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The social cognitive determinants of offending drivers' speeding behaviour☆

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ABSTRACT

The efficacy of an extended theory of planned behaviour (TPB) was tested in relation to offending drivers' (N = 1403) speeding behaviour. Postal questionnaires were issued at Time 1 to measure intention, instrumental and affective attitude, subjective and descriptive norm, self-efficacy, perceived controllability, moral norm, anticipated regret, self-identity, and past speeding behaviour. At Time 2 (6 months later), subsequent speeding behaviour was measured, again using self-completion postal questionnaires. The extended TPB accounted for 68% of the variation in intention and 51% of the variation in subsequent behaviour. The independent predictors of intention were instrumental attitude, affective attitude, self-efficacy, moral norm, anticipated regret and past behaviour. The independent predictors of behaviour were intention, self-efficacy, anticipated regret and past behaviour. Theoretical and practical implications of the findings are discussed in relation to targeting road safety interventions.

1. Introduction

Road traffic crashes are a global problem, accounting for around 1.2 million deaths world-wide each year and many more non-fatal injuries (World Health Organisation, 2002). In Great Britain, official statistics show that in 2008 there were 170,591 recorded injury road traffic crashes that resulted in 230,905 casualties, of which 28,572 were killed or seriously injured (Department for Transport, 2009). While there are numerous potential contributory factors to road traffic crashes, accumulated research has demonstrated that driving faster than the legal speed limit ('speeding') is one of the most important (e.g., Campbell and Stradling, 2003; Stradling, 2000; Taylor et al., 2000). Not only does speeding substantially increase the risk of a road traffic crash, official statistics for England and Wales show that around two million speed limit offences are dealt with by the police each year (e.g., Fiti et al., 2008), making speeding the most common of all driving offences. Therefore, the aim of the present research was to identify potentially modifiable antecedents of speeding behaviour (i.e., variables that are likely to represent appropriate targets for safety interventions), using an extended theory of planned behaviour (TPB) as a theoretical framework.

1.1. The theory of planned behaviour

The TPB (Ajzen, 1985) provides a useful model for identifying intervention targets because it proposes a number of potentially modifiable determinants of behaviour. It is a model of rational decision-making which posits that the proximal determinant of behaviour is intention (overall motivation to perform a behaviour). Intention is, in turn, determined independently by attitude (positive or negative evaluations about performing the behaviour), subjective norm (perceived social pressure to behave stemming from beliefs about whether behavioural performance will receive social approval or disapproval), and perceived behavioural control (perceptions about whether or not an individual has the resources to perform the behaviour). Although the effects of these antecedent cognitions are proposed to have a mediated effect on behaviour (i.e., via intentions), perceived behavioural control is also posited as a direct predictor of behaviour, to the extent that perceptions of control are accurate (e.g., Ajzen, 1991; Sheeran et al., 2003).

Support for the TPB comes from numerous studies. Consistent with meta-analyses of studies on general social behaviour (e.g., Armitage and Conner, 2001; Godin and Kok, 1996), previous research in the present context shows that the model accounts for between 28% and 66% of the variance in drivers' intention to speed (e.g., Conner et al., 2007; Elliott et al., 2003, 2005, 2007; Letirand and Delhomme, 2005; Newnam et al., 2004; Parker et al., 1992) and between 27% and 67% of the variance in subsequent speeding behaviour (e.g., Conner et al., 2007; Elliott et al., 2003, 2007). These findings are regarded as "large" sized effects (Cohen, 1988), and therefore attest to the predictive validity of the TPB. However, the above cited studies have focused on general population drivers, many of whom may not be appropriate targets for intervention

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because they are averse to exceeding speed limits (e.g., Elliott et al., 2003; Elliott and Armitage, 2006, 2009). On the other hand, speed limit *offenders* (drivers caught by the police or safety cameras for exceeding the speed limit) are likely to represent a more appropriate group for intervention because they exceed speed limits more often (e.g., Quimby et al., 1999) and are consequently at a higher risk of a road traffic crash (e.g., Stradling, 2000). Given the emphasis on general population drivers, however, previous research has yet to determine the extent to which the TPB is a useful model for developing interventions aimed at speed limit offenders, and so the present study focuses on this group of drivers.

1.2. Extended theoretical framework

The present research also aims to extend the theoretical framework of the TPB by including additional predictor variables. While unexplained variance in both intention and behaviour (see Section 1.1) may be partly attributable to methodological factors (see Sutton, 1998), a growing number of studies demonstrate that several constructs account for additional variance in intention or behaviour, over and above TPB constructs (for reviews see Conner and Armitage, 1998; Conner and Sparks, 2005). According to Conner and Sparks (2005) there are two related issues concerning the role of additional predictors within the TPB: (a) new predictors that are incorporated through reconceptualisations of each of the model's existing constructs and (b) new predictors that constitute useful additions to the model.

1.2.1. Reconceptualisations of TPB constructs

Researchers have essentially reconceptualised the TPB's existing constructs by dichotomising attitude, subjective norm and perceived behavioural control. With respect to attitude, there is a distinction between instrumental (cognitive) and affective (emotional) attitudes. Studies show that instrumental and affective attitude measures possess discriminant validity (e.g., Manstead and Parker, 1995; Rhodes et al., 2006; Trafimow and Sheeran, 1998) and that both can predict intentions (e.g., Trafimow et al., 2004). In the present context, it is possible that both facets of attitude will have independent effects on intentions to speed. For instance, a driver may intend to speed because they think they will enjoy it (affect), even though they know that speeding is unsafe (cognition). Alternatively, a driver may not intend to speed in spite of positive feelings (affect) associated with the behaviour if they think that they will be apprehended for speeding by the police (cognition). However, previous research on speeding has predicted intentions from instrumental attitude measures only (e.g., Elliott et al., 2003, 2007; Parker et al., 1992) or global (i.e., instrumental + affective) measures that do not enable independent effects to be established (e.g., Conner et al., 2007; Letirand and Delhomme, 2005). The present study therefore tests the potential separate effects of instrumental and affective attitude.

Researchers have also distinguished two components of perceived social pressure (e.g., Cialdini et al., 1991; Deutsch and Gerard, 1955). Injunctive norm refers to perceptions about whether or not important social referents want an individual to perform a behaviour and it is synonymous with the construct of subjective norm in the TPB. On the other hand, descriptive norm refers to perceptions about whether important social referents will perform the behaviour themselves and it impacts on intention by informing an individual about the extent to which the behaviour is typical. Factor analytic studies show that subjective and descriptive norms are empirically separable (e.g., Rhodes et al., 2006; Sheeran and Orbell, 1999; White et al., 1994) and a recent meta-analysis by Rivis and Sheeran (2003) showed that, across 14 studies, descriptive norm ($\beta = .24$, $p < .001$) was a stronger independent predictor of intention than was subjective norm ($\beta = .16$, $p < .001$), especially for health-risk behaviours (compared with health-promoting behaviours). Given that speeding is a health-risk behaviour (i.e., it increases the risk of a traffic crash), and also that subjective norm has been shown to be the weakest predictor of intention in the TPB (e.g., Armitage and Conner, 2001), there is good reason to include descriptive norm in tests of the model, as an additional source of social influence. However, studies of speeding behaviour have tended to focus on subjective norm at the expense of descriptive norm (e.g., Conner et al., 2007; Elliott et al., 2003, 2007; Parker et al., 1992). One exception is Forward (2009) who showed that descriptive norm was a significant independent predictor of intention while controlling for the effects of attitude, subjective norm and perceived control. We therefore investigate the effects of both subjective and descriptive norm in the present study.

Finally, two separate facets of perceived behavioural control have been distinguished: self-efficacy (Bandura, 1986, 1997), which relates to perceptions of control over *internal* factors (e.g., perceived ability to perform a behaviour), and perceived controllability, which refers to perceptions of control over *external* factors (e.g., opportunities and environmental constraints; cf. Rotter, 1966). This distinction has received considerable empirical support (e.g., Ajzen, 2002a; Armitage and Conner, 1999; Armitage et al., 1999; Rhodes et al., 2006; Terry and O'Leary, 1995; White et al., 1994) and meta-analytic studies of general social behaviour show that self-efficacy is more closely associated with both intention and behaviour than is perceived controllability (e.g., Armitage and Conner, 2001). However, the potential separate effects of self-efficacy and perceived controllability have not yet been tested in relation to speeding because previous studies have utilized global measures of perceived behavioural control (e.g., Parker et al., 1992). These measures comprise items relating only to perceived difficulty, which taps both components of perceived control (Armitage and Conner, 1999), or items measuring perceived difficulty, self-efficacy and perceived controllability (e.g., Elliott et al., 2003, 2007). However, it is plausible that both internal control factors (e.g., lack of ability to keep one's vehicle speed within the legal limit) and external control factors (e.g., other traffic driving in excess of the speed limit) are important with respect to speeding. Therefore, the present study investigates the potential separate effects of both facets of perceived control on speeding intentions. Given that the TPB also proposes that perceptions of control can exert a direct influence on behaviour, we also test the direct effect of self-efficacy and perceived controllability on speeding behaviour.

1.2.2. Additional predictors

With respect to the variables that have been found to be useful additions to the TPB, the present study investigates moral norm, anticipated regret, self-identity and past behaviour. Moral norm reflects internalized moral rules about whether performing a behaviour is correct or incorrect (Ajzen, 1991). It has been distinguished from subjective and descriptive norms (e.g., Cialdini et al., 1991), and it is an independent predictor of intention (for reviews see Conner and Armitage, 1998; Manstead, 2000), particularly for those behaviours that have an ethical dimension (e.g., Beck and Ajzen, 1991). Several researchers have argued that driving violations (e.g., speeding) represent such behaviour given their potential for causing death and injury (e.g., Conner et al., 2007; Parker et al., 1995). Indeed, in the few studies that have assessed the predictive validity of moral norm in the context of driving it has been found to be a useful addition to the TPB, contributing to the prediction of intention (Conner et al., 2003, 2007; Parker et al., 1995).

Anticipated regret refers to the expectation of experiencing a negative affective response (regret) following the performance, or non-performance, of behaviour. It is important in behavioural decision-making because people are generally motivated to avoid negative emotions (e.g., Connolly and Reb, 2005; Reb, 2008). While,