

Cyclist/Driver: Differences in conflict blame and road entitlement. Relationship to social-identity and personal entitlement.

Mary Carolan

Submitted in partial fulfilment of the requirements of the Bachelor of Arts Honours Degree in psychology at Dublin Business School, School of Arts, Dublin.

Supervisor: Aoife Cartwright

Programme Leader: Dr Patricia Frazer

April 2016

Department of Psychology, Dublin Business School

Contents

[Acknowledgements](#)

[Introduction](#)

[Method](#)

[**Participants**](#)

[**Design**](#)

[**Materials**](#)

[**Procedure**](#)

[Results](#)

[**Descriptive Statistics**](#)

[**Inferential Statistics**](#)

[Discussion](#)

[**Strength, Further Research, Limitations.**](#)

[**Conclusion**](#)

[**New conclusion**](#)

[References](#)

[Appendix 1](#)

[Appendix 2](#)

[Appendix 3](#)

Acknowledgements

I would like to express sincere gratitude to my supervisor Aoife Cartwright, for generously sharing her time and knowledge throughout this project. My gratitude also must go to faculty members and library staff at DBS for their help and guidance throughout my time in college. Thank you to my family and friends for their continued encouragement and backing. A very special thanks to my husband Andy, for his love and support, and for being parent 'A' alone to little Abbie and Isobel for a great many Saturdays, affording me the time to complete this project.

Abstract

This study aimed to increase understanding of cyclist-driver conflict. Cyclists, (n=183), and car drivers, (n= 197), took part in 2 separate online surveys which measures social identity (Lois et al., 2014), personal entitlement (a subset NPI-40), blame apportioned in conflict (to cyclist and driver), and perceived entitlement to road space (modified Paschalidis et al., 2015). The study was a quantitative mixed design. Results showed no relationship between social identity as a cyclist and blame apportioned to drivers, and no relationship between social identity as a car driver and blame apportioned to cyclists. A weak relationship was found between personal entitlement and entitlement to road priority. No significant difference was found between blame apportioned by cyclists and blame apportioned by drivers in conflict. A significant difference was found between cyclist and drivers entitlement to road priority. It is suggested that the study be repeated controlling for demographics (urban and commuter participants only).

Introduction

In the past 2 decades several researchers have commented on the complexity of cyclist-driver interactions. Interactions between bikes and cars are the most risky interactions for cyclists (Chaurand & Delhomme, 2012). However car drivers often view cyclists as inconsiderate and unlawful (Stone, & Gosling, 2008). Recognising the risk and frustration associated with driver-cyclist interaction, researchers have examined personal psychological factors of drivers and cyclists in intersecting conditions, including the attitude and behaviour of drivers and cyclists towards each other, and perception of crash risk of intersecting road users.

Research by Basford and others stated one of the main deterrents to cycling is fear of traffic, often attributed to the attitudes and behaviour of drivers. Basford and others examined car driver attitude, social norms and perceived behaviour controls (theory of planned behaviour) towards cyclists. Their results suggested that car drivers regarded cyclists as an out-group and a source of irritation that compromise driver convenience, results also suggested that car drivers' perception of social norms affected their behaviour towards cyclists (Basford, Reid, Lester, Thomson, & Tolmie 2002). Similarly, research by Fruhen and Flin (2015) found that driver attitude towards cyclists, together with their perception of the social norm of driving aggressively towards cyclists, was linked to their behaviour towards cyclists.

Examining the risk associated with driver-cyclist interaction, research indicates that cyclists generally recognise that they are at increased risk as a road user. A diary study in the UK city of Oxford, noting any incidents and near-misses for pedestrians, cyclists,

motorcyclists, car drivers and bus drivers, recorded that cyclists and pedestrians recognised that they were at greater risk than the drivers of motor vehicles. Car drivers reported being more conscious of near-misses with the less vulnerable road users (i.e. those who could impair them) than they were of near-misses with more vulnerable road users (i.e. those whom they could impair) (Sissons, Smith, & Paul, 2001). Another diary study, by Aldreda and Crosswellerb (2015), revealed that for cyclists, near misses and other non-injury incidents are widespread in the UK. Routine cyclists reported 'very scary' incidents (rated as 3 on a 0–3 scale) occurring on average on a weekly basis, while intentional agitation was experienced monthly. Incidents that involved motor vehicles, especially those involving larger vehicles, were most alarming for cyclists. Somewhat contradicting that cyclists recognised the risk to which they are exposed, a 2012 study by Chaurand and Delhomme, found that although cyclists recognised that they were at greater risk than car drivers in bike-car interaction, they perceived less risk in bike-car interactions than drivers perceived in car-car interactions, despite the fact that physical consequences of the former are at least equivalent to, if not worse than the latter. Interestingly when participants (both cyclists and drivers) supposed they were conducting a risky behaviour, their perception of risk reduced. Wood and others (2009) reported that recognising their risk, cyclists advocated the wearing of visible aids, however the advocating and the actual wearing patterns of visual aids did not match. Cyclists also estimated the distance at which they would be first recognised by a driver, was twice that estimated by the drivers (Wood, Lacherez, Marszalek, & King, 2009).

Both studies, by Chaurand and Delhomme, and by Wood et al., highlight that cyclists and drivers have differing perspectives on risk, however on the whole it can be said that cyclists recognise they are a high risk category on the roads. According to the most recent available statistics by the World Health Organization [WHO] (2015), cyclists are

significantly more at risk than car drivers. The yearly road fatality figures are approximately 1.25 million people worldwide, with cyclists, motorcyclists, and pedestrians accounting for half these deaths. Fatalities and non-fatal road injuries (a further 20 to 50 million people suffer non-fatal road injuries) are highest in the developing world (WHO, 2015). In Europe despite the increase in cyclist population, aided by numerous interventions, the number of cyclist fatalities, as well as that of all other vehicle driver types, has significantly decreased. Figures from the European Road Safety Observatory, 2008, showed a decrease of 29% in the number of cyclist fatalities in 16 European Union countries from 1999 up to 2008 (European Road Safety Observatory, 2010). The trend of decreasing cyclist fatalities has slowed in recent years (Chaurand & Delhomme, 2012). To reverse this trend there is a need for further traffic research and policy implementation.

Responsibility/Blame

When considering cyclist-driver interaction, an important area, which requires further research, is perceived responsibility for road conflict. “If people did not blame socially, they would do little to regulate each other’s behaviour or to pass on their culture’s values”, this quote from Malle, Guglielmo and Monroe (2012), gives a value to blame. Blame deals with the deviations from group norms that can be costly. Paschalidis and others, 2015, looked at perceived responsibility for road conflict events from a cyclist point of view. Results indicated that affected by their risk and vulnerability, when cyclists experienced a conflict event with a car, they had a predisposition to accuse the car driver. However when cyclists had conflict with pedestrians, they were inclined to equally divide responsibility between the cyclists and pedestrians. Paschalidis and others reported that very limited research has been

made regarding the perceived responsibility of incidents occurring between road users (Paschalidis, Basbas, Politis & Prodromou, 2015).

In psychological areas outside of traffic psychology, many studies have examined blame. For example Kemp and Zhe (2015) found there was a higher attribution of responsibility to the decision-maker when the consequences were relatively easy to predict and severe. Well-trained and well paid decision-makers were also blamed more. Blame is not always directed at the correct person, M. J. Lerner (as cited in Harber, Podolski, & Williams, 2015), proposed that people need to believe in a just world, and that evidence to the contrary is distressing. To counteract this, people have a number of strategies for reducing such distress, blaming the victim is one of these strategies (Harber et al., 2015). Gini (2007) examined social identity and blame (both of which are key to this study), in bullying situations, and found that participants blamed high status outgroups more than any other group, and identified most with their own in-group when they were victimised.

It has been found in several studies that people have a predisposition to show a self-serving bias that involves external attributions (e.g. task difficulty) for outcomes that are unfavourable to the individual but internal attributions (e.g. ability) for outcomes that favour the individual (Campbell & Sedikides; Larson; Weary-Bradley; Zuckerman, as cited in [Stucke, 2003](#)). Baxter et al., (cited in Lustman, Wiesenthal & Flett, 2010), found that when committing a traffic violation, drivers tended to assign situational variables to their own behaviour, but, when asked to explain the reasons for another driver's violations, others' behaviour was more likely to be attributed to dispositional factors. This self-serving bias has been examined in relation to narcissism and findings indicate highly narcissistic personalities are more likely to attribute outside blame in failure (Campbell & Sedikides, 1999). Although entitlement, a subset of the Narcissistic Personality Inventory, will be recorded in this study,

it is outside the scope of the current study to examine the relationship between personal entitlement and perceived responsibility for road conflict. Although well examined in other psychological areas, blame/responsibility has been neglected as a variable in traffic conflict.

Social Identity

Another important variable to analyse in cyclist-driver interaction is the role social identity plays in conflict. Social identity is a person's sense of who they are, based on their group membership (Tajfel & Turner, 1986). A large amount of research has been conducted on social identity. [Amongst these volumes of research the following few try to highlight the complexity of group identity and its relationship to in-group and out-group behaviour.](#)

Tajfel and Turner's 1986, Social Identity Theory, postulated that people identify themselves with the social groups they belong to, in an attempt gain meanings, beliefs, and feelings from their group memberships. Their theory, and experiments, suggest that people are motivated to act in ways that maintain a positive social identity. Due to a need to achieve positive distinctiveness, very minimal conditions are required to trigger positive in-group discrimination and negative outgroup discrimination. In a much cited experiment they demonstrated that the mere act of putting schoolboys into groups (categorisation) was sufficient for the boys to discriminate in favour of their own group and against members of the other group (Tajfel & Turner, 1986).

Oyserman, Fryberg, and Yoder (2007) working on the identity-based motivation theory, argued that people are motivated to engage in identity-congruent behaviours regardless of the costs, or benefits, of the behaviour, e.g. they may gain unhealthy weight if that is what their social identity encapsulates (Oyserman et al., 2007).

Fein and Spencer (1997) suggested people maintain their self-esteem, in part, by having social identity with groups, and by believing that the groups they belong to are better than other groups. Thus they express more prejudice towards out-groups after receiving negative feedback about their ability, when their self-esteem has been threatened (as is possible in traffic conflict) (Fein & Spencer, 1997).

Examining social identity in relation to traffic psychology, Goddard, Barsamian Kahn and Adkins (2015), found social identity-related factors together with psychological factors resulted in bias in the yielding behaviours of drivers. Drivers implied a racial bias by their behaviour, with black pedestrians forced to wait at level crossing significantly longer than whites pedestrian (Goddard et al., 2015). A 2015 study on cycling commuting intention found that incorporating social identity into the theory of planned behaviour helped to capture motivational factors relating to cycle commuting. Results showed a strong link between identifying as ‘a cyclist’ and perceived self-efficacy with respect to cycling. (Lois, Moriano & Gianni, 2015).

Again much previous research is outside traffic psychology, but both traffic psychology research and research in other psychological areas indicate that social identity can influence individuals to think and act differently towards in-groups and out-groups.

Entitlement

Entitlement has been associated with selfish attitude (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004) and thus should be considered when examining attitudes of car drivers and cyclists to road space at interactions. Entitlement is regarded as a stable personal trait across situations effecting thought attitude and behaviour (Campbell et al., 2004). It is a core component of Narcissistic Personality Disorder. Fisk (2010) defined “excessive

entitlement,” as a trait reflecting unjustified beliefs of deservingness. This idea of “excess entitlement” is backed by Ackerman and Donnellan (2013), who stress a difference of normal entitlement and narcissistic entitlement. People whose entitlement is in the normal range may have high self-esteem and high expectations but it is based on actions that were truly acclaimed while the latter have unreasonable expectations of especially favourable treatment.

Campbell and others (2004), described entitlement as having “a pervasive and largely unconstructive impact on social behaviour”. Their research correlated entitlement with lower agreeableness, lower emotional stability, lower empathy and perspective taking, opting for competitive choices in common dilemmas, having selfish approaches to romantic relationships and reacting aggressively following ego threat (Campbell et al., 2004). Tamborski, Brown, and Chowning (2012) reported entitlement to be a predictor of unethical decision-making, a predictor of interpersonal self-promotional strategy, that advances the self at the expense of others, and a predictor of cheating.

Much traffic research has concentrated on aggressive driving and its relationship to narcissism, to which entitlement is highly correlated. Schreer (2002), basing his research on the theory of threatened egotism, found that individuals with inflated views of the self, when challenged by another person, had higher levels of hostile driving behaviour. Specific aspects of narcissism, high exhibitionism for women and high entitlement for men, predicted aggressive driving behaviour. Edwards and others, when working with a sample of young adult drivers found that narcissism and driving anger were significant predictors of aggressive driving. (Edwards, Warren, Tubré, Zyphur, & Hoffner-Prillaman, 2013). Lustman, Wiesenthal and Flett (2010), found that individuals high in narcissism responded more aggressively toward the frustrating driving behaviour of others.

It should be noted that while entitlement and narcissism are highly correlated they are not the same. Brown, Budzek, and Tamborski (2009) conceptualised narcissism as comprising two overall dimensions, essentially an intrapersonal dimension of grandiosity and an interpersonal dimension of entitlement. Rosea and Anastasiob (2013) compared narcissism and entitlement on patterns of sociotropy (high need for 'others') and autonomy (low need for 'others') and found that narcissism negatively predicted sociotropy and was unrelated to autonomy, indicating low levels of dependence without being overly-independent. Conversely, entitlement positively predicted both sociotropy and autonomy, revealing an inconsistent mix of dependence on others and a need for independence from them. Entitlement has been widely neglected in traffic psychology. One study by Paschalidis et al. (2015) reported on cyclists' perception of how much road entitlement they were due. The majority of cyclists expressed their willingness not to have any special priority on the road. Paschalidis and others study did not try to relate perceived road entitlement to personal entitlement. Excluding the study by Paschalidis et al. (2015), studies of entitlement in road are lacking in traffic psychology literature.

Current Study

The current study aims to address the gaps in the above literature on cyclist-driver interactions. It explores the relationship between social-identity and perceived blame for conflict in cyclist-driver interaction, a relationship which has previously been neglected in traffic psychology. It also explores the relationship between personal entitlement and perceived entitlement to road priority for road users own mode of transport, again this has been overlooked in traffic research.

Past literature on social identity has shown it to affect attitude and behaviour towards in-groups and out-groups. Very minor circumstances can initiate positive in-group discrimination and negative outgroup discrimination. Literature on attributing responsibility has indicated that high status outgroups are more likely than any other group to be blamed in bullying/conflict situations. Combined with this blame is the effect of such factors as self-serving bias and just world belief. Considering this information the following is hypothesised; there is a relationship between participants socially identifying as cyclists and the quantity of blame apportioned to car drivers in road conflict. It is also hypothesised that; there is a relationship between participants socially identifying as car drivers and the quantity of blame apportioned to cyclists in road conflict.

Past literature on personal entitlement has shown it to relate to selfish, self-centred behaviour, it has been presented as a predictor of interpersonal self-promotional strategy. In light of this informant it is hypothesised that there is a correlation between participants (cyclists and car drivers) sense of personal entitlement and their belief that their mode of transport should have priority on the road.

Paschalidis et al. (2015), noted that cyclists affected by their risk of vulnerability were more likely to blame drivers than pedestrians in conflict. Much research has highlighted the differences in perceived risk of cyclists and drivers. Based on this it is hypothesised that there is significant difference in the rate of blame apportioned by participants who are cyclists and by participants who are car drivers in conflict. Also considering the research discussed above, on out-group blame, it is expected that there is a significant difference in the rate blame apportioned depending on who the conflict involved i.e. blame is apportioned differently in cyclist-cyclist, cyclist-driver, driver-cyclist, and driver-driver conflict.

Paschalidis et al. (2015) also reported that the majority of cyclists expressed their willingness not to have any special priority on the road. However high levels of entitlement, which are considered normal as opposed to narcissist, have been associated with acclaimed actions, which cyclists, in cycling, may feel they participate in. Together with this, much research reports that cyclists recognise they are a high risk category on the roads. Considering this it is hypothesised that participants who are cyclists and participants who are car drivers will differ on their rate of perceived entitlement to road priority, for their own mode of transport.

To investigate these main research questions, 2 groups of participants, cyclists and car drivers, were interviewed through separate online questionnaires. The questionnaires recorded, the social identity of participants (as a cyclist or driver), the personal entitlements of participants, the percentage of blame for conflict apportioned to cyclists, the percentage of blame for conflict apportioned to drivers, as well as the percentage of road priority the participant felt they were entitled to when intersecting with the other mode of transport. Inferential statistics were used to examine the relationship between these variables.

Examining these relationships could give important understanding to some of the psychological processes behind road conflict. To reduce and change road conflict, knowing and understanding the psychological process behind the conflict is important. In bridging a literature gap it is hoped that it assists in influencing change in road conflict between intersection road users, and helps continue the decline of road conflict and fatalities.

Method

The study was run by administering an online questionnaire through Survey Monkey. This questionnaire consisted of two versions: in the first version, items were adapted to cyclists, in the second version, items were adapted to drivers.

Participants

Participants (n=380) were obtained by a non-probability, snowball sampling technique. The breakdown of cyclist and car driver participants follow this section. The cyclists were recruited by using a mobile instant messaging app, WhatsApp. Through WhatsApp, an online link of the cycling questionnaire was sent to members of cycling clubs in the Republic of Ireland, Northern Ireland and England. These members were requested to share the link via WhatsApp, E-mail and their cycling group social media page (Facebook). The researcher also posted a link to the cycling survey on her personal Facebook page. Drivers were mainly recruited via an online link to the driving survey posted on the researcher's personal Facebook page. A small number of drivers were targeted through WhatsApp.

Before completing the survey both cyclists and drivers were made aware, through the survey information sheet on the first screen, that although they may be both a cyclist and a driver they should only complete one questionnaire, either the cyclist or driver questionnaire. Participants were requested to be over 18 and those driving a car were requested to have a full clean driver's licence excluding penalty points that did not amount to a ban.

Participants – Cyclists.

Participants were (n=183) cyclists. The majority of cyclists consisted of men (81%). The age group with the highest frequency was the 40-54 age group (49%) followed by the 25-29 age

group (37%) A high frequency of cyclists (73%) indicated the duration of their regular trips to be 60+ minutes. Most trips were recreational (74%), and most were rural (69%).

Additionally, the analysis showed that 91% of cyclists had access to a car but only 8% had access to a motorbike.

Participants – Drivers.

Participants were (n=197) car drivers. The majority of drivers consisted of women (69%).

The age groups with the highest frequency of drivers were the 40-54 group (53 %), and the 25-29 group (38%). Drivers' car trips were mainly between 21-60 minutes (56%), and between 11-20 minutes (29%). Trips occurring in an urban location accounted for 68% while 75% of trips were for commuting. Bike availability was recorded at 44% whilst motorcycle availability was only 3%.

Design

This was a quantitative mixed design study, which was descriptive in nature. It used a correlational design to measure the relationship of the predictor variable, of social identity of cyclist participants, with the criterion variable, of blame apportioned by participants, to car drivers in conflict. Likewise it used correlation design to examine the relationship of social identity of car driver participants and blame apportioned by participants, to cyclists in conflict. A further correlational design, measured the relationship of the predictor variable, participants (cyclists and drivers) personal entitlement, with the criterion variable of perceived entitlement to road priority for participants own mode of transport.

There was also a comparative, quasi-experimental part to the study which uses a between-groups variable and within-groups variable design. It took participants type, (cyclist or car driver) , as the between-groups independent variable, to investigate the main effect, as to whether cyclist participants and car drivers participants differed significantly on

how they assign blame in road conflict. It took blame (blame apportioned to cyclists and blame apportioned to drivers by participants) as the within-groups dependant variable, to investigate the interaction effect, namely it looked at whether differences in blame by cyclists participants and drivers participants were based on whether the conflict involved another cyclist or another driver i.e. was there a significant difference in blame in cyclists-cyclists, cyclists-drivers, drivers-cyclists and driver-driver conflict. A further comparative, quasi-experimental, between-groups variable design, investigated cyclist participants and car driver participants difference in assignment of perceived entitlement to road priority for their own mode of transport. Again participant type (cyclist or driver) was the independent variable while of perceived entitlement to road priority was the dependant variable. A qualitative question, investigating the last type of conflict experienced by the participant, could be answered by selection a fixed options or by freely entering own experience.

Materials

Personal entitlement.

The entitlement inventory, a subset of the Narcissistic Personality Inventory-40 (NPI-40), developed by Raskin and Terry (1988), consists of 6 pairs of statements to assess personal entitlement. The participants were asked to select the statement they most identified with, or if they did not identify with either statement to select the statement they found least objectionable. For example they were asked to select between the statement, '*I insist upon getting the respect that is due to me*' and the statement '*I usually get the respect that I deserve*'. The responses for each of the six items were summed to give a total score. The range was from 0 to 6, with a higher score indicating higher personal entitlement. The NPI-40 is a further refinement of earlier NPI versions, first developed by Raskin and Hall, in 1979. NPI-40 was subjected by its authors to three different studies to demonstrate its construct

validity. The authors found, across tests, the alpha composite of NPI-40 reliability scores to be .83, .74, .80, and .90 (Raskin & Terry, 1988). The NPI-40 is the most widespread measure of narcissism used by non-clinical researchers (Ames, Rose & Anderson, 2005)

Social identity

Social identity was assessed using a three items scale. The three statements, obtained from measurement of social-identity in research conducted by Lois, Moriano, and Rondinella (2014), were '*I identify myself as a cyclist*', '*I can envisage myself as a cyclist*', and '*I think I have something in common with cyclists*'. Participants rated their agreement with these statements on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). The responses for each of the three items were summed and averaged to give a total score. The range was from 1 to 7, with a higher score indicating higher social identity. Although construct validity and reliability has not been recorded for this social identity scale, this three item scale closely follow the measurement of self-identity construct used in past studies (Biddle et al.; Callero et al. ; Charng et al.; Sparks & Shepherd; Sparks et al., as cited by Fielding, McDonald, & Louis ,2008).

Blame apportioned to cyclist; Blame apportioned to driver. Entitlement to road priority, for participants own mode of transport.

Altered from the questionnaire used in Paschalidis et al. (2015), this questionnaire recorded if participants had experienced road conflict with cyclists or car drivers, the rate of blame apportioned to a cyclist in conflict, the rate of blame apportioned to a car driver in conflict, and the of perceived entitlement to road space for participants own mode of transport. A request, at the top of the participant's screens, asked them to recall their most recent experience of conflict. This was followed by the statement 'Conflict does not necessarily involve physical contact. Conflict can evoke feelings of competitiveness, stress,

frustration and inconvenience'. Participants were first asked if they had experienced conflict with the other mode of transport. The question required rephrasing for the cyclist and the car driver survey. Cyclists were asked '*Have You as a Cyclist ever Experienced Conflict when Intersecting with a Car?*', while car drivers were asked '*Have You as a Car Driver ever Experienced Conflict when Intersecting with a Bicycle?*'. From here forward the examples will be given from the cyclist survey, with an understanding that rephrasing occurred for the car driver survey. If the answer to experiencing of conflict with the other mode of transport was 'yes', participants were brought to another screen to rate that how responsible the other mode of transport was for the conflict.

Before rating blame for conflict, six listed common traffic conflict were presented, allowing the participants to select one of the listed traffic conflicts or select option 7 of '*Other*' and enter an open-ended qualitative description of conflict. The list of common traffic conflicts were obtained from Chaurand & Delhomme (2013). This was a non-mandatory question, data was recorded only to assess conflict frequency and to understand, for further studies, if the six conflict types were broad enough to cover most conflict situations or if the list needed to be revised.

In rating blame for conflict, of the other transport mode, the participants were simply asked '*On a scale of 0 to 100 how responsibility was the Car Driver for the conflict?*'. This prompted the participant to enter a whole number between 1 and 100 in an input box. The follow on screen asked if the participant experienced conflict with their own mode of transport, e.g. '*Have You as a Cyclist ever Experienced Conflict when Intersecting with a bike?*'. The answer of 'yes' again brought the participant into a rating screen, with a non-mandatory question to report conflict type, followed by a question to rate blame for conflict with own mode of transport, e.g. '*On a scale of 0 to 100 how responsible was the other*

Cyclist for the conflict'. Again this allowed the participant to rate, on a scale of 0 to 100, blame for conflict with their own transport mode.

To assess the rate of perceived entitlement of road priority, for participants' own mode of transport, the final screen asked cyclist participants to rate how much they agreed with the statement, '*When a cyclist crosses motorised traffic, the cyclist should always have the priority.*' Car driver participants were asked how much they agreed with the statement, '*When a cyclist crosses motorised traffic, the car drivers should always have the priority.*'. Again participants were prompted to enter a whole number between 1 and 100 in an input box.

In summary all three variables, the rate of blame apportioned to a cyclist in conflict, the rate of blame apportioned to a car driver in conflict, and the of perceived entitlement to road space for participants own mode of transport, all has a range from 0 to 100, with higher scores indicating higher perceived rate of blame for cyclist and car drivers in conflict, and higher rates of road entitlement. The study by Paschalidis and others from which these are adapted does not mention validity and reliability for this scoring.

Procedure

The participant either completed the cyclist online self-reporting questionnaire, or the car driver online self-reporting questionnaire via Survey Monkey. The cyclist questionnaire was titled '*Traffic conflict as experienced by a Cyclist*', the car driver questionnaire was titled '*Traffic conflict as experienced by a Car Driver*'. On the cover sheet of both questionnaires the participants were presented with information stating that the questionnaire explored traffic conflict for their particular mode of transport (cyclist or car driver) and that it was used in conjunction with a second questionnaire which explores conflict for the other mode of transport (car driver or cyclist). Participants were asked only to participate either as a cyclist

or driver but not as both. Information was also given to the nature of the questions, stating some may cause some minor negative feelings, but it has been used widely in research. In the event of distress occurring participants were asked to contact the support services of The Samaritans Ireland or Aware Ireland. The phone numbers for these were included at the bottom of the cover sheet. The participants were informed that participation was anonymous and confidential. Thus responses could not be attributed to any one participant. For this reason, it was not possible to withdraw from participation after the questionnaire had been submitted. It was highlighted that the results of the questionnaires' would be securely stored on a password protected computer. In addition it was communicated that it was completely voluntary and that there was no obligation to participate. Participants were asked to be over 18 and if driving to have a full clean driver licence, excluding penalty points that did not amount to a driving ban. Highlighted on the cover sheet were the words "It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study". Finally participants were informed that there were 22 questions to complete. A copy of the questionnaire pack for cyclist participants is included in Appendix 1. Ethical approval for this research was obtained from the Dublin Business School ethics review board. Research was conducted in accordance with Dublin Business School's ethical guidelines for research with human participants.

Results

Descriptive Statistics

All data collected for this research was analysed using SPSS Statistics 22. There was a total of (n= 380) participants, of which 48.2% were cyclists (n= 183), and 51.8% were car drivers (n= 197). Descriptive statistics were conducted to obtain the means and standard deviations for social identity, personal entitlement, blame apportioned to cyclist, blame apportioned to driver, and entitlement to road priority, these are presented in Table 1 below.

Table 1 *Descriptive Statistics of Psychological Measures*

| Variable | Mean | Standard Deviation |
|------------------------------|-------|--------------------|
| Social identity | 5.79 | 1.46 |
| Personal Entitlement | 1.20 | 1.20 |
| Blame Apportioned to Cyclist | 83.44 | 28.50 |
| Blame Apportioned to Driver | 83.69 | 28.28 |
| Entitlement to Road Priority | 39.90 | 36.02 |

Due to data collection issue (n=27) participants did not answer the cyclist entitlement to road priority question, all (n=27) participants were drivers, all has answered 'No' to experiencing conflict with another driver.

Results of investigation into how often conflict was experienced showed that conflict with a cyclist was reported by 40.8% of participants, while conflict with a car driver was reported by 86.3% of participants. Figure 1 below illustrates the percentage breakdown of cyclist and car driver participants who experienced conflict with a) a cyclist and b) a car driver. Conflict with a cyclist was experienced slightly more frequently by car driver

participants than cyclist participants, while conflict with a driver was experienced almost equally by cyclist participants and car driver participants.

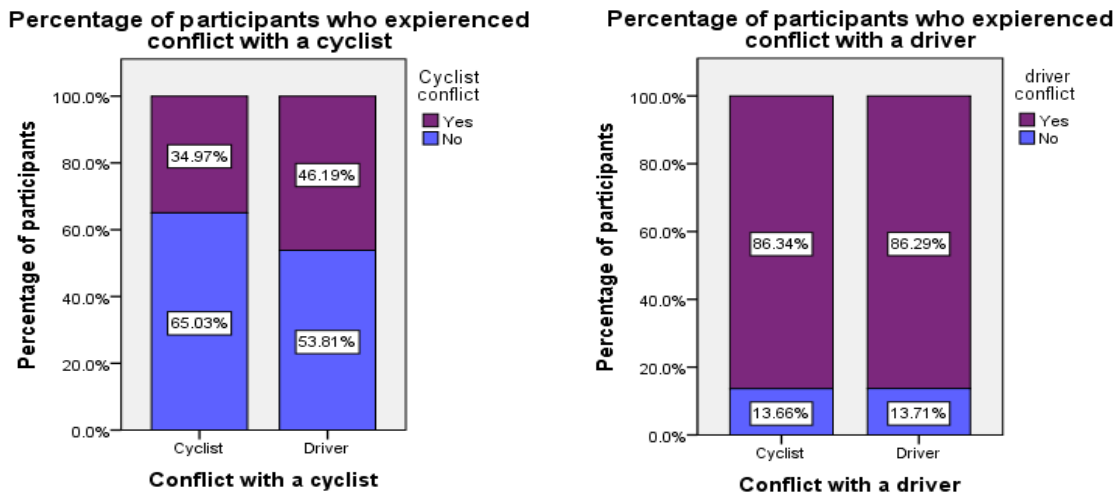


Figure 1. Stacked bar charts illustrating the percentage of cyclists and car drivers who experienced conflict with A) a cyclist and B) a car driver.

To highlight the different conflict types experienced, the frequency of conflict type, reported by participants in conflict with a cyclist, are illustrated in figure 2 below.

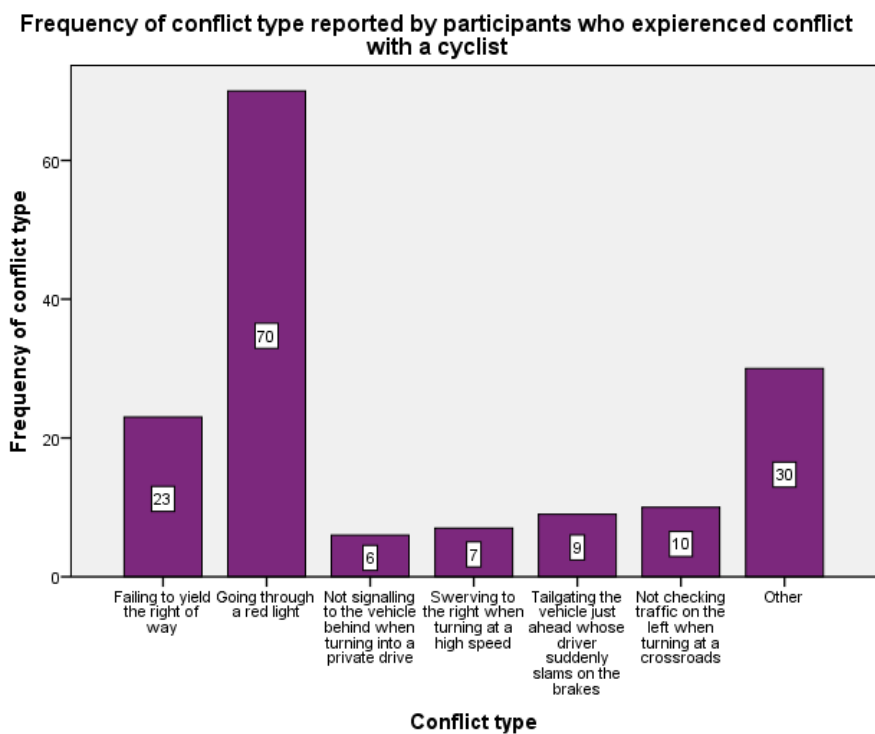


Figure 2. Bar charts illustrating the frequency of conflict type reported by participants who experienced conflict with a cyclist

Of the 40.8 % of participants who experienced conflict with a cyclist, the most frequently reported conflict type was ‘going through a red light’ followed by ‘other’ followed by ‘failure to yield right of way’. ‘Other’ accounted for (n=30) participants, which is 19.4% of those experiencing conflict with a cyclist. When ‘other’ was further examined, qualitative data shown (n=6) participants, ((n=1) cyclist, (n=5) drivers), reported ‘cyclist obstructing traffic’ as a conflict type. A ‘combination of already categorised conflict types’ was reported by (n=7) participants ((n=3) cyclists, (n=4) drivers). A full breakdown of ‘Other’ reported by participants who experienced conflict with a cyclist can be found in Appendix 2.

To further highlight the different conflict types experienced, the frequency of conflict type reported by participants in conflict with a car drivers are illustrated in figure 3 below.

Frequency of conflict type reported by participants who experienced conflict with a car driver

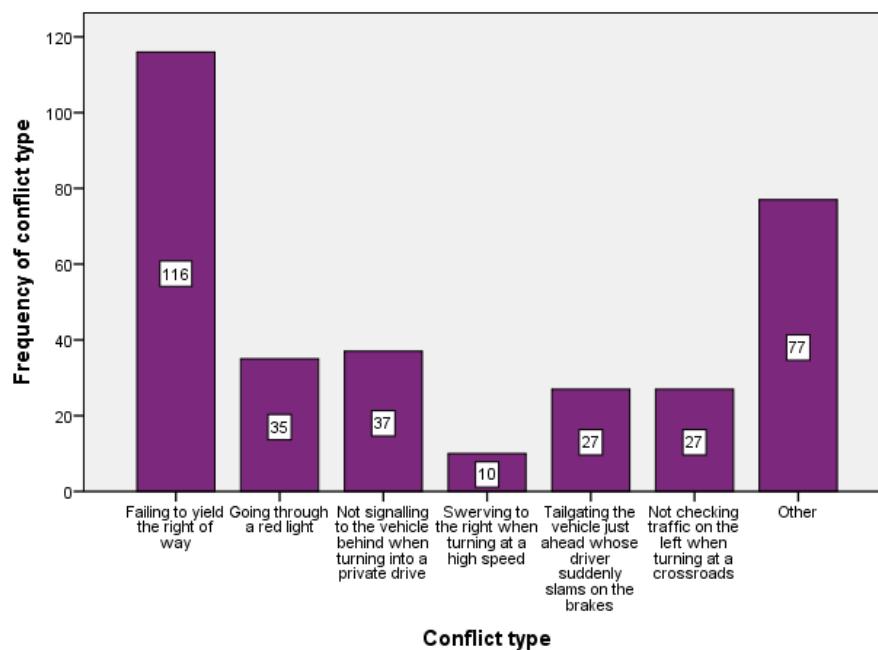


Figure 3. Bar charts illustrating the frequency of conflict type reported by participants who experienced conflict with a car driver.

Of the 86.3 % of participants who experienced conflict with a car driver, the most frequently reported conflict type was *'failing to yield right of way'* followed by *'other'* followed by *'not signalling to the vehicle when tuning into a private drive'* followed by *'going through a red light'*. *'Other'* accounted for (n=77) participants, which is 23.4% of those experiencing conflict with a car driver. When *'other'* was further examined, qualitative data showed *'overtaking in an unsafe manner'* was reported by (n=25) participants, ((n=20) cyclists, (n=5) drivers). Data showed *'cyclist obstructing traffic'* was reported by (n=8) cyclists. Data also showed *'improper use of roundabout'* was reported by (n=4) drivers and *'driving at incorrect speed'* was reported by (n=4) drivers. *'A combination of already categorised conflict types'* was reported by (n=7) participants, ((n=4) cyclists and (n=3) drivers). A full breakdown of *'Other'* reported by participants who experienced conflict with a car driver can be found in Appendix 3.

Inferential Statistics

Spearman's rank-order correlation coefficient was conducted to investigate the relationship between participant social identity as a cyclist, and quantity of blame apportioned to car drivers in conflict. Visual inspection of a scatterplot showed the relationships to be monotonic. Contrary to expected, the Spearman's rho reported no significant relationship between participants social identity as a cyclist and quantity of blame apportioned to car drivers ($R_s(158) = .099, p = .216$). A further Spearman's rank-order correlation coefficient was conducted to investigate the relationship between participant's social identity as a car driver, and quantity of blame apportioned to cyclist in conflict. Visual

inspection of a scatterplot showed the relationships to be monotonic. Again contrary to expected the Spearman's rho reported no significant relationship between participants social identity as a driver and quantity of blame apportioned to cyclists ($R_s(91) = .118, p = .267$). A third Spearman's rank-order correlation coefficient was conducted to investigate the relationship between participants personal entitlement and entitlement to road priority for participants own mode of transport. Visual inspection of a scatterplot showed the relationships to be monotonic. However, the Spearman's rho reported a weak positive correlation between participants personal entitlement and entitlement to road priority ($R_s(353) = .166, p = .002$), thus supporting the existence of a relationship between the variables.

A factorial repeat measure ANOVA was conducted to investigate the difference in quantity of blame apportioned by cyclist participants in conflict and quantity of blame apportioned by car driver participants in conflict, it also investigate the difference in quantity of blame apportioned by the cyclist and car driver participants with consideration of who the conflict involved i.e. it investigated difference in apportioned blame in cyclist-cyclist, cyclist-driver, driver-cyclist, and driver-driver conflict. Opposite to what was hypothesised, the ANOVA found no significant difference in quantity of blame apportioned by cyclist and car driver participants with consideration of who the conflict involved i.e. when considering if blame was apportioned to a cyclist or car driver ($F(1,147) = .25, p < .615$). Also opposite to what was hypothesised, the ANOVA also reported no there was no significant difference between cyclist and car driver participants quantity of blame apportioned in road conflict when ignoring who the conflict involved ($F(1,147) = 1.80, p < .182$).

A Mann-Whitney U test was conducted to investigate cyclist and car driver difference in perceived entitlement to road priority for their own mode of transport. The Mann-Whitney U test reported a significant difference between cyclist and drivers belief of their entitlement

to road priority, for their own mode of transport. Cyclists had a mean rank of 190.64 compared with drivers who had a mean rank of 162.31, indicating as expected, that cyclists believe that bikes should have higher priority on the roads.

Discussion

The aim of the present study was to gain understanding of conflict in cyclist-driver interaction, by exploring the relationship between social-identity and perceived blame for conflict in cyclist-driver interaction, and the relationship of road users' personal entitlement and perceived entitlement to road priority for their own mode of transport. Differences in cyclist-driver blame were also examined, as were differences in cyclist driver perceived entitlement to road priority.

Briefly rate of social identity as a cyclist was not found to relate to quantity of blame apportioned to car drivers, likewise, rate of social identity as a car driver was not found to relate quantity of blame apportioned to cyclists. A weak positive relationship was found between personal entitlement and entitlement to road priority. Cyclists and car drivers participants did not differ significantly in the quantity of blame they apportioned when in road conflict. Cyclists and car driver participants did differ significantly in their belief of entitlement to road priority for their mode of transport.

The first and second hypothesis, proposing a relationship between participants socially identifying to as a cyclists and the quantity of blame apportioned to car drivers in road conflict, and a relationship between participants socially identifying to as a car driver and the quantity of blame apportioned to cyclist in road conflict, were not supported. To the best of the researchers knowledge this was the first study to examine these relationships, so cannot be compared directly with previous studies in this area. Social identity mean score, together with score distribution, indicated a high proportion of participants had a strong social identity in relation to the mode of transport they used. However although social identity has been found in previous research to be disadvantaging to out groups, (Tajfel & Turner, 1986; Goddard et al., 2015), this has not been showed in the current study. Murtagh, Gatersleben

and Uzzell (2012) suggest that a driver identity, (and implicitly cyclist identity) meets the criterion suggested by Devine-Wright and Clayton (as cited in Murtagh et al., 2012), namely that implications for cognitive processing are required for identity. However they suggest more work is needed on the expectations, norms and meanings associated with such identities. Driver identity they propose has much more meaning than 'I can drive', it could identify social status, competency, life stage etc. Although mode of transport social identity is used in several studies, including the study by Lois et al. (2014), which the current social identity measurement was extracted from, further understanding of mode of transport social identity could benefit research which examine the relationship of mode of transport social identity to other variables.

The third hypothesis proposing a relationship between participants' sense of personal entitlement and their belief that their mode of transport should have priority on the road was supported. A weak positive relationship was found between personal entitlement and entitlement to road priority. Participants with a higher sense of personal entitlement had a higher belief that their mode of transport should have priority on the road. This is in sync with previous research which reported those of higher entitlement acted in a more competitive way in challenging situations, (Campbell et al., 2004), and have a more selfish attitude (Tamborski et al., 2012). Schreer (2002), found that specific aspects of narcissism, high entitlement for men and high exhibitionism for women, predicted aggressive driving behaviour. The current study shows a slightly higher mean score of entitlement for men than women. Further studies would benefit in considering both the variables of personal entitlement and of personal exhibitionism in relation to belief in entitlement to road priority. Including exhibitionism may result in a stronger relationship been found.

The fourth hypothesis proposed a significant difference in the blame apportioned by cyclist and car driver participants, and a significant difference in the blame apportioned depending on who the conflict involved i.e. apportioning blame differently in cyclist-cyclist, cyclist-driver, driver-cyclist, and driver-driver conflict. No significant difference was found, either with or without consideration of who the conflict involved. These findings are at odds with existing research. Gini (2007), found that high status outgroups, which car drivers could perhaps be regarded in cyclist-driver conflict, are more likely than any other group to be blamed. Research by Paschalidis et al. (2015), examining pedestrian and car driver conflict from a cyclist point of view, showed that less vulnerable road users (car drivers) were more likely to be blamed in conflict than more vulnerable road users (pedestrians). In the current study cyclist are the more vulnerable road users, however car drivers were not allocated higher levels of blame. This may perhaps be explained by the demographics of the participants. Cyclists reported that most trips were rural and most were recreational. Comparatively, car drivers reported most trips involved urban driving while commuting to work. 'Sunday cycling' in a rural location is likely to lead to less stress, frustration and blame than driving in commuter traffic. Further studies which select cyclist and car driver participants from urban commuting population are recommended.

The fifth hypothesis proposed a significant difference between cyclist and car driver perceived entitlement to road priority for their own mode of transport. Support was found for this hypothesis. Cyclists believed they should have significantly more road priority than Car driver. This finding supports the original hypothesis. Again to the best of the researcher's knowledge there are no existing studies that can be compared directly with these findings. Paschalidis and others, in their 2015 research, reported that the greater number of cyclists participants requested no special road priority. Paschalidis and others however did not

compare this finding against another group of road users. A presumed explanation is linked to comments by Ackerman and Donnellan (2013), they suggest that commendable action leads to higher levels of normal entitlement. Cycling may be seen as a commendable action, and may thus lead to expected higher levels of entitlement to road priority, by cyclists, for their own mode of transport. Perhaps more importantly, research shows that cyclists recognise that they are a high risk category on the roads (Sissons et al., 2001; Aldreda & Croswellerb, 2015). Cyclists may feel more road priority would provide a safer environment for them. It is suggested that further studies examining the reasons for rate of road priority could benefit research on road conflict.

The different conflict types experienced by cyclists and drivers was recorded to show the frequency of the responses for the conflict type experienced by participants and to examine if the common list of traffic conflicts were sufficient to use in further research. A high number of participants selected 'other' as the conflict type experienced. Further analysis of other indicated the list should be expanded to include new conflict types such as '*overtaking in an unsafe manner*' while existing conflict types could be broadened, e.g. '*Not signalling to the vehicle behind when turning into a private drive*' might be simplified to '*Not signalling or signalling incorrectly*'.

Strength, Further Research, Limitations.

A strength of this study was the use of a non-student sample. While many studies have used young students, as young male driver are associate with driving aggressively (Fruhen & Flin, 2015; Lewis, Watson, White, & Elliott, 2013), using a student population in this study could have provided results unrepresentative of the population.

Another strength is that, to the best of the researcher's knowledge this is the first study to look at social identity as a cyclist or driver and to correlate it to blame in conflict situations. Again to best of the researcher's knowledge, it is the first study to examine the relationship of personal entitlement and perceived entitlement to road priority for the road users own mode of transport. Reporting research on these variables may help highlight these areas which have been largely overlooked by traffic psychology to date.

One of the outcomes of this study has been to highlight areas of further research. These areas are discussed above, in summation they are; Researching further the variable of mode of transport social identity; Correlating both variables of personal entitlement, and of personal exhibitionism, to entitlement to road priority; Repeating research using a large sample size and more robust measurements for variables, while controlling cyclist and car driver participants to be from an urban, commuting population; [Examining reasons for the rate of road priority participant allocate to their own mode of transport.](#)

The study is not without its limitations. As with all self-reporting measures the veracity of response cannot be fully guaranteed. Coupled with this some of the self-reporting measures used in this study were not accompanied by construct validity and reliability figures (Social identity, blame apportioned to cyclist, blame apportioned to driver and entitlement to road priority, for participants own mode of transport). Also some researchers believe the variable, mode of transport social-identity, requires more research. A significant problem existed with the data in that the population of cyclists were mainly rural and cycled recreationally, while car drivers were urban commuters. Rural recreational road users may allocate lower levels of blame or expect fewer road priority privileges as the environment it is likely to be a less stressed, hence the difference in population demographics may to have

compromised results. The sample size although not small was insufficient for a study that had never been completed before.

Conclusion

In conclusion, the analysis of collected data showed that cyclists, who highly identified themselves as cyclists, did not apportion significantly different quantities of blame to car drivers in conflict, than cyclists who did not highly identified themselves as cyclists. Likewise car drivers, who highly identified themselves as motorists, did not apportion significantly different quantities of blame to cyclists in conflict than car drivers who did not highly identified themselves as motorists. A weak positive relationship was found between personal entitlement and entitlement to road priority, showing that participants with a higher sense of personal entitlement had a higher belief that their mode of transport should have priority on the road. Cyclists did not apportion significantly different quantities of blame than car drivers. There was also no significant difference in apportioned blame when it was considered who the conflict involved, i.e. there was no significant difference in apportioned blame in cyclist-cyclist, cyclist-driver, driver-cyclist or driver-driver conflict. Finally cyclists believed they should have significantly more road priority than car driver.

Not all the hypotheses were supported, it is suggested by the researcher that blame statistics may have been effected by the demographics of the participants. Cyclists reported that most trips were rural and recreational. Comparatively car drivers reported most trips involved urban, commuting driving. Repeating research using a large sample size, with robust measurements for variables, while controlling cyclist and car driver participants to be from an urban, commuting population is advised.

References

- Ackerman, R. A., & Donnellan, B. M. (2013). Evaluating Self-Report Measures of Narcissistic Entitlement. *Journal of Psychopathology and Behavioral Assessment* 35(4), 460-474. DOI 10.1007/s10862-013-9352-7
- Aldreda, R., & Croswellerb, S. (2015). Investigating the rates and impacts of near misses and related incidents among UK cyclists. *Journal of Transport & Health* 2(3), 379–393. DOI:10.1016/j.jth.2015.05.006
- Ames, D. R., Rose, P., & Anderson, C. P. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality*, 40, 440-450. Retrieved from http://www.columbia.edu/~da358/npi16/npi16_jrp.pdf
- Basford, L., Reid, S., Lester, T., Thomson, J., & Tolmie, A. (2002). *Drivers' perceptions of cyclists Prepared for Charging and Local Transport Division, Department for Transport* (TRL Report TRL549). Retrieved from <http://static1.1.sqspcdn.com/static/f/84868/1264676/1200217906877/TRL549.pdf?token=46t2DmY3Ln0HhnipJsCqMgKNXLc%3D>
- Brown, R. P, Budzek, K., & Tamborski M. (2009). On the meaning and measure of narcissism. *Personality and Social Psychology Bulletin*, 35, 951–964. DOI: 10.1177/0146167209335461
- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement: interpersonal consequences and validation of a self-report measure. *Journal of Personality Assessment*, 83(1), 29-45. Retrieved from <http://eds.a.ebscohost.com/eds/detail/detail?vid=1&sid=bca65190-db92-490c-8f8b-d66c76cc336c%40sessionmgr4002&hid=4108&bdata=JkF1dGhUeXBIPWlwLGN1c>

3R1aWQsY29va2llHVybCxhdGhlnbMmY3VzdGlkPXM2MTc1OTYzJnNpdGU9Z
WRzLWxpdmU%3d#AN=13991077&db=bth

Campbell, K. W., & Sedikides, C. (1999). Self-Threat Magnifies the Self-Serving Bias: A Meta-Analytic Integration. *Review of General Psychology*, 3(1), 23-43. Retrieved from <http://www.southampton.ac.uk/~crsi/Selfthreat.pdf>

Chaurand, N., & Delhomme, P. (2012). Cyclists and drivers in road interactions: A comparison of perceived crash risk. *Accident Analysis & Prevention*, 50, 1176–1184. DOI: 10.1016/j.aap.2012.09.005

Edwards, B. D., Warren, C. R., Tubré, T. C., Zyphur, M. J., & Hoffner-Prillaman, R. (2013). The Validity of Narcissism and Driving Anger in Predicting Aggressive Driving in a Sample of Young Drivers. *Human Performance*, 26(3), 191-210. DOI: 10.1080/08959285.2013.795961

European Road Safety Observatory. (2010). *Traffic Safety Basic Facts 2010, Cyclists*. Retrieved from http://ec.europa.eu/transport/road_safety/pdf/statistics/dacota/bfs2010_dacota-swov-1-3-cyclists.pdf

Fein, S., & Spence, S. J. (1997). Prejudice as Self-image Maintenance: Affirming the Self Through Derogating Others. *Journal of Personality and Social Psychology*, 73(1), 31-44. Retrieved from <https://wesfiles.wesleyan.edu/courses/PSYC-309-clwilkins/week3/Fein.Spencer.1997.pdf>

Fielding K. S., McDonald, R., Louis, W. R. (2008). Theory of planned behaviour, identity and intentions to engage in environmental activism. *Journal of Environmental Psychology*, 28, 318–326. doi:10.1016/j.jenvp.2008.03.003

Fisk, G. M. (2010). “I want it all and I want it now!” An examination of the etiology,

- expression, and escalation of excessive employee entitlement. *Human Resource Management Review*, 20, 102-114. DOI: 10.1016/j.hrmmr.2009.11.001
- Fruhen, L. S., & Flin, R. (2015). Car driver attitudes, perceptions of social norms and aggressive driving behaviour towards cyclists. *Accident Analysis & Prevention*, 83, 162-170. DOI: 10.1016/j.aap.2015.07.003
- Gini, G. (2007). Who is blameworthy? Social identity and inter-group bullying. *School Psychology International*, 28, 77–89. DOI: 10.1177/0143034307075682
- Goddard, T., Barsamian Kahn K., & Adkins A. (2015). Racial bias in driver yielding behavior at crosswalks. *Transportation Research Part F: Traffic Psychology and Behaviour*, 33, 1-6. DOI:10.1016/j.trf.2015.06.002
- Harber, K.D., Podolski, P., & Williams, C.H. (2015). Emotional disclosure and victim blaming. *Emotion*, 15(5), 603-614. DOI: 10.1037/emo0000056
- Kemp, S., & Zhe, C. (2015). When things go wrong: Lay perceptions of blame. *Asia Pacific Management Review*, 20(3), 184-190. DOI:10.1016/j.apmr.2015.02.004
- Lewis, I., Watson, B., White, K.M., & Elliott, B. (2013). The Beliefs Which Influence Young Males to Speed and Strategies to Slow Them Down: Informing the Content of Antispeeding Messages. *Psychology & Marketing*, 30(9), 826-841. DOI:10.1002/mar.20648
- Lois, D., Morianoa, J. A., & Rondinellab, G. (2015). Cycle commuting intention: A model based on theory of planned behaviour and social identity. *Transportation Research Part F: Traffic Psychology and Behaviour* 32, 101–113. DOI:10.1016/j.trf.2015.05.003
- Lustman, M., Wiesenthal, D., & Flett, G. (2010). Narcissism and Aggressive Driving: Is an

Inflated View of the Self a Road Hazard? *Journal of Applied Social Psychology*, 40(6), 1423-1449. DOI: 10.1111/j.1559-1816.2010.00624.x

Malle, B. F., Guglielmo, S., & Monroe, A. E. (2012). Moral, Cognitive, and Social, The Nature of Blame. *Social Thinking and Interpersonal Behavior* (18). Retrieved from http://www.macalester.edu/~sgugliel/pubs/MalleGuglielmoMonroe_nature_of_blame.pdf

Murtagh, N., Gatersleben, B., & Uzzell, D. (2012). Multiple identities and travel mode choice for regular journeys. *Transportation Research Part F: Traffic Psychology and Behaviour*, 15(5), 514-524. DOI:10.1016/j.trf.2012.05.002

Oyserman, D., Fryberg, S. A., & Yoder, N. (2007). Identity-based motivation and health. *Journal of Personal and Social Psychology*, 93(6), 1011-27.
DOI: 10.1037/0022-3514.93.6.1011

Paschalidis, E., Basbas, S., Politis, I., & Prodromou, M. (2015). “Put the blame on...others!”: The battle of cyclists against pedestrians and car drivers at the urban environment. A cyclists’ perception study. *Transportation Research Part F: Traffic Psychology and Behaviour*. DOI:10.1016/j.trf.2015.07.021

Raskin, R. N., & Hall, C. S., (1979). "A Narcissistic Personality Inventory." *Psychological Reports*, 45, 590-590. Retrieved from <http://personality-testing.info/tests/NPI/>

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890–902. Retrieved from <http://www.columbia.edu/~da358/np16/raskin.pdf>

Rosea K. C., & Anastasiob P. A. (2014). Entitlement is about ‘others’, narcissism is not:

- Relations to sociotropic and autonomous interpersonal styles. *Personality and Individual Differences*, 59, 50-53. DOI: 10.1016/j.paid.2013.11.004
- Schreer, G. E. (2002). Narcissism and Aggression: Is Inflated Self-Esteem Related to Aggressive Driving? *North American Journal of Psychology*, 4(3), 333-342.
<http://connection.ebscohost.com/c/articles/11060365/narcissism-aggression-inflated-self-esteem-related-aggressive-driving>
- Sissons Senior, J.M., Smith, V., Paul, G. (2001). A diary study of the risk perceptions of road users. *Health, Risk & Society*, 3(3), 261-279. DOI: 10.1080/13698570120079877.
- Stone, M., & Gosling, R. (2008). *Attitudes to cycling: Research report (for London Transport)*. Retrieved from <http://content.tfl.gov.uk/attitudes-to-cycling-2008-research-report.pdf>
- Stafford, T. (2013, February 12). The Psychology of why Cyclists enrage Drivers. *BBC*. Retrieved from <http://www.bbc.com/>
- Stucke, T.S. (2003). Who's to blame? Narcissism and self-serving attributions following feedback. *European Journal of Personality*, 17(6) 465-478. DOI: 10.1002/per.497
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.). Retrieved from http://web.mit.edu/curhan/www/docs/Articles/15341_Readings/Intergroup_Conflict/Tajfel_&Turner_Psych_of_Intergroup_Relations_CH1_Social_Identity_Theory.pdf
- Tamborski M., Brown, R. P., Chowning, K. (2012). Self-Serving Bias or Simply Serving the Self? Evidence for a Dimensional Approach to Narcissism. *Personality and Individual Differences*, 52(8), 942-946. DOI: 10.1016/j.paid.2012.01.030
- Tomlinson, E.C. (2012). Integrative Model of Entitlement Beliefs. *Employment Responsibility and Rights Journal*, 25, 67-87. DOI 10.1007/s10672-012-9208-4

- Wood, J. M., Lacherez, P.F., Marszalek, R.P., & King, M. J. (2009). Drivers and cyclists experiences of sharing the road: incidents, attitudes and perceptions of visibility. *Accident Analysis Prevention*, 41(4), 772-776. DOI:10.1016/j.aap.2009.03.014
- World Health Organization. (2015). *Road traffic injuries* (Fact sheet No. 358). Retrieved from <http://www.who.int/mediacentre/factsheets/fs358/en/>

Appendix 1

Survey Participation

This questionnaire explores traffic conflict, as experienced by Cyclists. It will be used in conjunction with a second questionnaire, which explores traffic conflict, as experienced by Car Drivers. Although many people participate in both cycling and driving, for the purpose of this study please only submit either the Cyclist or the Car Driver questionnaire.

You are invited to take part in this study. Participation involves completing and submitting the following questionnaire. While the questionnaire asks some questions that might cause some minor negative feelings, this has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services are included on this page.

Participation is anonymous and confidential. No names should be included in the questionnaire. Thus, responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been submitted. All data captured will be securely stored on a password protected computer. Research is being conducted as part of a Final Year Psychology Project and may possibly be presented at a college symposium.

Participants should be over 18. Those completing the Car Driver questionnaire should have a full clean driver licence (excluding penalty points that do not amount to a driving ban).

It is important that you understand that by completing and submitting the questionnaire

that you are consenting to participate in the study.

If you feel you may be affected by any of the questions in this survey, below are some useful support services :

The Aware Helpline : 1890 303 302 or e-mail info@aware.ie - Available Monday – Sunday, 10am to 10pm.

Samaritans Ireland: 1850 60 90 90 - Available 24 hours a day, 365 days a year.

Should you require any further information about the research, please contact

Mary Carolan,

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY

THE FOLLOWING QUESTIONNAIRE CONTAINS 22 QUESTIONS

Demographics



For each of the questions that follow in this questionnaire, please click whichever number you feel is most appropriate for you. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

* 1. What is your gender?

Female

Male

* 2. What is your age?

19 to 24

25 to 39

40 to 54

55 to 64

65+

* 3. Duration of Cycle (minutes per trip)

11 to 20 minutes

21 to 60 minutes

60+ minutes

* 4. Cycling trips per week

* 5. Cycling Location

Urban

Rural

* 6. Cycling Purpose

Recreational

Commuting

7. Do you have a car available?

Yes

No

* 8. Do you have a motorcycle available?

Yes

No



Below consists of a number of pairs of statements with which you may or may not identify.

Consider this example:

A. I like having authority over people

B. I don't mind following orders

Which of these two statements is closer to your own feelings about yourself? If you identify more with "liking to have authority over people" than with "not minding following orders", then you would choose option A.

You may identify with both A and B. In this case you should choose the statement which seems closer to yourself. Or, if you do not identify with either statement, select the one which is least objectionable or remote. In other words, read each pair of statements and then choose the one that is closer to you own feelings.

* 9. Which of these two statements is closer to your own feelings about yourself?

The thought of ruling the world frightens the hell out of me.

If I ruled the world it would be a better place.

* 10. Which of these two statements is closer to your own feelings about yourself?

I insist upon getting the respect that is due me.

I usually get the respect that I deserve.

* 11. Which of these two statements is closer to your own feelings about yourself?

I just want to be reasonably happy.

I want to amount to something in the eyes of the world.

* 12. Which of these two statements is closer to your own feelings about yourself?

I expect a great deal from other people.

I like to do things for other people.

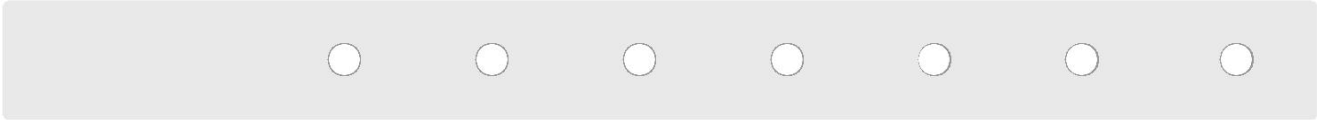
* 13. Which of these two statements is closer to your own feelings about yourself?

I will never be satisfied until I get all that I deserve.

I take my satisfactions as they come.

14. Which of these two statements is closer to your own feelings about yourself?

- I have a strong will to power.
 - Power for its own sake doesn't interest me.
-



Use the scale below to describe your degree of agreement with each item.

* 15. Respond to each of the items using the scale below to describe your degree of agreement with each item by selecting the appropriate number.

| | Strongly Disagree | Disagree | Slightly Disagree | Neutral | Slightly Agree | Agree | Strongly Agree |
|--|----------------------|----------|----------------------|---------|----------------|-------|-------------------|
| 1. I identify myself as a cyclist. | | | | | | | |
| 2. I can envisage myself as a cyclist. | | | | | | | |
| 3. I think I have something in common with cyclists. | | | | | | | |



Please consider the most recent conflict experienced with a Car Driver

Conflict does not necessarily involve physical contact. Conflict can evoke feelings of competitiveness, stress, frustration and inconvenience.

For the questions that follow, please click whichever answer you feel is most appropriate for you. There are no right or wrong answers. If you have experienced conflict you will be asked to rate how responsible the other party was for the conflict.

Use your first impression and do not spend too much time on individual items in responding.

* 16. Have You as a Cyclist ever Experienced Conflict when Intersecting with a Car ?

Yes

No



Please describe and rate the most recent conflict experienced with a Car Driver

* 17. Have You as a Cyclist ever Experienced Conflict when Intersecting with Car due to the Following Behaviour of Either Party: Please answer 1 -7:

- 1. Failing to yield the right of way
- 2 Going through a red light
- 3 Not signalling to the vehicle behind when turning into a private drive
- 4 Swerving to the right when turning at a high speed
- 5 Tailgating the vehicle just ahead whose driver suddenly slams on the brakes
- 6 Not checking traffic on the left when turning at a crossroads
- 7 Other

If Other please state:

* 18. On a scale of 0 to 100 how responsibility was the Car Driver for the conflict:



Please consider the most recent conflict experienced with a fellow Cyclist.

Conflict does not necessarily involve physical contact. Conflict can evoke feelings of competitiveness, stress, frustration and inconvenience.

For the questions that follow, please click whichever answer you feel is most appropriate for you. There are no right or wrong answers. If you have experienced conflict you will be asked to rate how responsible the other party was for the conflict.

Use your first impression and do not spend too much time on individual items in responding.

* 19. Have You as a Cyclist ever Experienced Conflict when Intersecting with another Bicycle ?

Yes

No



Please describe and rate the most recent conflict experienced with a fellow Cyclist

* 20. Have You as a Cyclist ever Experienced Conflict when Intersecting with another Bicycle due to the Following Behaviour of Either Party: Please answer 1 -7:

- 1. Failing to yield the right of way
- 2 Going through a red light
- 3 Not signalling to the vehicle behind when turning into a private drive
- 4 Swerving to the right when turning at a high speed
- 5 Tailgating the vehicle just ahead whose driver suddenly slams on the brakes
- 6 Not checking traffic on the left when turning at a crossroads
- 7 Other

If Other please state:

* 21. On a scale of 0 to 100 how responsibility was the other Cyclist for the conflict:



Please indicate how much you agree with the following statement.

When a cyclist crosses motorised traffic, the cyclist should always have the priority.

* On a scale of 0 to 100 how much do you agree with the statement above:

Debrief

Interactions between bikes and cars are risky interactions. Most of these risky interactions do not result in crashes however they can result in Cyclist, Car Driver conflict. Conflict does not necessarily involve physical contact but can evoke feelings of competitiveness, stress, frustration and inconvenience.

This questionnaire is part of a final year project entitled 'Cyclist/Driver: Difference in perceived conflict responsibility and road entitlement. Relationship to social-identity and entitlement'.

This project will look compare Cyclist and Car Driver perceived responsibility for road conflict. Perceived responsibility for conflict will be examined with the personal variable of social identity. It will examine if having a strong social identities as a Cyclist or a Car Driver make it more likely put the responsibility of road conflict on the out group.

This study will also compare Cyclist perceived entitlement for Cyclist right-of-way with Car Driver the perceived entitlement for Car Driver right-of-way. Perceived entitlement for Cyclist and Driver right-of-way will be correlated with the personal variable of sense of entitlement. It will examine if having a strong sense of personal entitlement is relates to the sense of entitlement road users believe their mode of transport should be given.

It is hoped that findings from this study help increase education and awareness in relation to road conflict, and help decrease road conflict.

Please contact Mary Carolan at the following e-mail address if you have any questions regarding this study.

THANK YOU AGAIN FOR YOUR CO-OPERATION

Appendix 2

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|---|-----------|---------|---------------|-----------------------|
| Valid | Combination of already categorised issues | 6 | 1.6 | 20.0 | 20.0 |
| | Overtaking in an unsafe manner | 1 | .3 | 3.3 | 23.3 |
| | Cyclist obstructing traffic | 6 | 1.6 | 20.0 | 43.3 |
| | No lighting or reflective outfit | 2 | .5 | 6.7 | 50.0 |
| | Tailgating | 1 | .3 | 3.3 | 53.3 |
| | Not signalling or signalling incorrectly | 2 | .5 | 6.7 | 60.0 |
| | Using phone while driving/cycling | 1 | .3 | 3.3 | 63.3 |
| | Driving at incorrect speed | 1 | .3 | 3.3 | 66.7 |
| | Individual issues | 10 | 2.6 | 33.3 | 100.0 |
| | Total | 30 | 7.9 | 100.0 | |
| Missing | System | 350 | 92.1 | | |
| Total | | 380 | 100.0 | | |

Table 2 - illustrates the frequency breakdown of 'other' conflict type reported by participants who experienced conflict with a cyclist

Appendix 3

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|---|-----------|---------|---------------|-----------------------|
| Valid | Combination of already categorised issues | 7 | 1.8 | 9.1 | 9.1 |
| | Overtaking in an unsafe manner | 25 | 6.6 | 32.5 | 41.6 |
| | Cyclist obstructing traffic | 8 | 2.1 | 10.4 | 51.9 |
| | Blocking cycle lane when turning left | 3 | .8 | 3.9 | 55.8 |
| | Tailgating | 3 | .8 | 3.9 | 59.7 |
| | Not signalling or signalling incorrectly | 3 | .8 | 3.9 | 63.6 |
| | Improper roundabout use | 4 | 1.1 | 5.2 | 68.8 |
| | Using phone while driving/cycling | 2 | .5 | 2.6 | 71.4 |
| | Driving at incorrect speed | 4 | 1.1 | 5.2 | 76.6 |
| | Individual issues | 18 | 4.7 | 23.4 | 100.0 |
| | Total | 77 | 20.3 | 100.0 | |
| Missing | System | 303 | 79.7 | | |
| Total | | 380 | 100.0 | | |

Table 3 - illustrates the frequency breakdown of 'other' conflict type reported by participants who experienced conflict with a car driver