem has proven very difficult. Hence this paper summarises the findings of a UK government funded two-year trial of a cross-discipline intervention to reduce aggressive driving amongst this group.

The intervention reported on here departed from traditional approaches such as fear appeals, stand-alone educational approaches, or punitive measures. Instead, the discipline of social marketing was used to provide overarching direction and structure for the trial, with a key focus on motivation and engagement. The project rested on a strong education and training platform and included a bespoke coaching programme, incentives, and an in-vehicle measurement and feedback device.

The project had three development phases leading to the final trial. First, a literature and case study review identified possible design strategies. Second, these strategies were explored using primary research in the form of a qualitative inquiry. Third, a pre-trial design phase sought to introduce key components of the intervention to the trial cohort, retaining some flexibility before committing to the final design.

Young males with a history of challenging behaviour (e.g. criminal records, driving convictions) from an economically deprived area within a UK city were recruited. Of 42 recruits, 23 successfully completed the trial. Behaviour changes were measured pre-, during and post-trial through a combination of driver performance data measured by in-vehicle data recorders (IVDRs), assessments of driving undertaken by trained observers, and self-assessment surveys and interviews with trial participants. Results indicate a significant average improvement in driving skills amongst participants who completed the trial. Given the difficulty in engaging and changing behaviour of this specific group, this is regarded as a significant finding.

In summary the study provides an indication of proof of concept for the intervention in improving driving skills. However the limited sample size and lack of control group mean that further work will be required to validate these findings. It is recommended that a feasibility study with higher cohort volumes is undertaken, before attempting a full scale trial.

1. Introduction

Road traffic collisions are the biggest killer of people under 35 worldwide (Peden et al., 2004). In the UK, despite a significant decline in overall road user casualties in recent years, a disproportionate number of young drivers continue to be involved in car crashes (UK Department for Transport, 2011), and this multiplying effect rises yet further for young men who live in poorer areas (Clarke et al., 2008). Unfortunately, interventions to date have had very limited success, highlighting the need for innovative approaches. Hence, in this paper we report on one such approach, a UK Department for Transport funded project to address aggressive driving, using a set of 'components' integrated with social marketing principles and techniques. Social marketing had been reported as having potential in tackling road safety issues (Smith, 2006). The question we therefore asked was: could such a programme, based on a bespoke design that centred on the motives and self-interests of this specific group, result in a lasting improvement in driving skills?

Given its novel design, the project required three development phases that then informed the trial. First, a literature and case study review identified possible design strategies. Second, these

* Corresponding author. Tel.: +44 0117 32 83439.
E-mail address: Alan.Tapp@uwe.ac.uk (A. Tapp).

0001-4575/$ – see front matter © 2013 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.aap.2013.04.023

strategies were explored using primary research in the form of a qualitative inquiry. Third, a pre-trial design phase sought to introduce key components of the intervention to the trial cohort, retaining some flexibility before committing to the final design. Findings from these development phases are reported now, before moving onto the resulting trial procedures and results.

2. Literature and case study review

Young male drivers from economically and socially deprived locations are significantly more likely to be involved in road collisions than other road users (Abdalla et al., 1997; Hasselberg et al., 2005; Fleury et al., 2010; Durkin and Tolmie, 2010). Government figures confirm this trend has continued in the country of origin for this study, the UK (Department for Transport, 2011): while only one in eight driver licence holders is aged 25 or under, one in three drivers in fatal accidents is under 25. Social deprivation further increases the multiplier effect of fatalities. Abdalla et al. (1997) defined these characteristics as "A state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs." Subjects were more likely to be unemployed, from a larger than average family, working in semi or unskilled employment. Further, they are much more likely to have left education aged 16, and be from households with income levels of less than half the national average. The link of incidents with social deprivation was examined by Clarke et al. (2008) who researched a sample of 893 fatal vehicle occupant cases from 10 UK police forces between 1994 and 2005. Each case was assigned an index of multiple deprivation (IMD) score based on the postcode of the primary fatality. Causes of incidents including driving at excessive speed, driver intoxication, driver/passenger failure to wear seatbelts, and unlicensed/uninsured driving were all found to be most prevalent in the most deprived IMD quartiles. Similarly, the overrepresentation of young drivers in road collisions was examined by numerous academic studies (e.g. Møller, 2004; Shope, 2006; Constantinou et al., 2011). This literature suggests that causes of accidents among young people are multifactorial, including tendencies towards recklessness and thrill seeking, combined with feelings of invincibility and over-confidence (Clarke and Robertson, 2005; Falk and Montgomery, 2009). Accidents attributed to lack of observation and anticipation (Cavallo and Triggs, 1996) may be linked to 'skill-risk optimism' (White et al., 2011), in that young drivers believe that they possess high level skills and also that they are very unlikely to have an accident, when the statistics demonstrate the opposite on both counts. The multiplying effect of deprivation is likely to have underlying complexity, with the influence on driving of disruptive behaviours, emotional disturbance, poor anger management, increased short-termism and living for the moment, and increased recklessness and thrill seeking. For these groups, driving quickly and dangerously may become a 'boy-racer' sub-culture that has been described as a tribal behaviour by sociologists (Lumsden, 2009).

Countering these behaviours with interventions has proven very difficult. Intervention strategies may be broadly categorised under licensing, technology, education, training and social engagement. While there has been some academic scrutiny, the evidence base remains sub-optimal in drawing definitive conclusions. Licensing schemes include *Graduated Driver Licensing* (GDL) which involves extended learner periods (normally under supervision) and limits on driving at night and carrying passengers (Williams et al., 2012). GDL schemes do appear promising in reducing crash rates among young drivers (Russell et al., 2011), although the magnitude of the effect has varied. However, GDL schemes are subject to political will, with current policy in the UK yet to consider large scale use.

The development of 'black box' in-vehicle data recorders (IVDRs) has led to a growth in interventions supported by remote recording of driver performance. IVDRs identify 'driving incidents': occasions where braking or cornering forces were outside what would be considered normal levels. An 'incident', therefore, is created by aggressive braking, cornering at speed, or both, hence generating a proxy measure for risky driving. IVDRs can also be fitted with in-car feedback that could provide real-time opportunities to adjust driving in order to reduce the level of incidents. The mid 2000s heralded increased interest in the use of IVDRs by the insurance sector (RoadSafe, 2006) with, for example, the introduction of *Pay As You Drive* (PAYD) schemes that offer reduced premiums in return for lower risk driving. Initial bold claims were followed by a successful small trial conducted in the UK that demonstrated improvements in driving behaviour (Fylan and Fylan, 2009). At the time of publication, the signs are that PAYD schemes are set for significant commercial expansion amongst mainstream population sectors. However, this expansion is unlikely to include high risk young men from deprived areas. In the light of their work with such groups the authors would speculate that a number of factors could account for the difficulty in attracting the high risk groups for PAYD schemes, including a reluctance to the idea of being tracked, frequent vehicle changes, driver styles leading to premiums going up rather than down, anti-authority attitudes and a greater propensity to drive at night.

The use of IVDRs has also attracted the attention of the public sector. One such local authority scheme in the UK Midlands was researched as part of the preparation for our work. This scheme, run in 2009, claimed successful behaviour modification with improved driving skills amongst its cohort using in-car real time feedback of driving incidents linked to web based feedback. However, it was noted that those who sign up for schemes are self-selecting from largely better off social groups, with such schemes unlikely to attract the most at risk groups. Engagement with the scheme appeared to be heavily reliant on parental influence, leading once again to take up from mainstream demographics at the expense of hard to reach groups, something also noted internationally by Taubman-Ben-Ari et al. in their Israeli studies (2012).

Education and training to create safer driving have been extensively trialled in a variety of ways. These include post-licensure programmes – such as *advanced driving*, *pass plus*, and *defensive driving* courses. The effectiveness of education programmes is contested. On the one hand education and training schemes were reviewed by McKenna (2010) who argued that education (knowledge acquisition) and training (skills acquisition) were often conflated, and contended that the evidence base for the effectiveness of either amongst young people is weak. The Cochrane review of school-based driver education for the prevention of traffic crashes (Roberts and Kwan, 2008) found no evidence that driver education reduces road crash involvement. More recently, McKenna (2012) noted: 'What is profoundly problematic is that for decades numerous researchers have found no evidence to support these interventions (e.g. Brown et al., 1987; Christie, 2001; Ker et al., 2005; Mayhew et al., 1998; Mayhew and Simpson, 2002). Indeed there has been some suggestion that some of these interventions may in fact increase the crash risk (Roberts and Kwan, 2001; Williams, 2006)' (McKenna, 2012, p. 674).

However, as stated, the effects of education are contested, and it could be that McKenna's conclusions have focused on studies that relied on quite 'basic' educational and training approaches. Other work has yielded more promising results: notably in Israel through the studies of Toledo et al. (2012) and Rosenbloom et al. (2009). Rosenbloom et al's work demonstrated strong attitude changes in favour of safer driving one year after an education based workshop using video, crash survivors, and discussion groups. The most positive changes were amongst students of vocational