



The
British
Horse
Society

The British Horse Society Horse Incident Reporting Awareness Study

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Department
for Transport

This report was prepared by Dr Danica Pollard on behalf of the British Horse Society based on research conducted over a 1 year period between August 2020 and July 2021. Study design, data collection and data analysis were conducted by Dr Pollard with assistance and collaborative input from Dr John Grewar and Dr Tamzin Furtado.

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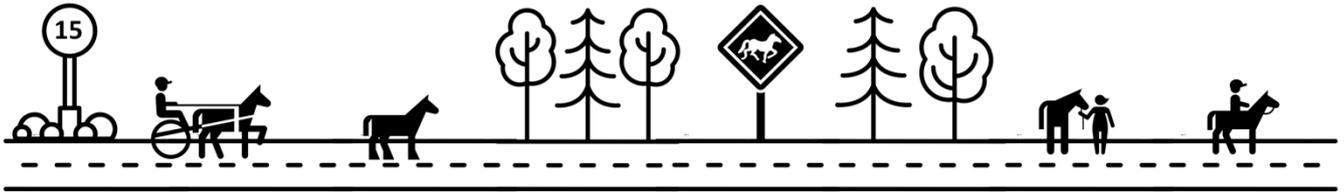
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Study overview

The 2019 National Equestrian Survey estimated that there are 27 million people in Great Britain (GB) with an interest in the equestrian industry with the scale of annual spending in the equestrian sector totalling £4.7 billion [1]. An estimated 1.8 million people are regular riders (riding at least once a month; an increase from 1.3 million in 2015) and 3 million people had ridden a horse at least once in the past year (an increase from 2.7 million in 2015). Interacting with horses and taking part in equestrian activities, although not without its risks [2], has far-reaching physical, psychological and social health benefits [3,4]. A large proportion of horse riders (94.0% of 428 riders interviewed) in GB take part in pleasure riding activities [1]. Hacking, a term used to describe exercising a horse using a range of equestrian off-road routes and/or public roads, is an integral part of pleasure riding. A survey of 797 randomly selected horse owners in GB between 2009 and 2011 identified that 50.7% had participated in hacking activities in the previous week, hacking a median of two days per week and for a median duration of three hours per week [5]. This suggests that a large proportion of the United Kingdom (UK) equestrian population is likely to use public roads to exercise their horses at some point in time.

Despite this, equestrians are often considered low-priority road users by transport policy makers. There remains a lack of recognition that their status as vulnerable road users is amplified because horses are not vehicles but, alongside their human partners, are vulnerable road users in their own right. Although research into equestrian road safety has gained some traction over recent years [6–11], it is still a relatively under-researched topic. Under-reporting of road incidents, particularly when they do not result in serious or fatal injury, is common [12] therefore most road safety casualty measures are based on injury-causing incidents that focus on severe and fatal injuries [13,14]. While these are undoubtedly of importance, near-misses and slight injuries are much more frequent, but are often overlooked as they are not considered to be accurately represented [12] or are not perceived to lead to serious consequences. For example, Hospital Episode Statistics (HES) obtained from the National Health Service (NHS) for England alone document that between April 2019 and April 2020, 3,298 people were admitted to hospital due to an animal-rider or animal-drawn vehicle transport injury incident, with 89.1% (n=2,940) being emergency admissions [15]. However, the Department for Transport (DfT) police-reported road accident database for England, Scotland and Wales shows that in 2019, out of 124 people involved in road incidents including ridden horses, 55.6% (n=69) were injured and of those injured, 94.2% (n=65/69) were horse riders [16]. This suggests a large disconnect between the number of equestrians injured on roads on an annual basis and the reporting of incidents to the police. In terms of injury prevention for vulnerable road users, the BHS feel that more emphasis should be placed on collating near-miss and slight injury data and communicating with road users that cause these incidents because if we can intervene at this stage, we are much more likely to change behaviour which may otherwise escalate to cause serious harm to another human or animal.

Aim

The overall aim of this project was to explore equestrians' activities and experiences when using roads with their horses and the barriers to the reporting of incidents. In order to do this, evidence needed to be collated and analysed to present the current state of equestrian road safety within the UK and the challenges experienced by equestrians when using roads with their horses.

The study commenced in August 2020 and was carried out in four main steps over a one year period. Steps were inter-related and aimed to build a solid evidence base for equestrian road safety issues in a step-wise and logical manner that would maximise impact. A combination of qualitative and quantitative data collection and analysis methods were used to achieve the main objectives.

Methods and key findings

1. Setting the scene: Summarising and describing currently available data for horse-related road incidents in the UK

- This was achieved by using data from both the BHS Horse Incidents and the police-reported Department for Transport (DfT) STATS 19 road safety databases (2010 to 2019/20).
- The aim was to identify what increases the risk of collisions between equestrians and other road users, the risk of horse fatalities and the risk of severe/fatal injury to the rider/handler using advanced statistical modelling techniques which simultaneously account for multiple contributing factors.

The BHS horse incident data

The BHS has been collecting horse-related incident data via online reporting forms on the Horse Incidents website since 2010. Road-related incidents occurring over an almost 10-year period (between January 2010 and September 2020) were extracted. A single person could report multiple incidents and reporter details were used to match reports belonging to the same person.

Details of the incidents were described and their spatial distribution mapped using reported latitude and longitude coordinates. Choropleth maps were produced with incident counts aggregated onto a hexagon grid overlaying the UK. Exploratory cluster analysis was performed to identify areas which contained clusters with high rates of incidents.

Collisions were defined as any unintended physical contact between a horse, rider or handler and/or horse-drawn vehicle and a person in charge of a vehicle on a public road. For example, this included vehicles hitting the rider in the leg when travelling past or hitting a handler of the horse if the horse was being led from the ground.

The outcomes of interest were collisions and horse fatalities and the statistical modelling identified factors which were associated with either an increased or reduced risk of these occurring.

The DfT road safety data

The DfT road safety data represent injury-causing incidents collected by police forces across GB and recorded using the STATS19 accident reporting form¹¹. Instructions on how the STATS19 forms should be completed are also available, which provide definitions of the data to be collected². These data are made publicly available via three separate but related coded datasets (accident, vehicle and casualty datasets), including a variable lookup data guide for the codes³. Casualties are defined as any person suffering personal injury as a direct result of the road incident.

All accident, vehicle and casualty datasets between 2010 and 2019 were screened to identify incidents that involved ridden horses. All data including ridden horses or horse riders as casualties were extracted alongside data of other road users and casualties involved in the incidents. A limitation of these data are that only ridden horses are included as their own separate road user group and data including horse-drawn vehicles and horses being handled in another way on public roads, although collected, cannot be extracted as it is part of the 'other vehicles' category.

The outcome of interest was severe or fatal injury and advanced statistical modelling was used to identify factors associated with higher risk of severe or fatal injury as a direct result of the incident.

Key findings

Horse riders report they frequently experience incidents with other road users, including dangerous near-misses and injury-causing incidents. The BHS has been collecting information about horse-related road incidents via their website since 2010 and has since accumulated reports of 4107 incidents. The aim of this study was to describe the incidents reported, how they have changed over time and across different UK regions, and the factors which may increase or reduce the risk of collision incidents and those resulting in horses being killed.

Road rage and perceived speeding were reported in 40% of incidents while drivers passing the horse too closely were reported in over 80% of incidents. Close passing distance, alone or when combined with speeding, contributed significantly to collisions while speeding alone contributed significantly to horse deaths. Wearing high visibility clothing reduced the risk of having a collision. A horse death caused by a road incident was almost 12 times as likely to result in severe to fatal injury to the rider/handler. Loose horses were more likely to be killed than ridden horses or those pulling a horse-drawn vehicle.

Although the risk of collision-related incidents has reduced over time, driver awareness of how to pass horses safely on the roads in the UK still requires further improvement. Identifying ways in which to reach the wider vehicle driving community, and securing funding for such projects are sorely needed. The use of high visibility clothing was associated with lower collision risk and is a simple step that all equestrians can take to make themselves and their horses more easily visible and giving other road users the opportunity to act appropriately. Loose horses contribute significantly to road-related horse fatalities; however, feral horse

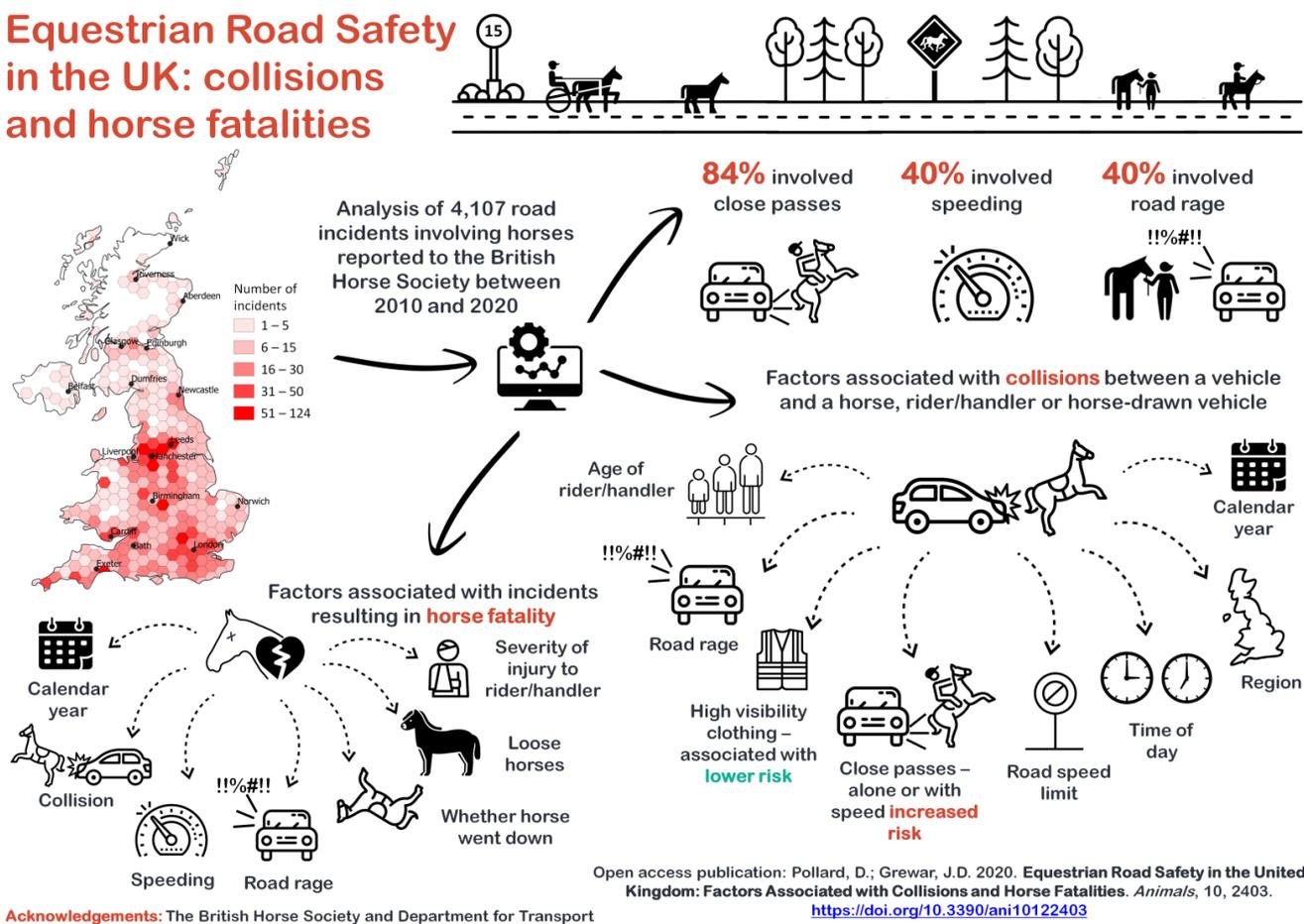
¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/230590/stats19.pdf

² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/230596/stats20-2011.pdf

³ <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>

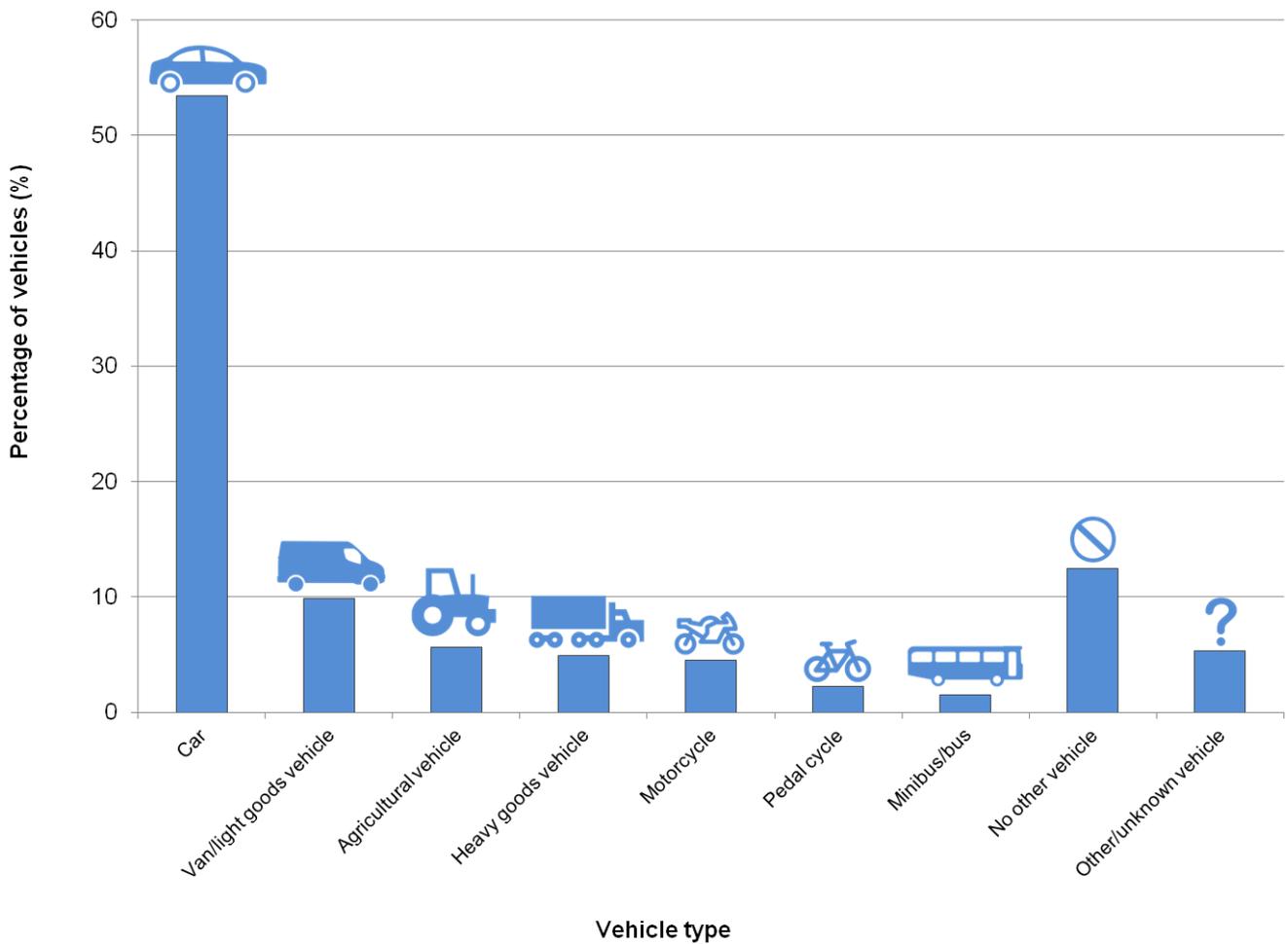
incidents are severely under-reported and run the risk of exclusion from any future road law and policy changes. Horse fatalities and rider/handler injury are intricately linked and reducing the risk of injury to horses will serve to reduce human injury and loss of life.

Equestrian Road Safety in the UK: collisions and horse fatalities



Further details on the methods and results of this part of the study can be accessed via the peer-review open-access publication: *Equestrian Road Safety in the United Kingdom: Factors Associated with Collisions and Horse Fatalities* <https://www.mdpi.com/2076-2615/10/12/2403/htm>

Screening of the DfT road safety data between 2010 and 2019 revealed a total of 1,031 injury incidents involving ridden horses on the public road network were reported by police forces in GB. These incidents involved a total of 2,243 road users. Of these 1,187 (52.9%) were injured; 1.5% (n=18) fatally, 22.5% (n=267) seriously and 76.0% (n=902) slightly. Horse riders were the main road user group injured in these incidents (84.1%) and represented 238 out of 267 serious injuries and 17 out of the 18 fatalities. A considerable proportion of incidents did not involve impact between the ridden horse and the vehicle (46.9%) but where impact did occur, most first points of impact were either on the offside of the horse (21.4%) or from the rear (15.2%). Vehicle types involved in incidents where horse riders were either seriously or fatally injured were mostly cars (53.4%) and vans or light goods vehicles (9.8%) (see figure below).



Vehicle types involved in incidents where a horse rider was either seriously or fatally injured

The severity of injury sustained by road users involved in road incidents involving horses was associated with mode of transport, first point of impact, the speed limit of the road, the month of the year, the region and the age of the driver or rider involved in the incident. Compared to people travelling in cars, the risk of severe or fatal injury were higher for cyclists, horse riders and motorcyclists. Incidents where the first point of impact was from the front or the rear were more likely to result in severe or fatal injury compared to when the first point of impact was from the offside. Interestingly, non-impact incidents were similarly associated with higher risk of severe or fatal injury. The risk of serious or fatal injury almost doubled for roads with speed limits of between 60 and 70 mph compared to roads with speed limits of between 20 and 30 mph. Injury severity was higher between January to February and May to June compared to between March to April. Regionally, serious and fatal injuries were more likely in the South East, West Midlands and Yorkshire compared to the North West. Lastly, the risk of serious or fatal injury increased with increasing age band of the driver or rider involved in the incident with the risk of road users over 66 years of age sustaining serious or fatal injuries nearly 9-fold higher than that of the youngest age group (0-15 years).

These results highlight the differences between the BHS and DfT data collected on equestrian road incidents. The DfT contains data from Great Britain only, has a separate category only for ridden horses and includes only injury-causing incidents (human injury only), which the police are more likely to have reported to them and attend. The BHS data contains data from the whole of the UK, includes any horses being ridden, handled or loose on roads and includes near-miss and injury incidents (both horse and

human) as well as incidents that may cause distress in other ways (e.g. verbal abuse or intimidation behaviour such as sounding the horn or revving the engine). The DfT data are overrepresented by serious and fatal injury incidents and only represents a proportion of equestrian groups while the BHS data are overrepresented by non-injury and slight injury incidents and represents all equestrian groups; suggesting great potential for the two databases to complement and supplement each other and help fill gaps in evidence and underreporting.

Although the frequency of horse-related road incidents resulting in human injury reported by police forces appears to be relatively low, it is almost always the horse rider or another vulnerable road user such as a cyclist or motorcyclists that are severely or fatally injured. The vehicle types causing the highest proportions of severe or fatal injuries to horse riders were cars and vans or light goods vehicles. These are the road user groups that need to be most targeted for behaviour change campaigns. These findings also indicate that reductions in speed limits on roads frequented by horse riders, which would be the majority of the rural and some non-rural road networks, would help reduce the risk of serious or fatal injuries.

2. Investigating equestrian road use in the UK and barriers to the reporting of incidents: results of the Equestrian Activity Survey

For the second part of the study, we aimed to employ a mixed-methods approach to obtain information from UK equestrians about how frequently, and in what capacity, they used roads with their horses. Additionally, we aimed to investigate what may influence their decisions to use roads and what impact this may have on their combined exercise habits.

The main objectives were to:

- Describe the activity of equestrians when exercising their horses, particularly with regards to their use of off-road routes and roads
- Identify factors associated with road use by equestrians
- Identify themes from equestrians' comments as to their decisions to not use roads with their horses
- Describe road-related incident experiences and views around incident reporting
- Identify factors associated with equestrians having had a near-miss or injury-causing incident, while using roads with their horse in the previous year
- Provide a solid evidence base that can assist road safety stakeholders to invest in targeted campaigns that encourage responsible behaviour around horses on the road, thereby improving road safety for all road users.

An online questionnaire, named the Equine Activity Survey, was available between 1 October and 15 November 2020 for completion by equestrians based in England, Scotland, Wales and Northern Ireland.

Advanced statistical modelling techniques, which simultaneously account for multiple contributing factors, were used to identify what made road use more likely and factors which increased the risk of having had a near-miss or injury-causing incident in the previous year.

Free text answers were analysed using a conventional content analysis methodology, as described by Hsieh and Shannon [17], to identify common barriers to road use and incident reporting. This approach was

selected in order to provide a method for organising and better understanding participants' responses, and to support and complement the quantitative data presented in this study.

The questionnaire was also used as a tool to recruit potential participants willing to take part in further research.

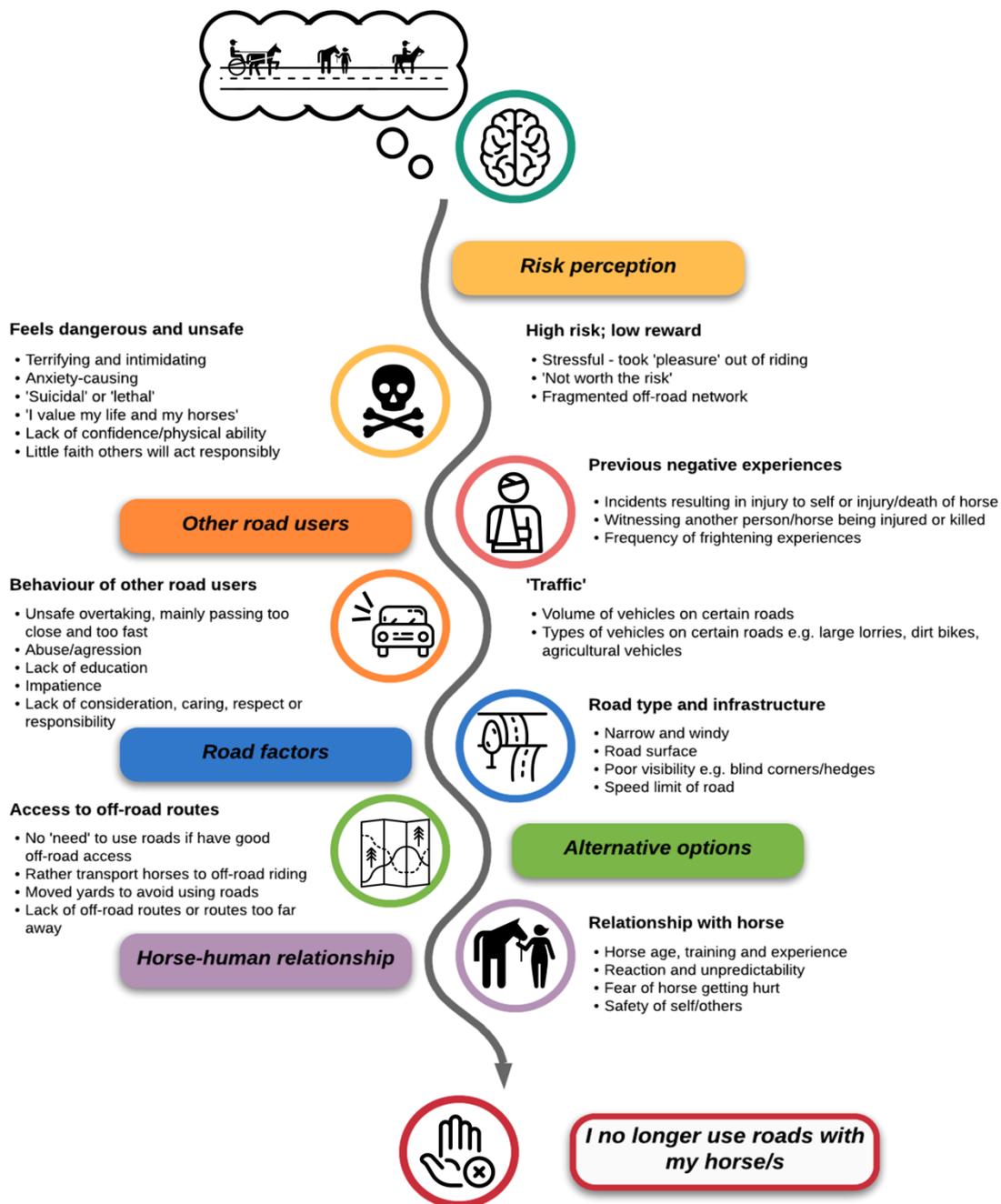
Key findings

Real or perceived traffic risk has been shown to be a significant barrier to walking and cycling. In a similar way, the risk posed by traffic is likely to impact on equestrians' decisions around road use, potentially limiting or preventing exercise sessions. This study identifies how frequently equestrians use roads and what impacts their ability to do so.

Nearly 6000 UK equestrians completed an online questionnaire about their exercise behaviours, road use and experiences of road-related incidents.

Our results show that most equestrians (84%) use roads at least once weekly, and in the previous year, 67.7% had a near-miss and 6.1% an injury-causing incident. There were regional differences in road use and near-miss experiences coincided with off-road route availability. Road use was associated with the proximity of off-road routes, and road-using equestrians reported covering longer distances with their horses. Near-misses were associated with increasing frequency of weekly road use. Younger equestrians were more likely to use roads, but also to experience near-misses. Injury-causing incidents were associated with increasing road-use anxiety or ceasing to use roads altogether, the proximity of off-road routes, having had a near-miss in the previous year and riding while leading a ridden horse; often a child.

Respondents' decisions not to use roads were based on individualised risk assessments arising from: The road itself, perceptions of other road users, the individual horse and the equestrian's own emotional management (represented in the figure below). Roads were perceived as extremely dangerous places with potentially high conflict risk.



Factors contributing to equestrians' decisions to no longer use roads with their horses

This study represents the first UK-wide description of equestrian road use in the UK, and has highlighted the frequency of injuries and near-misses, as well as the extreme anxiety felt by equestrians on the road. This previously under-researched area represents an important field of study for both human and horse wellbeing, given the high risk of physical or psychological harm, and sometimes death. Horse riders and handlers preferred to keep off roads when possible, but often found it impossible to exercise their horses without some road use. As a result of not having access to off-road routes, some equestrians simply stopped exercising their horses at all; a response which could have potential equine welfare implications, such as weight gain, obesity and secondary health consequences, such as laminitis [18–20].

These results, therefore, support the need for targeted campaigns around encouraging responsible behaviour of other road users around horses, ideally explaining how road users should behave around horses and the reasons behind this behaviour. Further, this project has highlighted the need for increased

off-road options for equestrians, who are often forgotten or ignored in the development of “green exercise” initiatives. The importance of safe riding areas is particularly relevant given the finding in this study that children and young people are at increased risk of having road-related incidents.

Respondents’ attitudes to the reporting of incidents to the BHS were centred around: their individual perception of real or potential risk (often based on whether injury or contact occurred and the severity of the injury); the ease of use of the reporting system; a greater awareness that the reporting system exists but also a clearer understanding of the requirements to make a report as well as the outcomes and benefits of reporting and how it differed from the police reporting system; and feedback or support following the report. Some incidents that were experienced frequently lead to a desensitisation of risk perception and were accepted as ‘part of hacking life’ and not reported.



Factors identified to contribute to incident reporting with example quotes provided by equestrians as free text answers

The BHS has already addressed two of the identified barriers to reporting identified in this study by improving the ease of reporting and providing automated responses to reported incidents which contain further advice and information about road safety. The reporting form underwent a review and simplification process, making it quicker and easier to complete while still collecting pertinent information, and a mobile phone application (BHS Horse i) was developed and rolled out in March 2021. In order to address the other significant barriers to the reporting of incidents – which centre around publicity and awareness of the BHS reporting system – advice and guidance from professionals in the fields of marketing and communications are essential to create a solid marketing strategy.

Further details on the methods and results of this part of the study can be accessed via the peer-review open-access publication: *Public Roads as Places of Interspecies Conflict: A Study of Horse-Human Interactions on UK Roads and Impacts on Equine Exercise* <https://www.mdpi.com/2076-2615/11/4/1072/htm>

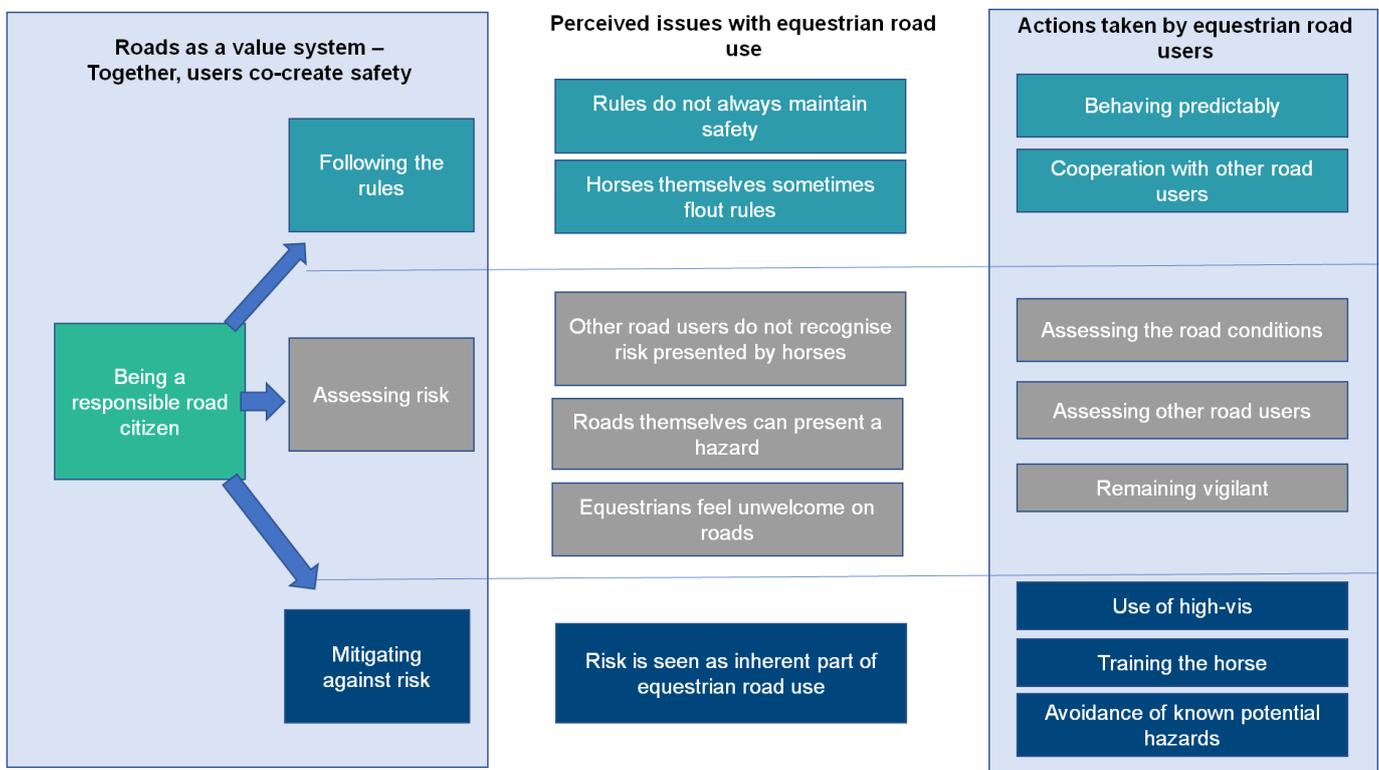
3. Identifying important themes centred around equestrian road safety: results from equestrian focus groups and interviews

The aims of the third part of the study were to use qualitative methods to talk to a diverse group of equestrians throughout the UK about their perceptions of road safety, their experience while using roads with their horses and their opinions on how road safety for equestrians could be improved

- A number of participants from the pool of volunteers were randomly selected and invited to participate in regional focus groups and one-on-one interviews to share their thoughts on road safety and their experiences when using roads with their horses.
- Additionally, participants were asked to share their experiences about the reporting of incidents to the police and/or the BHS.
- Qualitative data analysis was used to identify themes from the narratives obtained in the focus groups and interviews. These were then used to help inform the development of a survey specific to equestrian road safety, ready to be disseminated to equestrians throughout the UK.

Key findings

A total of 71 equestrians participated in the study; 62 in the focus groups and nine in the interviews. A summary of the themes developed from qualitative analysis of the focus group and interview narratives are presented in the below conceptual framework.



The main qualitative themes highlighted how road use relies on a culture of individual responsibility, yet equestrians often felt at risk despite promoting use of responsible, predictable and clear behaviours and having a strong desire to be a responsible road citizen.

"... an important point about road safety is something about safety of all road users when thinking about horses. It's not just the safety of the rider or the carriage driver or the person walking a horse, but in my case, I've got anything up to a ton of animal with me, and actually that can do a huge amount of harm as well, particularly when it may not be the brightest when it comes to actually road safety itself. So, I'm thinking about the safety of everybody who uses the road, not just me and my horse."

"road safety for me is absolutely essential. I can't get off my yard without it."

"... you're quite right; we do need to stay on the roads. But I'm frightened. I'm frightened of getting hurt on the road. And it is- they are getting too dangerous. And we would now pick our times very, very carefully."

The characteristics and infrastructure of the roads themselves was often perceived as a hazard – roads were not considered to be inclusive and accepting of slower-moving road users – let alone ones using a live and sentient mode of transport.

"One specific one I'd like to pick up on, which is very much legislation and road related, is having signage which just ignores horses, which is give way to oncoming vehicles. Vehicles, not things which are on four legs. Traffic lights which don't turn for horses, so you have to sit there in the middle of a road hoping that you don't get smacked up the backside, things like that. It is the type of thing that we should be able to do something about."

"We've got a few bridleways that cross quite a busy road. We're completely invisible to car drivers, some of the bridleways, there's no way they could see us. The hedges aren't cut back enough so, again, we're invisible. The road is a 60mph limit, there's no change in the limit at all coming up to an open bridleway. If the bridleway has got a gate on it, it makes it even harder and it is unsafe. There are many bridleways we couldn't use because of where they come out onto."

Horses were perceived as unfamiliar road users to non-equestrians (lack of knowledge about how horses perceive their environment and their innate behaviour) and often did not follow man-made rules.

"...drivers aren't aware of what we see and hear on a horse. That's the trouble, they're in their little bubble, aren't they? ... it's also the thought, getting into the thought wave of a horse."

"...but of course we can't expect car drivers to understand horse behaviour. They're not specialists in it – they haven't perhaps been around them all their lives and so asking them to understand the horse behaviour is such a... that's another huge step in a totally different direction, really, and it would be a bit, perhaps, unreasonable in some circumstances for them to understand everything like that."

This led to the need for extensive vigilance and personalised risk mitigation behaviours carried out by equestrians, such as using high visibility clothing, avoiding using certain routes or using roads at certain times of the day, using cameras to film their road use so they have evidence in case an incident happens happens).

"I find when I'm riding, I'm not only doing my own risk assessment in my head trying to think about how I might react to something, because if I hear a car coming, I'm trying to do his risk assessment as well because I don't know if he will do it."

"I think one of the things is you're listening permanently. And if I'm riding with inexperienced riders, or less experienced riders, even, I'm listening on their behalf as well. It's a very tiring experience. I generally come back from I'm retired now, so I'm not working. I find my three to four hours at the stables and my hour's ride on the roads, and the drive home, is just as tiring as having done a full day's work. It's amazing. Amazing."

Changing the status quo was perceived to be needed before roads would become safer for horses and their humans (e.g. a more inclusive road network including reduced speed limits on rural roads, education and working towards behaviour change of all road users and the importance of incident reporting).

"Our local bridleways group actually send Christmas cards to our local bus drivers who slow down on the routes and that really, really works. So, we've got a really good relationship with our local bus route drivers."

"... we need to think about making sure everyone is getting trained in that as well. I mean, how many riders actually have done their Riding and Road Safety exams? Then, how often should we, perhaps, renew them, for example? I mean, I did mine, what, 10, 15 years ago? I don't know. Whether I can remember it all, I don't know. I vaguely remember bits about being told to ride two abreast when you've got a young horse on the inside and always go in single file when you're going around a bend. But equally, yes, I learnt to drive 30 years ago, and I haven't been on any more training to drive better."

"I think the problem is that we've probably become... I feel as if I have become a bit complacent, because it does happen so often that, literally, I could report something once a month, at least. Whether that's abuse that I've received, speeding, somebody going too close. I think I've just become... This is just the way it is now and I've become complacent about it, which is really bad, really, when you think about it. It's not our fault."

Equestrians spoken to in these focus groups and interviews felt strongly that road safety was very much a shared responsibility between all road users but due to a general lack of awareness and recognition of horses as living road users rather than machines, they felt particularly vulnerable and roads became dangerous places.

For many equestrians, road use was a necessity that allowed them to access off-road tracks and create circular routes in order to exercise their horses, themselves and enjoy the natural outdoor environment. However, there was often a conflict between being able to enjoy their horses and having to put themselves and their horse at risk in order to do so. The volume of vehicles on roads has increased meaning that impatience and frustration can result when a normally fast-moving vehicle has to slow down and wait to overtake a slower road user. Particularly for vulnerable road users such as pedestrians, cyclists, motorcyclists and equestrians, this has resulted in a perception of roads as being dangerous places.

Equestrians felt that there was an increase in aggression and impatience on roads in comparison to 10 to 20 years ago, when it was thought that horses on roads were much more of a welcome novelty rather than an obstacle to navigate around. This may stem from a disconnect between road users and depersonalisation of certain road user groups due to preconceived stereotypes or stigmas. Equestrians feel that they are often

placed in dangerous situations, feel invisible or unwelcome on the road system, but at the same time are also marginalised and excluded from off-road route planning. Humanising all road users and acknowledging the value they all bring to society will help break down stereotypes and help road users connect as people. Additionally, equestrians are desperate for their hobby and sport to be recognised and promoted by governments and local authorities as a type of active travel and green exercise. The provision of extensive and better connected off-road rights of way for equestrians (that are inclusive of equestrians with disabilities) would allow them to plan safer and more frequent exercise sessions with their horses.

Equestrians agreed that road safety was a shared responsibility and that everyone using roads had to play their part to keep each other safe; road users are expected to behave in “safe” ways and road design is expected to promote safety creating a value culture of responsible, predictable and clear behaviours, and assessment of risk in advance of any hazards. Knowledge of road systems, safety rules, recommended ways to mitigate risk and awareness of other road users was discussed with equestrians noting that education needed to be targeted at all road users (equestrians and non-equestrians) and how this knowledge could best be kept fresh in people’s minds. A transport network which is inclusive of, and promotes, equestrian safety (e.g. warning signage of equestrian activity for motorists, the speed limit of the road, non-slippery road surfaces, safe road crossings) will help to improve safety but often road safety depends on all individuals ‘doing the right thing’ from a core internal knowledge or moral value system.

Because horses are unfamiliar to other road users, equestrians perceive that drivers don’t know how to behave around horses (driving too fast, passing too closely or even being too tentative or undecided when encountering a horse on the road). Horses can’t follow human-made rules and defy the value system of roads by having their own individual thoughts and fears and ways of coping with aversive situations, which may lead to unpredictable behaviour. Expectations of equestrians to ‘control’ their horses or otherwise not go on roads fail to recognise that horses are not machines but rather vulnerable road users in their own right. The value that horses play in the lives of their owner or carers is often unrecognised by non-equestrians. This can contribute to the underreporting of equestrian road incidents because equestrians feel they will not be taken seriously or do not want to waste police time but perpetuates the incorrect assumption that equestrians and their horses do not experience frequent road incidents.

Most equestrians felt that the majority of other road users acted appropriately but it was the very small minority which caused the very dangerous or unpleasant interactions. It was considered that most near-misses occurred through ignorance rather than deliberate malice, although some equestrians did share examples of times when other road users had deliberately tried to intimidate or frighten them. Equestrians have a different viewpoint of the road, often sitting higher up and also perceive hazards differently to someone on a bicycle or in a car. This may contribute to miscommunication between the different road user groups - they’re communicating in an unfamiliar language (body language and hand signals) which can easily be misinterpreted. Sometimes, equestrians found it difficult to free a hand for hand signals, as they were concentrating on their horse. This can lead to an escalating cycle of uncooperative road use leading to anxiety and danger for all. Having standardised hand signals that are accepted by the traffic department and included in the Highway Code would help alleviate some of this miscommunication.

In order to manage the risk presented by roads, equestrians feel they need to fulfil their end of the bargain to be good “road citizens” and often feel they have to ingratiate themselves to vehicle drivers and act as

ambassadors for other equestrians. This was done in a number of different ways that were seen to mitigate risk (wearing of high visibility clothing, being polite, training their horse appropriately, positioning themselves well on the road, choosing to avoid high traffic times and areas, wearing cameras, etc.). However, equestrians also felt pressure to carry out risk assessments for others on the road – be it another equestrian in their company or another road user. Some avoided roads if at all possible but fewer horses on the roads due to perceived road risk also meant that other road users would be less likely to expect to see a horse and know how to act around one.

The view of shared responsibility expressed by equestrians in the focus groups and interviews is in keeping with one of the main underlying principles of the Parliamentary Advisory Council for Transport Safety (PACTS) Safe System [22] ethos, which aims towards a long-term reduction in deaths and serious injuries on UK roads. However, equestrians often felt like they took on the lion's share of the responsibility to keep themselves and others safe on the roads and that this was further made difficult by roads, roadsides and road speeds, as well as the legislation around road use, not being designed with the vulnerable road user (and particularly the non-human vulnerable road user) in mind.

Education of all road users was considered to be vital for improving road safety. Also, importantly, how that education was conducted; making it fun, accessible and knowing where to target it to. The reporting of incidents to the BHS was recognised as an important step toward road safety, but increased awareness of the system and motivations for reporting were needed. Not having video evidence was seen as one of the main barriers to the reporting of incidents; however, there was some debate about the placement of cameras and the safety implications of this in the event of a fall.

If we want society to uptake safe, healthy and active forms of travel, we need to not only change the infrastructure of roads and review the legislation around road use, but we need to review the whole value system of roads; we need to think about how we use roads and how we think about others using roads.

Further detailed results from this part of the study will be published in due time.

4. Equestrians' attitudes to and perceptions of road safety in the UK: results of the Equestrian Road Safety Survey

The aims of the fourth part of the study were to use all the data analysed and collected in the previous three steps, to develop a final online equestrian road safety questionnaire to obtain answers from a large population of equestrians in the UK.

The Equestrian Road Safety Survey was developed using information obtained from the previous three steps of the study. The survey consisted of 6 sections which contained questions relating to the main horse that roads were used with and perceptions of risk when doing different equestrian activities, experiences of road use with this horse, engagement with other road users, experience of road incidents, perceptions of how equestrian road safety could be improved and information about the respondent.

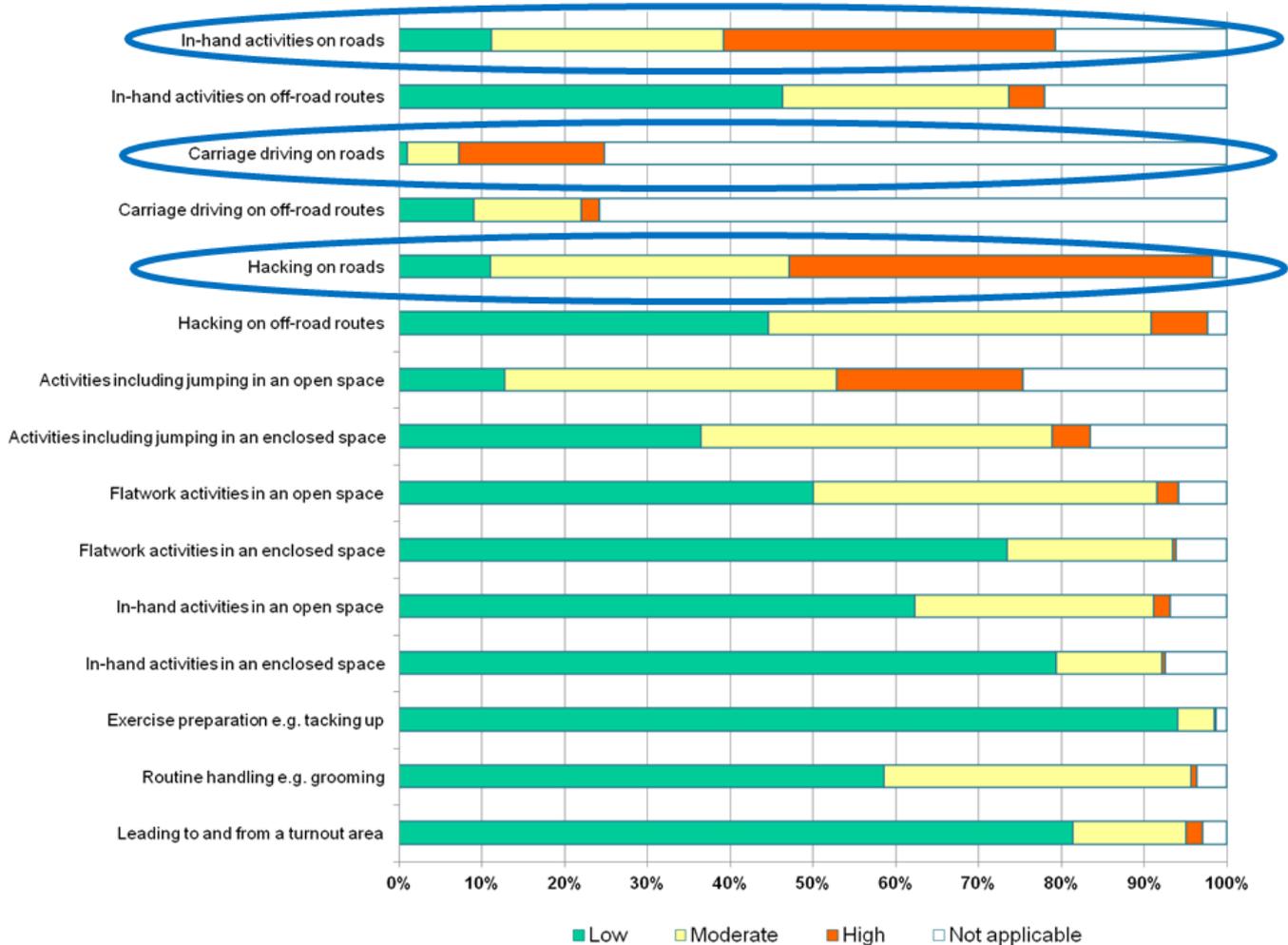
The survey was available between 9 June and 18 July 2021. Anyone that had used roads with their horse, pony, donkey or mule in the previous year was invited to participate. Road use could be in any capacity,

including riding, carriage driving and other ways of handling horses. Respondents needed to be 18 years or older to participate and had to reside within the UK.

Key findings

The Equestrian Road Safety Survey was launched in June 2021 and resulted in 7,124 questionnaire responses.

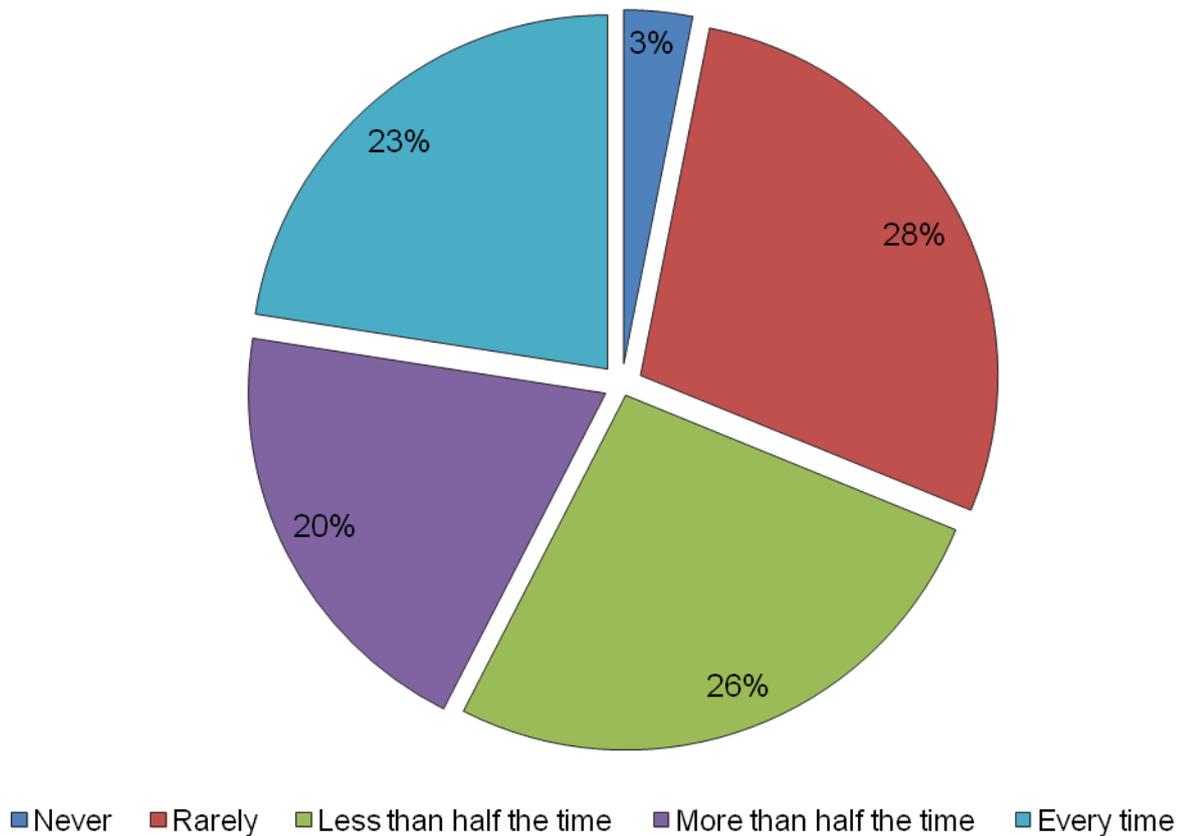
The results of this survey have put the perceived risk of using roads into context by exploring how risky equestrians felt other activities with their horse were. Some may say that being around horses is inherently risky, so it's not surprising that using roads with horses, which are prey animals and can behave unpredictably, would be risky. However, even when compared to activities such as cross-country riding or eventing, road use was considered to have the highest perceived risk and this was similar across riding on roads, in-hand activities on roads and carriage driving on roads.



Perceptions of risk associated with different equestrian activities

Only 3% of equestrians never felt stressed or anxious when using roads with their horses and 43% did so more than half the time.

Do you ever feel stressed/anxious when using roads with this horse?



The greatest contributors to stress were the behaviour of other road users and the characteristics of the road itself rather than the behaviour of the horse – which is also reflected by respondents saying that they can usually predict and cope with how their horse responds to certain situations but this can be exacerbated if other road users don't act appropriately e.g. giving room and slowing down. Equestrians also experienced a much higher stress:enjoyment ratio in reality when using roads than what they described as being acceptable.

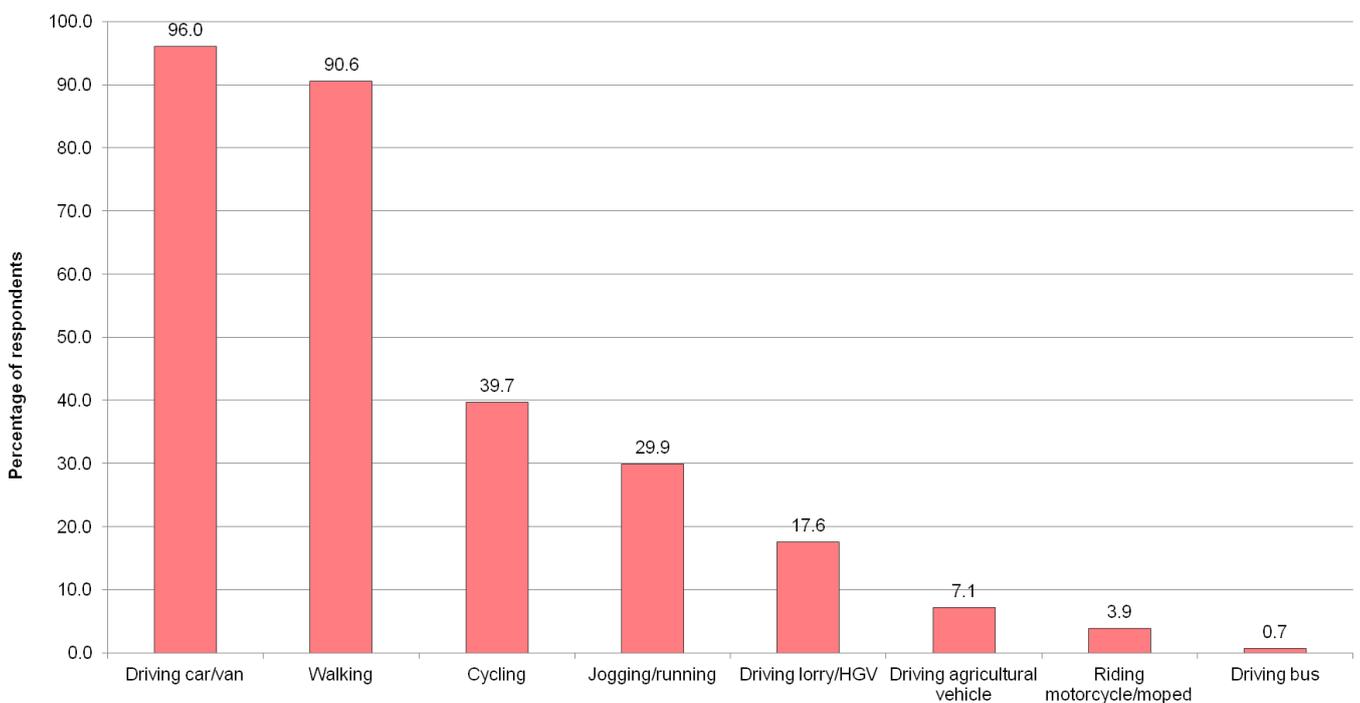
The majority of equestrians agreed that exercise was important to maintain their horse's mental and physical health. Most felt they could not exercise their horse adequately without using roads. 60% felt that having to use or cross certain roads limited their ability to exercise with their horses and between 60-70% thought that they would exercise their horses more frequently and cover greater distances if they felt safer when using roads. In the previous focus groups and interviews, equestrians acknowledged that horses may act unpredictably; however, here most equestrians felt they could cope with and predict how their horse would respond in a particular situation and similarly, more than half disagreed that they needed to do more training with their horses to help them become more road-worthy. Despite this, there were more than 20% of respondents who felt that they could do more to habituate their horses to using roads, 10% who felt their horse was not confident around different types of road vehicles and approximately 15% who did not feel confident using roads with their horse. This horse-human relationship may be an additional area that could be targeted to help improve road safety.

Limiting factors for exercise (such as visibility, weather, time of day and volume of other route users) had higher importance on routes that included roads vs. just off-road routes. Therefore, although most equestrians felt using roads was risky, it was often necessary if they wanted to exercise their horses and they chose to accept this risk for lack of other options, which lead to high stress situations for a pastime that is meant to be associated with enjoyment.

Despite this, engagement with other road users was overwhelmingly perceived in a positive light in that the vast majority of equestrians strongly agreed that they acknowledge and thank other road users when they act appropriately, they enjoy engaging and educating those that are willing to learn as well as that they felt responsible for acting as equestrian ambassadors and good “road citizens” so that they leave a good lasting impression on other road users which they felt was important for when that road user encountered another equestrian on the road.

There was evidence of severe under-reporting of equestrian incidents; most equestrians (78.2%) have experienced an incident that they did not report (the majority experiencing more than 10), and only 31% have previously reported an incident to the police and/or the BHS. However, the new BHS reporting system and Horse i app scored more favourably on the 1-10 scale of ease to use (median score of 8) in comparison to the different police reporting systems (median score of 5). Only a small proportion of reported incidents had camera footage (~15%) and the proportion decreased for non-reported incidents (5.2%). This relates to the fact that only 22% of equestrians used cameras when riding on roads and cameras were more likely to be used by carriage drivers.

The most common other ways equestrians had used roads in the previous year were for driving a car/van (96%), walking (91%) or cycling (40%).

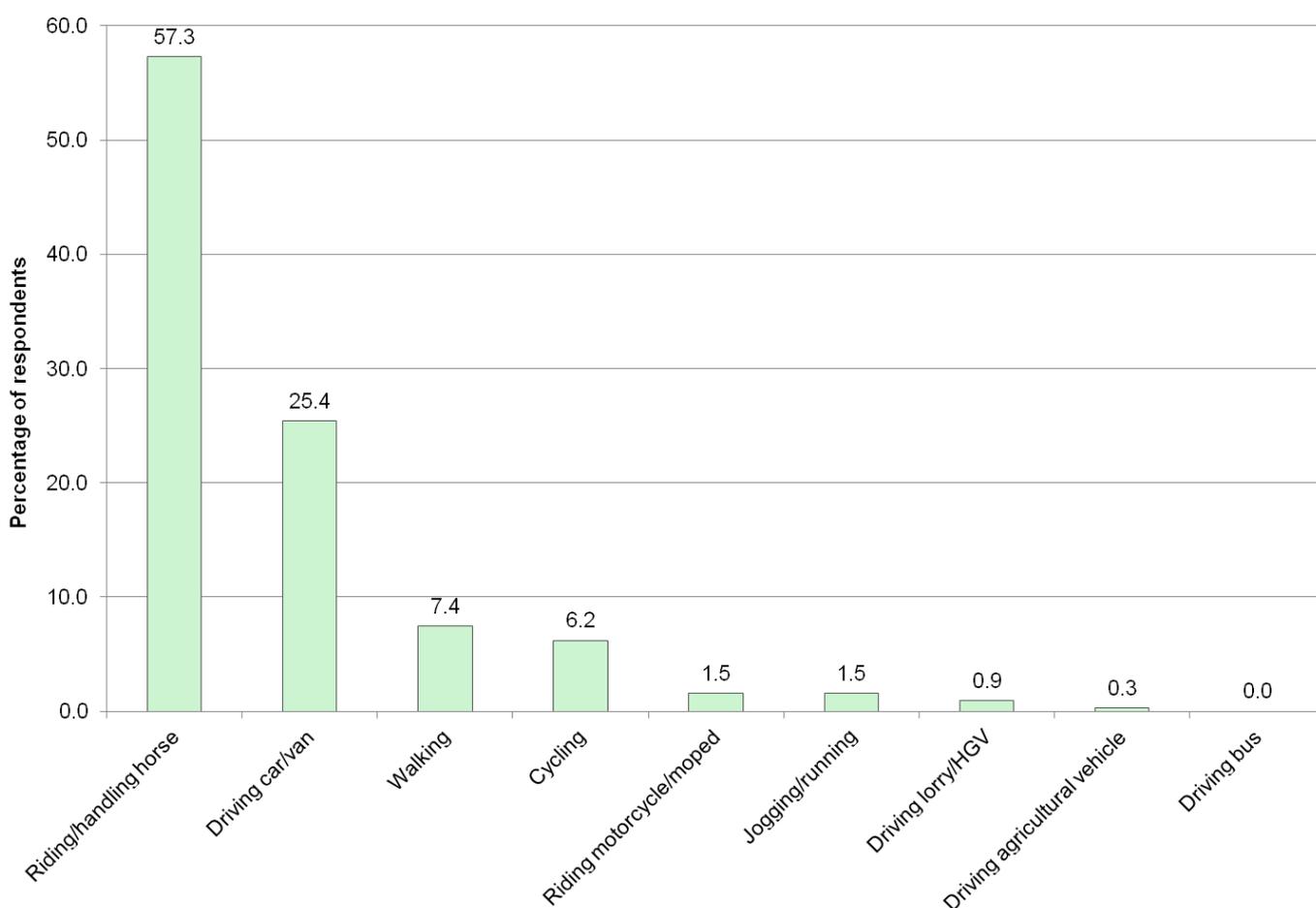


The other ways equestrians reported using roads in the previous year

322 respondents (4.5%) said they had been involved in a road incident in the previous year that resulted in injury either to a human or an animal.

- In 59.1% of the incidents the respondent themselves were injured
- 17.2% involved injury to horses
- 9.6% involved injury to another adult
- 9.0% involved injury to another animal (e.g. dog, cat, livestock or wildlife)
- 3.2% involved injury to children

When considering how they were using the road at the time of the injury incident, the majority were riding or handling a horse. This highlights that for equestrians, horse-related road incidents are much more common contributors to injury than regular traffic incidents. However, Only a quarter of these injury incidents were reported to the police.



The way in which equestrians reported using roads when having an injury-causing road incident in the previous year

Finally, equestrians were asked to express which of the listed factors they felt would most contribute to improved road safety. Equestrians felt that provision of better off-road routes, improved enforcement of

legislation to those that caused injuries and mandatory horse-specific education for commercial vehicle drivers were considered to be of highest impact while online public health messages were considered to be of lowest impact.

There was an overwhelming agreement by equestrians that road safety is a shared responsibility, which, as in the outcome of the focus groups and interviews, is in keeping with one of the main underlying principles of the PACTS Safe System [22] ethos, although there was some difference of opinion as to whether motorised vehicles should take the largest part of the responsibility seeing as they could potentially do the most harm.

Further detailed results from this part of the study will be published in due time.

Working towards improved equestrian road safety

Unfortunately, horse-related road incidents in the UK are common, with often the equestrian or their horse taking the brunt of the damage. The findings from this study have helped to identify areas that could be targeted to help improve equestrian road safety in the UK. These would require the collaborative effort of a large number of road safety stakeholders at both local authority and governmental levels. Improving equestrian road safety in the UK would require:

- There is evidence of considerable under-reporting of equestrian incidents, contributing to underestimation of the problem and lack of prioritisation for policy changes to improve road safety. Promoting awareness of the reporting systems and the potential outcomes should be a priority for road safety stakeholders.
- Striving towards a transport system which is inclusive of, and promotes, equestrian safety (e.g. warning signage of equestrian activity for motorists, reduction of speed limits on rural roads and those frequently used by equestrians, non-slippery road surfaces, safe road crossings)
- Equestrianism recognised and promoted by governments and local authorities as a legitimate type of active travel and form of green exercise
- The provision of extensive and better connected off-road rights of way for equestrians which would allow them to plan safer and more frequent exercise sessions with their horses and that were user friendly and accessible for equestrians with disabilities
- Having standardised equestrian hand signals that are accepted by the traffic department and included in the Highway Code
- Review and improved enforcement of existing road safety legislation
- Researching ways to disseminate knowledge of road systems, safety rules, recommended ways to mitigate risk and awareness of others on roads to different road user groups (equestrian and non-equestrian) and how this knowledge could best be kept fresh in people's minds.
- Identifying the most effective ways to change the behaviour of road users around horses
- Using awareness campaigns and advertising that humanises road users and helps break down any pre-existing stereotypes thus helping bridge the disconnect between people using roads
- Encouraging the use of evidence-based high-welfare equitation methods which would help habituate the horse to traffic/roads and which have the potential to improve the relationship and trust between a horse and their handler

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