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Original article

## Behavioural Change Techniques used in road safety interventions for young people



### *Techniques de changement du comportement utilisées dans les interventions de sécurité routière chez les jeunes automobilistes*

F. Fylan<sup>a,\*</sup>, S. Stradling<sup>b</sup><sup>a</sup> School of Social, Psychological and Communication Sciences, Leeds Metropolitan University, Calverley Street, Leeds LS1 3HE, United Kingdom<sup>b</sup> Transport Research Institute, Edinburgh Napier University, Merchiston Campus, Edinburgh EH10 5DT, United Kingdom

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## ABSTRACT

**Introduction.** – Death and injury from road traffic is a public health problem worldwide and accordingly there is substantial interest and investment in developing interventions to change road user behaviour. Alongside this, there is growing awareness of the need to evaluate interventions and to identify the most effective mechanisms by which behaviour can be changed. Progress has been hindered due to lack of a common taxonomy with which to define specific techniques used in attempts to change behaviour.

**Objective.** – Behavioural Change Techniques (BCTs) have been successfully deployed to change a range of different health behaviours. This paper defines a series of BCTs that can be applied in the road safety setting and asks which ones are found in road safety interventions for young road users?

**Method.** – Abraham and Michie (2008) identified twenty-six techniques used in behavioural change interventions. These BCTs, plus one other adapted from forensic psychology, are classified into nine groupings. Six educational road safety interventions commonly used in the UK with pre-drivers and young, novice drivers are characterised in terms of the BCTs they employ.

**Results.** – Only a small subset of BCTs are employed in most of the interventions. They concentrate primarily on increasing awareness of the risks associated with a particular behaviour, and the severity of the potential adverse consequences.

**Conclusion.** – Recommendations are given for improving the effectiveness of road safety interventions for young people including young, novice drivers by increasing the range of BCTs deployed.

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## R É S U M É

**Introduction.** – Les décès et blessés lors d'accidents de la route constituent un problème de santé publique dans le monde entier, en conséquence il existe un intérêt et un investissement considérables à développer des interventions pour changer le comportement des usagers de la route. En parallèle, il y a une prise de conscience croissante de la nécessité d'évaluer les interventions et d'identifier les mécanismes les plus efficaces par lesquels le comportement peut être changé. Des progrès ont été entravés par le manque de taxonomie commune avec laquelle on peut définir des techniques spécifiques utilisées pour changer le comportement.

**Objectif.** – Les techniques de changement du comportement (TCC) ont été déployées avec succès pour modifier toute une gamme de comportements de santé différents. Cet article définit une série de TCC qui peut être appliquée dans le domaine de la sécurité routière et interroge lesquelles trouver parmi les interventions à utiliser en sécurité routière pour les jeunes usagers de la route ?

## Mots clés :

Techniques de changement du

comportement

Éducation à la sécurité routière

Intervention dans les changements de

comportement

Jeunes conducteurs

\* Corresponding author.

E-mail addresses: [f.fylan@leedsmet.ac.uk](mailto:f.fylan@leedsmet.ac.uk) (F. Fylan), [s.stradling@napier.ac.uk](mailto:s.stradling@napier.ac.uk) (S. Stradling).

*Méthode.* – Abraham et Michie (2008) ont identifié 26 techniques utilisées dans les interventions de changement du comportement. Ces TCC, plus une autre adaptée de la psychologie médico-légale, sont classées en neuf groupes. Six interventions éducatives de sécurité routière couramment utilisées au Royaume-Uni pour les élèves conducteurs et les jeunes conducteurs novices sont caractérisées selon les TCC employées.

*Résultats.* – Seule une petite partie des TCC est employée dans la plupart des interventions. Elles se concentrent principalement sur l'augmentation de la prise de conscience des risques associés à un comportement particulier et de la gravité des conséquences négatives potentielles.

*Conclusion.* – Des recommandations sont données pour améliorer l'efficacité des interventions de sécurité routière pour les jeunes, y compris les jeunes conducteurs novices, par l'augmentation de l'étendue des TCC déployées.

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## 1. Introduction

Using the road as a driver, rider, passenger, cyclist or pedestrian is one of the most common challenges to health in the UK, with 1901 people killed on the roads in 2011, over 23,000 seriously injured and over 203,000 slightly injured (UK Department for Transport, 2012). In the European Union, road traffic collisions are the most common cause of death in people under the age of 60 years, with three times as many men as women dying in this way (European Commission, 2011). With increasing levels of motorisation in the developing world, traffic fatalities are predicted to be the fifth most prevalent killer across the planet by 2030 (WHO, 2009). Trauma from road traffic collisions is therefore a major public health problem (World Health Organization [WHO], 2004, 2009).

Amongst road-user groups, young novice drivers are at greater risk. The Organisation for Economic Co-operation and Development (OECD) and European Conference of Ministers of Transport (2006) have highlighted that although young drivers under the age of 25 comprise only one-tenth of the population of OECD countries, they account for more than a quarter of fatally injured drivers, and for every 10 young driver fatalities, an additional 13 passenger or other road users die in the same crashes (Huang & Winston, 2011, p. 315). In consequence, risk taking behaviour and crash involvement among young novice car drivers, particularly males, has received considerable research attention. Studies show that poor impulse control, sensation seeking, low constraint, attention problems, low risk awareness, "showing off" and risk taking predict risky driving (e.g., Barkley & Cox, 2007; Begg & Langley, 2004; Clarke, Ward, & Truman, 2005; Cestac, Paran, & Delhomme, 2011; Frank & Lee, 2007; Iversen & Rundmo, 2002; Paaver et al., 2013). Young drivers are more at risk because they fail to anticipate the potential consequences of their risky actions (Kinneer, Kelly, Stradling, & Thomson, 2013). Young drivers underestimate the complexity of the driving task, overestimate their current capability, or both, which results in the driver having a smaller safety margin than they believe (Fuller, 2005, 2011).

Many interventions have been developed to address risky driving behaviour. On a population level, these can be information campaigns that give messages about unsafe driving. On an individual level, high-risk drivers can be targeted. Drivers in the UK who are caught breaking traffic laws, and who therefore present a greater risk, can in certain cases be diverted from prosecution to a behavioural change intervention, such as attending a speed awareness course instead of licence points and a fine. Because of the higher risk presented by young drivers there is substantial interest in developing interventions that can be delivered specifically for young people, before they commit a driving offence or are involved in a collision. Such interventions are targeted at young people before they start driving, when they are learning to drive, and when they are novice drivers. For example, in the UK local authority road

safety professionals typically deliver road safety interventions in schools. There are many schemes that aim to promote safe and responsible driver and passenger behaviour, such as wearing a seat belt, complying with the speed limit, and not driving under the influence of drugs or alcohol.

Despite the abundance of schemes, and the increasing emphasis on evaluation (Elvik & Vaa, 2004; Hauer, 2007; McKenna, 2010; Roberts, Kwan, & the Cochrane Injuries Group Driver Education Reviewers, 2001), there is little consensus on which intervention approaches, if any, are effective in achieving lasting change in road-user behaviour (Delhomme et al., 1999; Vaa, 2008). Furthermore, it is still the case that relatively few interventions are theory-led or evidence-based (Helman, Ward, Christie, & McKenna, 2011).

However, there is growing collaboration between the research and road safety communities in applying research into driver behaviour to interventions to change driver behaviour. Most commonly applied is the Theory of Planned Behaviour (TPB) (Ajzen, 1985). TPB-based research has been used to suggest the content of messages that might change behaviour by targeting attitudes or norms (e.g. Lewis, Watson, White, & Elliott, 2013; Poulter & McKenna, 2010; Forward, 2009; Elliott & Armitage, 2009) and which TPB constructs should be addressed in road safety interventions targeted at speeding drivers (Elliott & Thomson, 2010). Protection Motivation Theory (Maddux & Rogers, 1983) has also been applied within road safety, and research has suggested messages that could be developed from psychological constructs in this model (e.g. Glendon & Walker, 2013; Simons-Morton, Hartos, Leaf, & Preusser, 2006).

While these theories, and several others, provide guidance on which psychological constructs should be changed in order to change behaviour, they offer little guidance on how to change these constructs. For example, a road safety professional might develop an intervention that might attempt to increase seat belt use by targeting attitudes and perceived behavioural control but the theories do not offer guidance into exactly how this might be achieved. There is now a greater awareness of the need to state exactly how interventions aim to change behaviour.

This is not a problem confined to road safety: it has been recognized that across most areas of behavioural change there has until recently been scant attention paid to defining precisely how changing behaviour has been attempted. Abraham and Michie (2008) described a series of behavioural change techniques (BCTs) which define the "active ingredients" of an intervention and these have been further developed and described for the reduction or elimination of both smoking (Michie, Hyder, Walia, & West, 2001) and alcohol consumption (Michie et al., 2012). Given that road traffic trauma is a public health problem, and that there is a growing body of evidence demonstrating the efficacy of BCTs in the public health arena, there is a strong case for road safety professionals to make use of BCTs when designing interventions and to document

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