Equine road user safety: Public attitudes, understandings and beliefs from a qualitative study in the United Kingdom

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ABSTRACT

Horse riders represent a significant group of vulnerable road user and are involved in a number of accidents and near misses on the road. Despite this horse riders have received little attention both in terms of academic research and transport policy. Based on literature on vulnerable road user safety, including attitudes to road user safety and behaviour of drivers and their relationship with cyclists and motorcyclists, this paper examines the attitudes and reported behaviour of drivers and horse riders. A total of 46 participants took part in six focus groups divided into four groups of drivers with little or no horse riding experience and two groups of frequent horse riders. Each group investigated five key topic areas stemming from the literature review on vulnerable road users including hazard perception, risk perception, emotion, attitudes to sharing the road and empathy. It was found that drivers and horse riders are not always aware of the same hazards in the road and that this may lead drivers to under-estimate the risk when encountering horses. Drivers often had good intentions to overtake horses safely, but were unaware of how vulnerable passing very wide and slow made them feel until they had begun the manoeuvre and hence quickly reduced such feelings either by speeding up or cutting in too soon. However, other than this, drivers had good skills when encountering horses. But these skills could be impeded by frustration when encountering a slow moving horse which was further compounded by a feeling, mainly by younger drivers, that horse riding was for leisure and as such should not get in the way of necessary work journeys. There is a need for drivers to be more aware of the potential hazards a horse rider faces on the road and these could be achieved through inducing empathy amongst drivers for horse riders, creating nudges for drivers in the environment and better education for drivers.

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1. Introduction

Horse riders have received comparatively little attention compared to other vulnerable road user groups both in terms of academic research and transport policy. This paper presents research that aimed to provide an exploratory understanding of the socio-psychological processes which may relate to road traffic accidents involving motorists and horse riders and to recommend measures for policy and practice to improve road safety for all users. To focus the paper, research findings associated with other vulnerable road users were examined and used to frame the methodology and findings.

The British Equestrian Trade Association National Equestrian Survey (BETA, 2006) estimated that 4.3 million people had ridden a horse in Great Britain in the last 12 months (7% of the population), with 2.1 million people riding at least once per month. It is estimated that there are around 900,000 domestic horses in the United Kingdom (UK) and that 81% of these horses are used for purposes that could require general on or off road exercise (More-Colyer, 2004). An online poll of 1021 horse riders found that 69% rode on public roads more than twice per week (Horse and Hound, 2007).

The Department for Transport 'Road Casualties Great Britain' report (DfT, 2008) states that there were 106 horse rider traffic accidents reported in Great Britain of which two involved human fatalities, 18 involved serious injuries to humans and 86 slight injuries to humans. Table 1 illustrates that the number of horse rider traffic accidents has decreased between 2004 and 2008 in Great Britain from 132 in 2004, to 106 in 2008. Traffic accidents have almost exclusively fallen on roads in non-built-up areas, whereas those in built-up areas remain at a similar number. The British Horse Society (BHS) estimates that there may be a far higher number of horse-related traffic accidents every year than is reported in such statistics, possibly in the region of 3000 if

Table 1
Horse rider accident data.

Year	Built up roads		Non-built up roads		All accidents
	No.	%	No	%	
2004*1	52	39	80	61	132
2005*2	59	46	69	54	128
2006*3	54	43	69	57	123
2007*4	59	46	68	54	127
2008*5	50	47	56	53	106

Source: *1 = DfT Road Casualties Great Britain 2004. *2 = DfT Road Casualties Great Britain 2005 (DfT, 2005). *3 = DfT Road Casualties Great Britain 2006 (DfT, 2006). *4 = DfT Road Casualties Great Britain 2007 (DfT, 2007a). *5 = DfT Road Casualties Great Britain 2008 (DfT, 2008).

minor human injuries are taken into account (DfT, 2000). In addition, the number of near misses horse riders experience is high; for example Cheshire County Council (CCC, 2005) and Redcar & Cleveland Borough Council (RCBC, 2005) found that whilst only around 10% of horse riders had been involved in a traffic accident in the last 5 years, 60% reported being in a near miss in the same time period. The high number of near misses indicates that there is a potentially significant road safety issue which needs to be addressed.

The paper takes the view that road user behaviour cannot be isolated from the social context within which it operates. People's road user safety behaviour is related to the social issues associated with how people perceive and accept levels of risk on the road (Haglund and Åberg, 2000; Musselwhite et al., 2009, 2010a; O'Connell, 2002). Central to the social context of the road are attitudes which can broadly be defined as "...a positive, negative, or mixed reaction to a person, object, or idea" (Brehm et al., 2002, p. 179) and "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour" (Eagly and Chaiken, 1993, p. 1). Hence, attitudes can be seen to be an evaluative reaction to a concept, such as road user safety. Although, it is acknowledged there might be an attitude–behaviour disconnect, understanding associated social context could demonstrate potential clues which help explain why people behave the way they do in certain situations.

It can be argued that horse riders are a vulnerable road user group similar to that of pedestrians and cyclists. They share a similar lack of physical protection when sharing road space with vehicles (Musselwhite et al., 2010a). In addition, they travel at relatively slower speeds and are less manoeuvrable than motorised vehicles, especially cars. They are also a minority road user, similar to pedestrians and cyclists. Horses, as road users, also pose additional risks. Horses weigh more than bicycles. In addition, riders have a greater height to fall from and risk being kicked or crushed in the process. In addition, unlike a cyclist falling from a bicycle, separation of the rider from the horse in a fall is likely to cause the loose horse to panic and create a danger for other road users. It is concluded that horses and riders could be considered to be potentially more physically vulnerable than cyclists. The British Horse Society (BHS, 2010) suggest that the fundamental difference between horse riders and other road users is that horses are animals and not machines and are therefore irrational and unpredictable. Horses may react not just to other road users which may frighten or 'spook' them but also to external factors in the environment. These can include seemingly everyday items or such as drains, plastic bags, lawn mowers, and umbrellas (BHS, 2010). Understanding the full potential of a horse as a hazard therefore requires drivers to have some appreciation of horse behaviour. It is suggested that similarity and distinction of horses and their riders as vulnerable road users similar to pedestrians and cyclists in these areas is best further explored, initially at least, through research producing qualitative data.

In comparison to research on other vulnerable users, it could be expected that horse riders will have a different more microscopic level of hazard perception compared to car drivers as is found with cyclists and motorcyclists (e.g. Horswill and Helman, 2003; Hosking et al., 2010; Shahar et al., 2010). Previous research with cyclists suggests they feel particularly vulnerable when being followed close behind (Davies et al., 1997). This is likely to be amplified with horses who cannot use both monocular and binocular visions at the same time; if something scares a horse from behind or to the side of it (such as a vehicle), the horse may spin around or swing towards the vehicle so it can use its binocular vision to see it more clearly (Evans, 2005).

Perceptions of other road users are considered fundamental to perception of risk, specifically making an attribution about how much skill, ability and control an individual has as a road user (Musselwhite et al., 2010a,b). Studies of cyclists have found that drivers perceive certain types of cyclist, for example, everyday cyclists, men and those that wear helmets as being more experienced and hence more predictable (Basford et al., 2002) and it has subsequently been found that driver's treat them with less caution and afford them less room on the road (Walker, 2007). It follows that drivers may also make similar assumptions about different types of horse rider depending on whether they are an adult or child, what they are wearing and their use of safety equipment. Hence, drivers who perceive horse riders have a high degree of control over their animals are likely to think an encounter with a horse is not especially risky.

Affect can influence road user behaviour. For example, frustration to being held-up by slower moving road users, such as horses, can create a negative effect on driver behaviour (Fuller et al., 2008). It is considered that drivers may have high levels of skill and ability when encountering horses but still behave in a risky manner as a result of frustration and annoyance. Such feelings can be exasperated by two further affective emotional elements. First, how far the road user shows empathy towards another user; that is how far they are motivated to see the road use from another road user's perspective (Batson and Shaw, 1991). According to social identity theory (Tajfel and Turner, 1979, 1986) people tend to see the *in group*, to which they belong, in a more positive light than the *out group*, to which they do not belong (Gatersleben and Haddad, 2010). Individuals are therefore more likely to demonstrate empathy if they believe they are similar to the person they are interacting with (Passer and Smith, 2008). Secondly, how far the individual is a viewed as a legitimate road user is also critical in such perceptions. Basford et al. (2002) found that cyclists were not perceived to be high on most drivers' road user hierarchy due to their smaller size and lack of speed and may therefore be treated with less care and consideration than other road users. Negative driver attitudes towards cyclists have been linked to perceptions that cyclists do not wear the correct safety gear (Musselwhite et al., 2010b) and were not obliged to financially contribute to the road usage (no road tax, no insurance) (Basford et al., 2002). Horse riders share many qualities with cyclists in that they are legally permitted to use public roads but have no direct financial obligation to do so and generally can be assumed to travel slower than both vehicles and maximum permitted speed limits.

Drivers with dual experience of driving cars and riding motorcycles have greater empathy for and more positive attitudes towards motorcyclists (Crundall et al., 2008b). Dual drivers and drivers with relatives or close friends who motorcycle have been found to be less likely to be responsible for car-motorcycle accidents (Brooks and Guppy, 1990; Crundall et al., 2008a; Magazzu et al., 2006). Drivers who are also cyclists have been found to have a better understanding of cycle related traffic scenarios (Basford et al., 2002). How far this relates to drivers and horse riding is explored in this paper.

Driver encounters with vulnerable road users are therefore subject to hazard and risk perception which seems to be further mediated through emotions and empathy. Hence, the research looked at how far these relationships exist in the context of driver–horse encounters on the road.

2. Methodology

2.1. Design

Focus groups were chosen as there is little existing knowledge and information on the subject and the group situation can help stimulate discussion and debate (Maykut and Morehouse, 1994). It was also considered that some of the participants may have limited personal experience of horses and encounter horses on the road infrequently. Therefore the group setting helps facilitate the discussion allowing people to build on each other's responses and come up with ideas which they might not have thought of in an interview. They also mimic the social nature of interactions on the road emphasising attitudes, perceptions and social interaction (Musselwhite et al., 2010a,b; O'Connell, 2002).

2.2. Procedure

The research took an emergent perspective, where two phases of data collection took place with analysis at phase 1 informing the research procedure, participants and tools at phase 2 (see Fig. 1). Phase 1 involved three focus groups, two with younger drivers who were not horse riders and one with younger drivers who were also frequent horse riders. Themes that emerged from the data then informed a second phase which took place with three further focus groups. Phase 1 findings suggested that inexperience in using the road seemed to be influencing hazard perception and discussion on risk. Hence, subsequent phases engaged more experienced riders and drivers. In addition, there seemed to be distinct urban and rural differences between responses and it would be appropriate to have

an urban and rural split for the next round of driver focus groups. Findings and recommendations take into account the limitations of this approach, for example a non-representative set of participants.

Each focus group lasted around 1 h and was run by the lead author of this paper. They took place during the day at a location convenient to all participants. A topic guide was followed with key areas covered across all focus groups (see tools section below for further details). In all cases, questions began openly and prompts were used if participants were unable to answer. This rarely happened and was taken into account in the analysis and subsequent reporting, noting if it was felt the researcher has been leading.

2.3. Participants

At phase 1, three focus groups were formed, two consisted of drivers (including those learning to drive) who did not ride horses currently and one consisting of people who drove but who also rode horses on a self-declared "regular basis". These groups were formed in the Bristol and South Gloucestershire area of the United Kingdom (UK), mainly due to convenience. Yet it is recognised such a location is useful in terms of having a variety of urban and rural forms in close proximity and hence drivers and riders will have varied experience of encountering different terrain and contexts. Participants were recruited through contacts at the University of West of England and Hartpury College. As noted, phase 2 participants were recruited in light of findings from phase 1. It was decided more experienced individuals should be recruited and that the drivers be split by urban and rural location of residence (and assumed regular driving). Table 2 shows the background of the participants in all the focus groups. A total of 46 participants took part in the research divided between two phases (23 in each phase). Fourteen regular horse riders took part in two distinct groups of seven, one at each phase. All of which were female and all also regularly drove cars.

2.4. Tools

Each focus group began by collecting background information including participants' age, gender, travel behaviour (types of transport used and when and how often they used these modes), and their experience, if any, with horses in general and on the road. A topic guide was then followed in each focus group, concentrating on key topic areas stemming from the literature reviewed on vulnerable road users as outlined in the introduction. This included hazard perception, affect and emotion, attitudes to sharing the road and empathy. The topic guides were semi-structured, with scope for conversation to flow naturally if an important topic emerged.

The topic guide examined how hazards were perceived through a task. Two pictorial scenarios of both an urban and a rural environment were developed building on research carried out by Basford et al. (2002). Each scene was hand-drawn and included a number of hazards directly related to the road environment and external hazards for horse riders as identified in previous research (BHS, 2010) including everyday items such as wheelie-bins, parked cars, drains, plastic bags, lawn mowers and umbrellas. In addition, the scene included other vulnerable road users that the horse would be interacting with including a cyclist and a pedestrian in the urban area and animals and a tractor in the rural picture. The pictorial scenarios were projected onto a wall in each focus group and participants were required to discuss what hazards and risks they saw in the scene.

The topic guide covered the affective and emotive side of road user safety by asking questions examining how interactions with other road users (especially horse riders and drivers) make individuals feel and how they believe this affects their driving behaviour. Attitudes to horse riding examined sharing of the road space between horse riders and drivers and whether horse riders are
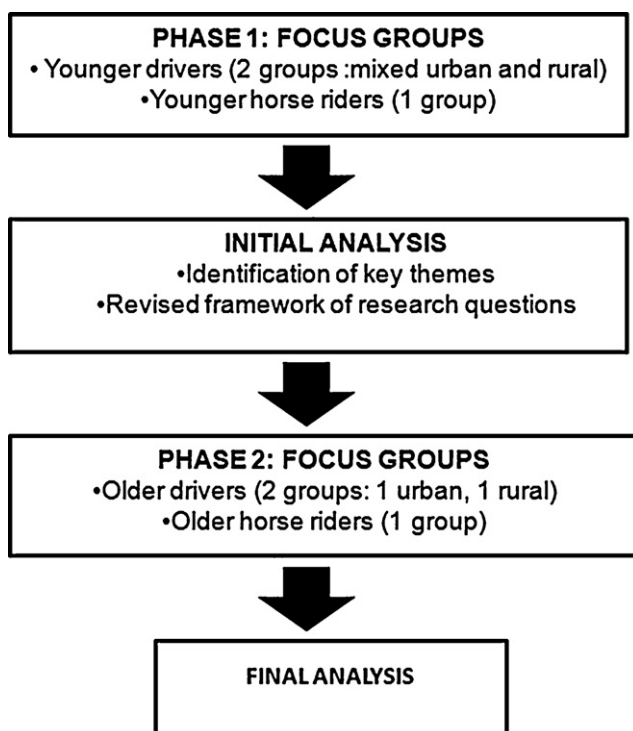

Fig. 1. Research design involving two phases of data collection.

Table 2
Phases 1 and 2 focus group participant demographics and backgrounds.

	Group size	Average age	Gender		Home location		Full driving licence		Profession	Encounter horses on the road
			Male	Female	Urban	Rural	Yes	No		
Phase 1										
Student Drivers Group 1	5	24	2	3	3	2	4	1	Student	Predominantly monthly or less often
Student Drivers Group 2	11	28	9	2	9	2	9	2	Student/engineer	Predominantly monthly or less often
Student horse riders	7	20	0	7	1	6	7	0	Student	–
Total for phase 1	23		11	12	13	10	20	3		
Phase 2										
Older rural drivers	11	61	10	1	0	11	11	0	Professional or retired professional	Predominantly weekly
Older urban drivers	5	61	3	2	5	0	5	0	Professional or retired professional	Predominantly less often
Older horse riders	7	48	0	7	0	7	7	0	Professional or retired professional	–
Total for phase 2	23		13	10	5	18	23	0		
Total across both phases	46		24	22	18	28	43	3		

viewed as responsible road users and why. The topic guide builds on work by Basford et al. (2002) and Walker (2007) examining issues of attribution of road users examining ingroup outgroup distinction on the road and legitimacy of road user. Empathy, the ability and motivation to see the road from another's viewpoint, was examined building on work on motorcyclists by Crundall et al. (2008a,b). Questions were asked about how much individuals know of (other) horse riders and how far they believe they view the road from a horse rider's perspective and where they believe this has originated. The topic guide concluded with allowing participants to discuss any further issues they had about horse and horse rider road user safety.

At phase 2, a topic guide was constructed as for phase 1 but contained additional questions on stereotypes (with participants discussing who the typical horse rider is, utilising visual props), attitudes towards a road user hierarchy (who has priority on the road, for example) and whether anybody had any training on vehicle–horse interactions, either as a driver or a horse rider. A question was also added to investigate whether attitudes have changed over time and why this might be, specifically to investigate how experience and attitudes interact.

2.5. Analysis

A thematic analysis approach was used to analyse the data. The process involved the identification of themes through careful reading and re-reading of the data (Rice and Ezzy, 1999) and then building pattern recognition within the data, where emerging themes became the categories for analysis (Fuller et al., 2008). Thematic analysis took place twice, at the end of phase 1 and again at the end of phase 2. The analysis has been undertaken in two phases to allow the research questions to be expanded and explored and the focus of the study to be defined. Themes were identified a priori through the five areas outlined from the literature on vulnerable road users including hazard perception, risk perception, emotion, attitudes to sharing the road and empathy. In addition, post-hoc categorisation of any emergent findings occurred (i.e. those not previously thought to be central to the research aims and objectives but were found to be important to the participants). Re-occurring themes were identified along with those held strongly by individuals. In addition, incidents were strong disagreement was noted was also captured in the analysis.

Thematic analysis was also used to analyse the hazard perception task. Discussions during the hazard perception task were recorded and then were sorted into distinct themes. These were then placed into order based on the strength of importance placed on the topics given by the participants as analysed by the researcher. Hence themes of greatest concern to least concern could be placed in order. It is recognised this suffers from limitations in the subjective nature of analysing strength of concern, but nevertheless offers a conceptual framework for future debate.

Once themes were found amongst the data, a further analysis took place to look for similarities and differences within the data. In particular, to judge issues about sharing the road, concepts addressing in particular statements that provided evidence for or against ingroup outgroup theory and legitimacy of road use. Similarly, to ascertain how far empathy is found, rather than just mere experience of knowing others, data within relevant themes were further deconstructed to look for terms relating to individuals being motivated to engage with other road users and attempting to view the road how other road users see it.

This second level of analysis allowed comparisons between different groups of people, specifically addressing any noticeable differences between answers given by horse riders and non-horse
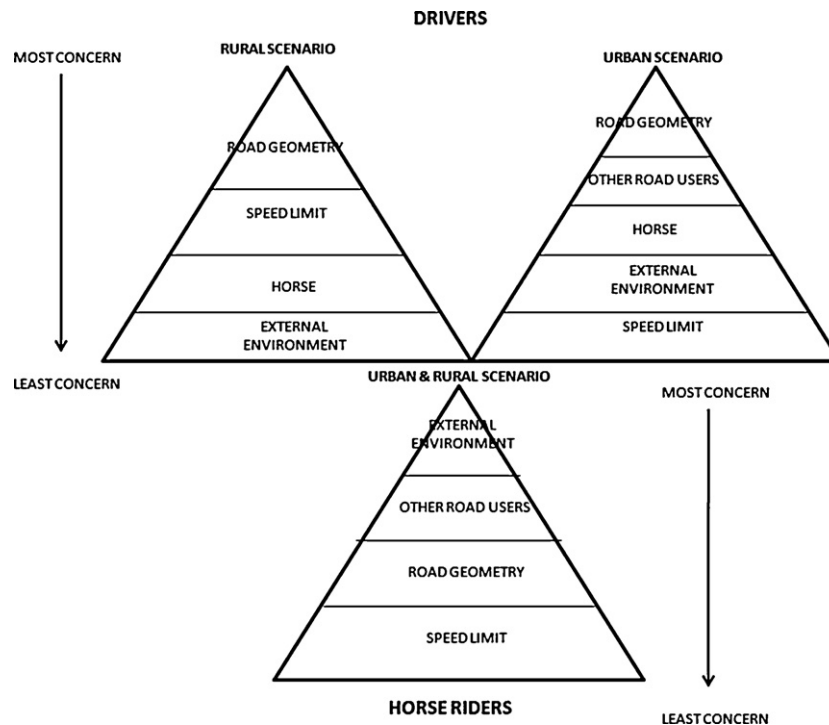
DRIVERS

Fig. 2. Findings from the hazard perception topic.

riders, experienced and less experienced drivers and rural and urban drivers.

2.6. Ethical considerations

All participants were provided with project information sheets which provided details on the position of the researcher, purpose and method of research, code of conduct for participation and details of data storage. Participants were informed that taking part was completely voluntary and that they could withdraw at any time. Personal details of participants were collected in order to co-ordinate and facilitate the arrangement of the focus groups and to allow participant statements to be clarified should an issue arise during transcription, however assurance was given that personal details would at no time be passed to any third party. Participant anonymity has been maintained in terms of the publishing of this report and data has been securely stored. Personal data was destroyed following the completion of this project. Hence, full informed consent was able to be given by the participants.

3. Findings and discussion

The findings from phases 1 and 2 of this study, along with discussion have been combined for ease of understanding. The findings and discussion are outlined below in terms of analysing drivers' knowledge and ability when encountering with horses, and how hazard and risk perception are formulated in such encounters. How that knowledge and ability might be mediated through factors such as expectation and entitlement of horses using the road along with experience of horse-riding and empathy for horse-riding are also covered.

3.1. Driver ability and knowledge

Drivers tended to claim to be quite skilful in dealing with horses on the road. Most driver participants understood that dangerous

driver behaviour around horses included sounding horns, passing too fast, passing too close, shouting at horse riders and playing loud music and most claimed never to do such behaviours. Confidence with one's own driving ability is of course commonplace and how far this translates to real behaviour on the road is not known (see Musselwhite et al., 2010a for review of research). Horse riders identified many other dangerous behaviours which were not mentioned in the driver only groups. These included passing a stationary horse too slowly as it made it harder for the rider to control the horse; creeping along behind the horse as it would unsettle the horse and; stopping a vehicle to let the horse past and then driving forward as the horse approached as the horse found it threatening. Such behaviours are also not picked up in recent education campaigns in the UK, for example the UK Department for Transport (DfT) Think Horse Sense campaign (DfT, 2007b) advises drivers to: slow down, give plenty of room and be ready to stop, not to sound horns or rev engines or pass unless they can give a wide berth.

It was acknowledged by most drivers that horse riders might not be in complete control with their horse at all times. However, a minority of younger, less experienced drivers, in particular, believed that horse riders have a high level of control over their animals. Distinctions were made by drivers about the rider and the amount of control that might be able to be exerted over the animal. For example, child riders were thought to be more at risk and drivers stated they gave them more room when overtaking as they were perceived more vulnerable. This is very similar to findings noted by Walker (2007) in driver–cyclist interactions where drivers give cyclists differing amounts of room according to an appraisal of the cyclist's gender, age and clothes worn. Given that horses too may have different reactions, drivers need to take account of different types of horse as well.

It seems that a driver believes they have a good set of skills to foster positive, safe interactions with horses on the road. However, the mental map of skills required is incomplete and lacks some crucial knowledge of what it is like to ride a horse on the road.

In particular, there is a lack of understanding that the horse is an animal that may not be totally under control of the owner. This is further explored in perceptions of hazards and risk.

3.2. Hazard and risk perception

As previous research with vulnerable road users would suggest (e.g. Shahar et al., 2010), the results from this study demonstrate that drivers and vulnerable road users, in this case horse riders, appraise road hazards differently. Analysis of the findings allowed categories of hazard to be developed and then placed in order of concern as was judged to have been expressed by the participants. This created a different prioritisation given to hazards between groups as illustrated in Fig. 2.

Drivers discussed that they were primarily concerned with the geometry of the road environment and changes in speed limit and showed less worry for hazards presented by other road users including horses. Younger, less experienced, drivers understood that a horse was a hazard but were unsure or unaware as to what might make the horse become unpredictable. Horse riders by contrast discussed how they were primarily concerned with hazards in the external environment which may result in needing a high level of rider effort to control the horse. This divergence in hazard perception between drivers and horse riders could in part explain why negative interactions may occur. It is recommended that drivers are provided with more information of what might be considered a hazard to a horse rider. In line with previous research (e.g. Basford et al., 2002; Brooks and Guppy, 1990; Crundall et al., 2008a; Magazzu et al., 2006), with vulnerable road users, drivers with horse riding experience or those with family or close friends who rode horses, showed greater ability to consider the scene from both perspectives indicating that experience or empathy for horse rider risks may improve driver hazard perception.

In each group the participants themselves brought up the topic of overtaking manoeuvres as it was felt this was when motorist and horse rider had the greatest potential for conflict. Horse rider participants considered that successful overtaking of horses by drivers required considerable forward planning and awareness including consideration of the potential behaviour of the horse. Non-horse riding participants considered that driving around horses was a more difficult task than driving around cyclists because horses were more unpredictable and that there was a need to pass a horse wider and slower than a cyclist,

"*I suppose the difference with horses and cars when overtaking is that when you overtake a car you speed up, but when you over take a horse you're supposed to do the opposite, slow down. You need more thinking time to do it. Also if you treat it like any other road user, car or bike then it's almost the opposite thing to do, slow down rather than speed up. It's a different way of driving*" (Student Driver Group 1).

Some older drivers considered that novice drivers lacked the skills necessary for driving around horses especially the first time a horse was encountered on the road.

"*I think it's also a learning curve, the first time you meet a horse on the road you just carry on as normal and then as you encounter them more you begin to appreciate what you should actually be doing more*" (Older Urban Driver).

Driver participants in this study also perceived that they were generally well protected in their cars (car-cooned) and that this gave them confidence that they were safe and protected and that other road users (such as horse riders or cyclists) were the vulnerable party,

"*When you are in the car, you are in your own little world, you have the radio on, the CD on, you are in control and detached from the environment around you, insulated. You are confident that you are protected*" (Older Rural Driver).

"*I think it's the perception in the car in the car that you are protected and only other cars can hurt you, I know someone who would be very cautious passing other cars but has an attitude towards bikes which is the total opposite*" (Older Rural Driver).

The phenomenon of "car-cooning" has been identified in previous research and is where the personal vehicle becomes almost a sanctuary escape from the world and provides a haven protecting drivers from harm (Fraine et al., 2007). The first implication of car-cooning is that it may lead to automatic driving. Musselwhite et al. (2010b) found that drivers recognized the dangers of being on 'auto-pilot' on regular or familiar journeys. Participants suggested that being on auto-pilot could result in the tendency to treat horse riders like other road users or inanimate objects thereby resulting in them passing too closely.

"*I think it's just not thinking, I think you can fall into your own little world when you are driving. Maybe you forget to give horses extra space.*" (Older Rural Driver).

This perception of automatic driving seems to be shared by more experienced horse riders and some had adopted "nudges" (Thaler and Sunstein, 2008) to drivers in order to draw attention to themselves, including sticking the whip out at right angles to the horse to create a sense of width to encourage cars to give them more room when overtaking. Reflective whips are available on the market but they have a tapered end which reduces their visibility from a distance. It is concluded that there is a need for a product for horse riders which is designed specifically to encourage drivers to pass more widely similar to wing reflectors used by cyclists.

The second implication of car-cooning in terms of road safety is that some drivers reported that the process of carrying out an overtaking manoeuvre changed their perception of relative vulnerability on the road. They switched from feeling confident and protected (car-cooned) to feeling that they were the vulnerable road user,

"*When you're driving in your mind you make a commitment to pull out if something is coming the other way then you are the vulnerable party, that is always the worry. It's not just the white line it's the vulnerability if something else is coming and you are in the middle of the road*" (Older Rural Driver).

Hence, when making an overtaking manoeuvre where the driver has to pull their vehicle onto the opposite carriageway drivers suddenly acquire a vulnerable status. This in turn can cause the driver to speed-up or cut-back in earlier than was anticipated,

"*As a driver if you go on the wrong side of the road there is a psychological sort of pressure to get off it so you try and go as quick as you can, because you are worried about something coming the other way*" (Student Driver Group 2).

"*The tendency is if something is coming to pull in quicker than you would otherwise*" (Older Rural Driver).

3.3. Expectation and entitlement to use the road

The gap between a driver's knowledge and skills and their behaviour in driver–horse and rider interactions could further mediated by a perception the driver has of the expectation of such encounters and who they believe is entitled to use the road. Previous research suggests drivers primarily expect only to see other

vehicles in the road and this assumption reduces driver attention and awareness of vulnerable road users when undertaking visual searches at junctions (Räsänen and Summala, 1998; Herslund and Jørgensen, 2003). On the whole most drivers, especially less experienced drivers, participating in the study did not expect to see horses, even on rural roads,

"*I don't think about horses when I'm driving in the countryside. I think about tractors more*" (Student Driver Group 1).

Some older drivers only expected to see horse riders if they receive relevant cues (such as signage or paddocks surrounding the road) or they were somewhere they have habitually met horses before. The lack of expectation of seeing horses on the road may lead to conflict. Drivers may be "caught out" by horses on main roads or in residential areas.

Younger drivers showed more extremity in their attitudes towards horse riders on the road being either strongly positive or negative. Differences in opinion between younger drivers were principally centred on the perception of priority of the motorist on the road. Older rural driver participants had more negative perceptions of horse riders than older urban drivers, yet despite this they had very positive attitudes towards sharing the road with horse riders. This was due to the acceptance that horse riders were part of rural culture,

"*I think if you don't come from a rural area you would resent it, but if you do come from a rural area, you accept it and you get used to it. Yes I would say it's a rural acceptance of horse riders*" (Older Rural Driver).

Perceptions of sharing the road and legitimacy of presence (and hence respect shown during encounters) is linked to context-specific attitudes. In rural areas horses are perceived as part of the rural idle and hence are seen as legitimate road users, even if they are viewed more negatively than in built-up areas. By contrast in built-up areas, horses are not seen as legitimate road users, although they are tolerated and viewed more positively, it is perceived they have lower priority to vehicles.

Consistent with previous research that frustration can cause poorer driving behaviour (e.g. Fuller et al., 2008; Musselwhite, 2006), drivers reporting frustration when being held up by horse riders reported how it could lead to poorer driving behaviour,

"*If you were stuck behind a tractor or something for a long time you are more likely to make a bad judgement. A horse is kind of the same*" (Student Driver Group 2).

Because it is largely perceived the horse is being ridden for leisure purposes, younger drivers felt frustration at being held up when their need to get to a destination superseded such discretionary travel,

"*When you came across a horse and you had to stop or slow right down and go past carefully. It used to really frustrate us because you want to get past. I remember the idea of a horse not going anywhere, so if I was trying to get somewhere it was annoying. Whenever you're late, it's never your fault; it's always everyone else who's in your way. My attitude has calmed down since I was a teenager, I can see through the situation, but its taken time to become more rationale*" (Student Driver Group 1)

Riders noticed a similar pattern, and believed it was professional drivers who showed the most annoyance,

"*I find it's the delivery drivers, the white van men, the plumbers or whatever. The ones where it's not their own vehicle and they need to get quickly from one place to another and they are rushing around. It's a kind of frustration with you*" (Older Rider).

The findings on entitlement are similar to previous research that suggest people see the road as competitive space where anyone unlike themselves are seen to be encroaching on and taking the road space unfairly, bringing out the *in group* versus *out group* distinction (see Musselwhite et al., 2010a,b). This not only manifests itself in competition between different modes of transport, but can be seen within modes too. For example, competition is often viewed between those making journeys deemed necessary, where people are perceived as having little choice, such as commuting or journeys for work, compared to those making journeys for leisure, for example. This research shows that there is particular annoyance shown for those using a different mode when the perception that the journey is for leisure purposes. These perceptions need to be reconciled in order for a safer use of the shared road space. In addition, perceptions of the area mediate this relationship and where horse riding is perceived as being a symbol of the rural idle horses and their riders are seen as legitimate road users. Horses and riders have long associations with rural heritage and perceived legitimacy is borne somewhat out of heritage and identity. These relationships are explored in other works (e.g. Acton, 2011) but not previously related to road use.

3.4. Experience and empathy

Unsurprisingly, having direct experience with horse riding leads to a greater understanding of potential horse rider hazards. There is also evidence that those with indirect experience of horse riding, through family and friends, for example, show a similar understanding of potential hazards for horses than those with no riding family or friends. Previous research on vulnerable road users suggests similar findings with motorcyclists. Brooks and Guppy (1990) suggests that drivers who have family members or close friends who ride motorcycles are less likely to collide with motorcycles, and showed better observation of motorcycles than drivers who did not. Crundall et al. (2008a,b) suggest greatest empathy towards motorcyclists comes from drivers who are motorcyclists themselves. Empathy tends to be brought about by a perception of attachment (kinship, friendship, familiarity, similarity) to others and is displayed by a deliberate attempt to take the other's perspective (Batson and Shaw, 1991). The social context affects the role of attachment and ability to understand other's perspective (Cialdini et al., 1997). The participants who rode or at least had family members or close friends that rode showed more empathy towards horse riders on the road. Such empathy translates through word-of-mouth from family or friends telling stories of accidents and incidents riding on the road

"*My sister has a couple of horses. My sister says its normally excessive speed by younger drivers that's the issue. They come up and around a corner and they'll be doing 60mph, which they can legally do but whether it's safe is another matter. My sister says when they do a small piece of patching, they'll fill it with this SMA material and it's lethal for horses, it's just like an ice sheet. They can just go down and the riders don't know it's there. My sister says she's almost been on the floor. Sometimes there is a reason for riding two abreast. My sister said that if you have an inexperienced horse, it's better to put the more experienced one on the outside*" (Student Driver Group 2)

"*I think my partner who is not horsey at all, probably passes horses better because I always say to him, don't follow them, don't get too close. My husband's quite good yeah even though he doesn't like horses*" (Older Rider).

Yet, empathy and understanding can also stem from mere exposure; just having horses around can be enough,

"*Participant:- My sister is an eventer and rides horses on a serious basis.*

Moderator:- Do they talk to you about their experiences on the road?

Participant:- Not on the road no, but in general she tells me what she's up to with the horse. But my sister has had horses all her life so I have grown up with the use of a horse, seeing what she did with it. I think it's just experience of being around them, you get a feel for them" (Older Rural Driver).

Finally, participants also mentioned getting their understanding for horses from films, although this often led to an erroneous model of a horse and its capabilities being developed,

"*You know in cowboy and Indian films they can shoot arrows from the horse, because the horse is able to think about what it is doing and helps the rider. I thought with a horse you would get an extra bit of safety because the horse can understand what the car is*" (Student Driver "B" Group 1).

It is recommended that horse riders should be encouraged to tell friends and family about their experiences of riding on the road. Overall, more research is required on how driver empathy can be developed for other vulnerable road user groups where there is little immediate experience, perhaps enhancing the educating role of dramas and films.

4. Reflection on method and associated limitations

Only a small sample of participants was selected which represented a narrow band of people. There was also an issue of gender bias within focus groups. Horse rider groups were female dominated as a search for male volunteers proved elusive. Although this reflects the fact that the majority of horse riders (77%) are female (More-Colyer, 2004), it has implications for the findings. For example, some of the empathy that horse-riders find with other road users may not be from riding *per se*. After all, females are more likely than males to be empathetic towards other road users and are more likely to value concepts of road sharing over competition and see wider value in strategies aimed at reducing the dominance of the motor vehicle (for review see Musselwhite et al., 2010a). In addition, the participants live in a small area of the South West of Britain, an area where even the city populous is likely to have some empathy for traditional rural values which might impact on the perceptions of horse riding. It is considered that future studies would benefit from widening participation to involve more male and female horse riders and cover wider geographical areas. In addition, some of the findings highlighted in this exploratory paper would benefit from a wider sample and perhaps quantitative testing.

Finally, the study only records self-reported behaviour and therefore may be subject to respondent bias. In addition, how participants say they behave and how they actually behave may be very different. That said, the qualitative nature of the work allowed time for deliberative reflection-on-action which may reduce this somewhat. However, recording and measuring actual driver behaviour around horse-riders perhaps alongside subjective and discursive reports of driver behaviour is considered to be another useful subject for further research.

5. Conclusion

This research has found there is a deficit in driver knowledge and skills which needs to be addressed in terms of understanding the horse as a hazard, and being able to effectively plan safe overtaking manoeuvres of horses. This is especially true for younger less experienced drivers. This study has also identified that affec-

tive driver processes such as emotion, empathy and attitudes are important in perception of interaction with horses. There are similarities between the perceptions, attitudes and feelings felt by drivers towards horse-riders as are felt towards other vulnerable and minority road users. Affect is influenced by perception of the horse and rider as a legitimate road user. On the whole, horses and their riders were viewed by drivers as taking part in unimportant discretionary travel which invades space needed by those who have no option but to travel. Those in rural areas were more likely to view horses and their riders as legitimate road users, as they were seen as being part of the countryside and a symbol for the rural ideal. Those that view horse and rider as a legitimate road user show more tolerance and understanding. However, those frustrated or annoyed by horse-riders felt their driving behaviour could be compromised. The study concludes that campaigns and training which educate drivers in terms of skills and knowledge should be complemented with measures which also promote positive attitudes, pro-social behaviour and empathy.

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