Full length article

The impact of police presence on angry and aggressive driving

Predrag Stanojević[a,*], Mark J.M. Sullman[b], Dragan Jovanović[c], Dragana Stanojević[d]

[a] Technical College of Applied Sciences, Urosevac (Leposavic), Serbia
[b] Department of Psychology, Middle East Technical University, Northern Cyprus Campus, Güzelyurt/Morphou, Cyprus
[c] University of Novi Sad, Faculty of Technical Sciences, Department of Transport, Novi Sad, Serbia
[d] Faculty of Philosophy in Kosovska Mitrovica, Department of Psychology, Kosovska Mitrovica, Serbia

ARTICLE INFO

ABSTRACT

An extensive body of research has found that angry and aggressive driving are both significantly related to crash involvement. There has also been a large body of research investigating the situational factors related to angry and aggressive driving, but one interesting question that has not yet been answered is whether the enforcement of traffic laws causes or reduces angry and aggressive driving. The independent region of Northern Kosovo represents a unique opportunity to investigate the impact of a lack of traffic enforcement on driving behaviour. Therefore, the present study set out to investigate whether the presence of traffic enforcement has a significant impact on the level of driver anger and aggressive driving. Registered owners of motor vehicles in Northern Kosovo and Serbia were both sent a questionnaire which contained the 28-item Dula Dangerous Driving Index (DDDI) and the 21-item UK Driving Anger Scale (UKDAS). This found that anger was higher in two of the four driving anger factors (direct hostility and progress impeded) and two of the three DDDI factors (risky driving & aggressive driving). Furthermore, the present study found that the lack of police enforcement was a significant predictor of both aggressive and risky driving, even after the driving anger and demographic variables had been partialled out. Therefore, it appears that introducing or increasing traffic enforcement may be one method of reducing aggressive and risky driving behaviour.

1. Introduction

Irrespective of the quality of roads, vehicles and other objective factors, safe traffic flow mostly depends upon the driver, their internal sources of behaviour and individual reactions to the situations they face on the road. Driving can often be a stressful activity. Traffic congestion, time pressure, impatience, limited social cues between drivers and the errors of other drivers are just some of the sources of stress in the traffic environment.

Driving anger is usually a consequence of both situational and individual factors. Driving anger has a substantial impact on driving behaviour and is both a cause and a consequence of numerous negative driving outcomes. A substantial number of situational characteristics have been found to influence driver behaviour and several of these have also been found to influence the level of anger experienced by drivers (Lajunen and Parker, 2001). These factors include a sense of time pressure, the anonymity one experiences in a vehicle, and the gender and age of the driver (Ellison et al., 1995; Shinar, 1998; Yagil, 2001). On top of these, environmental factors and the relationship of people to their environment can affect anger behind the wheel. There are also

individual differences in the extent to which someone tends to react emotionally in traffic. Research has investigated more than 50 individual differences related to driving anger, with a number of the findings being inconsistent. However, the results of a meta-analysis found that age, agreeableness, conscientiousness, extraversion, openness, normlessness, narcissism, sensation seeking, impulsiveness, trait aggression, and trait anger were significantly associated with driving anger; whereas gender, mileage, neuroticism, and self-esteem were not (Demir et al., 2016).

As well as anger, aggressive driving behaviour represents a well-recognized and frequently studied cause of crash involvement and crash-related conditions. A large number of studies have also found a relationship between driver anger and aggressive driving behaviour. The results of another meta-analysis found a positive relationship between anger (both trait and driving anger) and aggressive driving behaviour, but the relationship was stronger for trait anger (Bogdan et al., 2016). Moreover, the relationship between anger and aggressive driving varied according to the form of aggressive driving, driver characteristics (e.g., gender, age, driving experience), as well as the country where the studies were conducted. In addition, findings

reported by Demir et al. (2016), indicate that angry drivers were more prone to express physical and verbal aggression, and use their vehicle to express aggression. In contrast, they also found that angry drivers were less likely to exhibit adaptive and constructive responses.

Aggressive driving can be defined as any behaviour exhibited by a driver with an intent to physically and/or psychologically harm another driver and/or pedestrian (Dula and Geller, 2003). However, dangerous driving behaviour is broader than just aggressive driving. According to Dula and Geller (2003), dangerous driving encompasses aggression with intent to harm, negative emotions and cognitions such as anger, frustration and rumination (all of which can be experienced without exhibiting aggression, but which nonetheless expends attention which would be better spent on the driving task), as well as risky driving behaviours, which are often considered to be aggressive, but lack the intent to harm.

The traffic laws and regulations that define appropriate behaviour on the roads are very important elements in developing and maintaining a safe road environment. When applied correctly, enforcement is thought to be one of the most effective ways of improving road users' behaviours (Zaal, 1994). Traffic law enforcement contributes to road safety in several ways. Firstly, it reduces the number of violations that contribute to injuries and fatalities. Studies conducted in a number of different countries have demonstrated that drivers respond to increases in police enforcement (Sisiopiku and Patel, 1999; Vaa, 1997). Police enforcement has also been shown to reduce both mean speeds and variance in speed on various roadways (Elliott and Broughton, 2005; Holland and Conner, 1996; Vaa, 1997; De Waard and Rooijers, 1994; Walter et al., 2011). Moreover, several previous studies have shown that police enforcement results in a significant reduction in driving while intoxicated (Elliott and Broughton, 2005; Fell et al., 2014; Wechsler et al., 2003; Yannis et al., 2008). In addition, research has also proven that the most effective way to increase seat belt use are by establishing laws on the mandatory use of seat belts that make failing to use one a punishable offense (Bendak, 2005; Heinrich, 1991; Stanojević et al., 2013; Valtonen, 1991). Furthermore, many studies have shown the clear advantages of automated enforcement. The installation of automated speed enforcement and red-light cameras is considered to be one of the most effective means of increasing apprehension rates and deterring speeding and red light violations (e.g. De Pauw et al., 2014; Li et al., 2013; McCartt and Hu, 2014; Mountain et al., 2005; Retting et al., 1999a, 1999b).

Although we know that the presence of police enforcement is effective in reducing a number of high profile risky driving behaviours, there is currently no research about the effect of police presence on driving anger and the intensity of aggressive behaviour in traffic. However, it seems likely that some types of anger provoking events would be more common in areas without traffic enforcement. For instance, those in an area without traffic enforcement should not experience anger from police presence, although researchers have found this to be the least anger provoking of the six types of driving anger (Sullman, 2006; Sullman et al., 2015). Furthermore, the perceived risk of being apprehended for a traffic violation directly depends upon the level of traffic enforcement. This was highlighted by Martinez (1997) who stated that "one of the best countermeasures to aggressive driving is the cop in the rear view mirror". Conversely, in traffic drivers are exposed to the different situations and acts of other drivers, which could easily provoke aggressive vengeful response (Wiesenthal et al., 2000). In the absence of intensive police enforcement, a threat to one's well-being can, in the minds of many drivers, justify an even more aggressive response. In addition, it is difficult to communicate regret or to apologise to another while driving, which reduces the ability to mitigate other drivers' aggression (Strahilevitz, 2006).

For example, in Northern Kosovo traffic enforcement has essentially been absent for the last 17 years. This situation has created a rare opportunity to conduct research about the influence of traffic enforcement on anger and dangerous driving by comparing drivers in two regions,

one of which has traffic enforcement and the other which does not. In the current study, we compared drivers from Northern Kosovo (where traffic laws are not enforced) with drivers from Serbia (where traffic law enforcement has been implemented).

Therefore, the main aim of the present study was to investigate the effects of traffic enforcement on driving anger and dangerous driving by comparing one region without traffic enforcement (Northern Kosovo) with a second similar region in which police enforcement is undertaken (Serbia). Lastly, the research also examined the relationships demographic factors had with anger while driving, along with their relationships with risky and aggressive driving behaviour.

2. Methods

2.1. Sample

The data for this study were collected by mail. The names and addresses of 1000 individuals (500 from each region) with valid driving licences were obtained from a registry of motor vehicle owners. A set of research materials that contained the questionnaires and a cover letter that explained the purpose and objectives of the research was sent to each participant, along with a prepaid envelope that could be used to return the completed questionnaires. A total of 741 completed and returned the questionnaires (360 from individuals who were living in Serbia and 381 from individuals who were living in Northern Kosovo). The demographic characteristics of the sample are presented in Table 1.

2.2. Measures

2.2.1. UK driving anger scale (UKDAS)

The UKDAS (Lajunen et al., 1998; Parker et al., 2002) contains 21 potentially anger-provoking situations, and asks respondents to indicate "How much each of these situations would make you angry" which was answered on a 5-point Likert scale (1 = Not at all angry, 2 = A little angry, 3 = Fairly angry, 4 = Very angry and 5 = Extremely angry). The UKDAS is comprised of three subscales: progress impeded (9 items), reckless driving (9 items) and direct hostility (3 items). This UKDAS version has been previously translated and used in Serbia (Jovanović et al., 2011).

Although the original 33-item version of the Driving Anger Scale (DAS; Deffenbacher et al., 1994) has been used more frequently, we took into account that the UKDAS was adapted and used in European samples, so it was more appropriate to use that version for research in Serbian sample (Lajunen et al., 1998; Parker et al., 2002). Additionally, this scale has previously been used in Serbia (Jovanović et al., 2011) and had acceptable internal reliability coefficients.

2.2.2. Dula dangerous driving index (DDDI)

The DDDI (Dula and Ballard, 2003) was used to measure individual propensities for dangerous driving. Twenty-eight items were used to describe everyday driving behaviours and participants rated the

Table 1
Demographic variables.

	Serbia	Northern Kosovo
Response rate	72.0%	76.2%
Gender		
Male (%)	206 (57.2)	227 (59.6)
Female (%)	154 (42.8)	154 (40.4)
Mean age (S.D.)	35.02 (10.41)	32.94 (9.99)
Mean driving experience in years (S.D.)	13.60 (9.21)	11.65 (8.56)
Mean annual mileage in km (S.D.)	11631 (16885)	9273 (13942)
Number of accidents		
Range	0–5	0–7
Mean (S.D.)	0.30 (0.71)	0.81 (1.37)