Car Blindness: The social norms hiding a major public health hazard

Introduction

The UK, like many societies around the world, is in the midst of three parallel epidemics thanks to the easy hypermobility **[Adams]** afforded by private motor vehicles. We have an epidemic of collisions, with X deaths and Y serious injuries in 2015 **[ref]**; we have an epidemic of physical inactivity – responsible for an estimated 22-23% of coronary heart disease, 16-17% of colon cancer, 15% of diabetes, 12-13% of strokes and 11% of breast cancer **(World Health Organisation (2002) The World Health Report 2002 – Reducing Risks, Promoting Healthy Life)** – despite 23% of car trips being under 2 miles and so mostly amenable to walking or cycling **[Table NTS0308 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551440/nts-2015.zip]**; and we have an epidemic of pollution, with vehicle exhaust fumes causing cancer **[ref]**, respiratory distress **[ref]**, heart disease **[ref]** and diabetes **[ref]** at such levels that recent estimates put the UK air pollution death toll at 50,000 per year **[ref]**. Even a future switch to electric vehicles would address only one of these three epidemics **[Walker & Bösehans, 2016]**. It is time we all acknowledged this simple fact: *transport issues are inherently public health issues*.

So is transport treated as seriously as other public health issues associated with comparable levels of death, illness and reduced wellbeing? Clearly the answer is no. One needs only look at recent policy decisions such as the 2016 UK Autumn Statement, in which planned fuel duty rises were delayed for the seventh year running **[ref]** in the midst of the country's highest ever levels of driving **[ref]** and increasing public transport fares **[ref]**, to see that UK government sees no great priority in deterring people from individual motor journeys, regardless of their wider social cost.

A society's ability to tackle any public health issue appropriately will depend on people at all levels – from policy makers to medical practitioners to the general public – being able to judge the situation rationally and objectively. Overestimating or underestimating the seriousness of an issue leads to panic or complacency respectively. We suggest here that, in the very specific public health context of individual car transport, we have a cultural inability to think objectively and dispassionately – a phenomenon we term *car blindness*. There is a collective set of rules, codes, norms, practices, expectations, dispositions, attitudes, beliefs and values that surround car use in the UK and similar cultures around the world. Car blindness is a specific manifestation of this, whereby, when considering driving, we systematically and unconsciously suspend the ethical and moral judgements that are made on behaviours in other contexts. And our tendency to do this is at the core of the public health challenge we wish to raise here.

One effect of car blindness is the allowance widely given to infringements of law whilst driving. Speeding, for example, is an illegal behaviour practised by the majority of drivers **[ref]** that is widely indulged by the public, the media (who take seriously people's complaints at being caught **[http://www.bristolpost.co.uk/mobile-speed-camera-entrapping-bristol-motorists/story-29298774-detail/story.html]**) and the justice system (whose magistrates car-blindly accept that it is impossible, rather than inconvenient, for criminals to live without a driving licence [**http://road.cc/content/news/44102-courts-let-nearly-half-motorists-who-accrue-12-or-more-penalty-points-continue]**). The treatment of speeding and dangerous driving can be contrasted with other common infringements of law that are much more socially disapproved, such as littering, graffiti, dog-mess, or street-noise (unless that noise comes from a motor vehicle, of course **[Davies H, van Kamp I. Noise and cardiovascular disease: A review of the literature 2008–2011. Noise & Health 2012; 14: 287–291** and **Walker et al., 2016]**). But if car blindness were just the casual acceptance of crime and antisocial behaviour we would be writing for a criminological audience. Perhaps even more serious is that car blindness is also endemic in the medical world and its surrounding policy sphere. It is at the root of how we address vulnerable road user injury by asking what the victims were wearing **[Miller, P. D., Kendrick, D., Coupland, C., & Coffey, F. (2010). The use of conspicuity aids by cyclists and risk of crashes involving other road users: A protocol for a population based case-econtrol study. BMC Public Health, 10, 39]** rather than why they were expected to share space with vehicles carrying vastly greater kinetic

energy; car blindness is why we permit facilities to be placed in out-of-town locations **[http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2524.2001.00318.x/abstract]** when 25% of UK homes have no car **[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551437/national-travel-survey-2015.pdf]**; it is why the UK government bans smoking inside cars to protect children's health while doing nothing about the toxins and particulates inside those same cars from engine emissions **[http://www.sciencedirect.com/science/article/pii/S1352231007001343]**; and car blindness is why general practitioners routinely ask their patients about diet, smoking and drinking, but not about how they travel – despite this being a more important predictor of early mortality **[Andersen et al. 2000]**.

To make the issue of car blindness clear, we want now more systematically to explore and demonstrate how normal standards of judgement are altered in the specific context of motoring. To this end, we used a national opinion poll with a large sample. We devised five simple questions about motoring, then changed one or two key words in each so that we had a parallel set of questions where the underlying principle was identical, but now referred to a non-motoring context. If people's judgements were made by rationally applying general principles, the change in wording should not matter and the motoring and non-motoring contexts should be judged equivalently. But if people treat motoring differently, we should expect systematic differences when judging the motor-focused versions.

Method

Participants

2157 members of the UK public (1025 male, 1132 female) participated in this study. These were adults who had previously agreed to be approached from time to time by an independent market research company, YouGov. Our questions were administered as part of a wider package on 12-13 October 2016. Participants received reward points for taking part, as part of their ongoing arrangement with YouGov, and these could later be exchanged for cash rewards or prize draws. Participants were informed about the study in advance and when signing up had been told that participation was voluntary and anonymous. YouGov's surveying method aims to provides an age, gender, working status, marital status and regional breakdown representative of the whole UK population. Full or provisional driving licences were held by 1828 participants and 316 had no licence. When asked about personal driving, 1509 said they drove a motor vehicle once a month or more and 648 did not.

Materials

Five questions were constructed to ask about facets of motoring behaviour. These were chosen to cover a range of motoring issues in a way that allowed one or two key words to be changed to alter the subject of the question to a non-motoring domain. The questions were initially selected by the authors to cover a range of health and risk issues related to driving, and the question forms were refined in discussion with the opinion polling experts. The two parallel sets of questions are shown in Table 1.

Table 1 – Survey questions used to compare five underlying principles in motoring and non-motoring contexts

Motor transport form	Non-motor transport form
If somebody leaves their **car** in the street and **it gets** stolen, it's their own fault for leaving **it** there and the police shouldn't be expected to act	If somebody leaves their **belongings** in the street and **they get** stolen, it's their own fault for leaving **them** there and the police shouldn't be expected to act
It's okay for a **delivery driver** to bend a few health and safety rules in order to keep their business profitable	It's okay for a **chef** to bend a few health and safety rules in order to keep their business profitable

Motor transport form	Non-motor transport form
Risk is a natural part of **driving**, and anybody **driving** has to accept that they could be seriously injured	Risk is a natural part of **working**, and anybody **working** has to accept that they could be seriously injured
There is no point expecting people to **drive** less, so society just needs to accept any negative consequences it causes	There is no point expecting people to **drink alcohol** less, so society just needs to accept any negative consequences it causes
People shouldn't **drive** in highly populated areas where other people have to breathe in the **car** fumes	People shouldn't **smoke** in highly populated areas where other people have to breathe in the **cigarette** fumes

Procedure

This study was approved by the University of Bath Psychology Ethics committee (reference 16-178). Participants were randomly allocated to receive the motor form of the questionnaire (1053 people) or the non-motor form (1104 people). As noted above, the questions were presented amongst a wider set administered as part of a regular panel survey process.

Results

The responses to the motor and non-motor forms of the questions are shown in Figure 1.

(Ai) If somebody leaves their **car** in the street and **it gets** stolen, it's their own fault for leaving **it** there and the police shouldn't be expected to act	(Aii) If somebody leaves their **belongings** in the street and **they get** stolen, it's their own fault for leaving **them** there and the police shouldn't be expected to act
(Bi) It's okay for a **delivery driver** to bend a few health and safety rules in order to keep their business profitable	(Bii) It's okay for a **chef** to bend a few health and safety rules in order to keep their business profitable

(Ci) Risk is a natural part of **driving**, and anybody **driving** has to accept that they could be seriously injured

(Cii) Risk is a natural part of **working**, and anybody **working** has to accept that they could be seriously injured

(Di) There is no point expecting people to **drive** less, so society just needs to accept any negative consequences it causes

(Dii) There is no point expecting people to **drink alcohol** less, so society just needs to accept any negative consequences it causes

(Ei) People shouldn't **drive** in highly populated areas where other people have to breathe in the **car** fumes	(Eii) People shouldn't **smoke** in highly populated areas where other people have to breathe in the **cigarette** fumes

Figure 1 – Agreement with motor (N = 1053) and non-motor (N = 1104) question forms. People responding 'Don't know' have been omitted

[Give each of these a chi-square test]

As Figure 1 shows, the clearest change emerges for the final question on smoking, where switching from a car to non-car context dramatically shifted responses despite the underlying principle being unchanged. The only question to show no substantial change was the "delivery

driver/chef" question, where the public were apparently opposed to businesses putting people at risk for profit, whether driving or not. It is interesting to see the disparity between the "Risk is a natural part of driving/working..." question forms, given that for millions of people, driving *is* working.

In most cases the results did not differ as a function of demographics. The only places where there were substantial differences by gender were:

- "Risk is a natural part of driving...", to which 65% of men agreed versus 55% of women, and "Risk is a natural part of working...", to which 38% of men agreed but only 25% of women
- "It's okay for a chef to bend a few rules...", to which 10% of men agreed but only 4% of women (the two groups responded the same to the motor form of the question)
- "There is no point expecting people to drink alcohol less...", to which 34% of men agreed but only 20% of women (the two groups responded the same to the motor form of the question)

The only question where agreement differed notably as a function of social grade was "People shouldn't smoke in highly populated areas...", where 82% of people in the higher ABC1 social grades agreed compared to 67% in the lower C2DE grades (the two groups responded the same to the motor form of the question).

Drivers (defined as people who drove a motor vehicle once a month or more) responded similarly to non-drivers on all questions except "It's okay for a delivery driver to bend a few rules..." (8.4% of drivers agreed versus 17.2% of non-drivers) and "People shouldn't drive in highly populated areas..." (18.0% of drivers versus 31.4% of non-drivers agreed). Agreement between drivers and non-drivers was very close on all the non-motor questions.

Discussion

Our survey showed that people can go from agreeing with a health or risk-related proposition to disagreeing with it simply depending on whether it is couched as a driving or non-driving issue. In the most striking case, survey respondents felt that obliging people to breathe toxic fumes went from being unacceptable to acceptable depending on whether the fumes came from cigarettes or motor vehicles. It is, objectively, nonsensical that the ethical and public health issues involved in obliging non-consenting people to inhale toxins can be judged differently depending on their source, but that is what happened here. It seems that normal judgement criteria can indeed be suspended in the specific context of motoring.

Obviously, we used questions in this study that we felt would stand a good chance of demonstrating the phenomenon that concerns us. But any quibbles about the minutiae of our phrasing would actually prove our point about the social difficulty of challenging car-centrism. And choosing questions likely to reveal differences is not the same thing as stacking the deck. We gave the social bias every chance to reveal itself, but that could only happen because it was out there to be revealed. Prentice and Miller **[Prentice, D.A., Miller, D.T., 1992, When small effects are impressive. Psych. Bull., 112, 160-164]** argue that the ease with which a behavioural phenomenon can be triggered is an index of its importance. The ease with which effects appeared in this study was striking: in the final question the UK public went from 17% agreement to 75% agreement just by changing two words in the question whilst leaving its underlying principle unchanged.

What is the mechanism underpinning these findings? One possibility we considered beforehand was that public acceptance of driving's problems might be an example of *pluralistic ignorance*, whereby most people reject an idea in private but publicly express support on the (false) assumption that they are in the minority **[ref]**. In this case, a pluralistic ignorance explanation would be that most people feel uncomfortable knowing that driving harms or inconveniences others, but because they see such behaviour routinely, assume they are unusual in feeling that way. By surveying people individually, and asking questions they likely have not explicitly thought about or

discussed before, we hope we captured a reasonable estimate of the public's private views and so can probably reject such an explanation. Moreover, it is notable that the one question not showing a difference between the motoring and non-motoring contexts (delivery driver/chef) is the only one that does not refer to the everyday driving practices of the majority (it concerns what "they" do rather than what "we" do). This suggests that, to some extent, the differences seen in the other four questions arose because people excuse the sorts of things they, or people they associate with, do, whilst seeing the problem with what 'others' do – which would again be incompatible with a pluralistic ignorance explanation.

We believe the more likely explanation is that the phenomenon seen here has a psycho-socio-cultural basis. At the level of the individual decision-maker, the effect is the result of what psychologists call *schemas* – organised packets of subject-specific knowledge that shape the way we perceive and remember the world **[Tesser, A. and Leone, C. 1977. Cognitive Schemas and thought as determinants of attitude change. Journal fo Experimental Social Psychology. 13, 340-356]**. Schemas – preconceptions, in other words – have widely been shown to affect judgements, and activating a particular schema in a person's mind in advance of a judgement, and thereby influencing how that judgement is made, is the mechanism underpinning *decision framing* **[Simons, H. 2001. Persuasion in Society. Sage. p115-132]**. The schemas a person carries with them are shaped through learning, from that person's social milieu and the surrounding cultural discourses, norms, media messages, legal codifications, and other forces that influence this **[Simons, H. 2001. Persuasion in Society. Sage. p32-34]**.

This idea that individual psychology is informed by cultural and social influences fits closely with the Social Ecological Model, first outlined in the context of child development by Bronfenbrenner **[Bronfenbrenner, U. (1974) 'Developmental research, public policy and the ecology of childhood', Child Development, 45(1): 1-5.]**. This account proposes that there are multiple layers of behavioural influence stretching out from individuals, through families (micro system) to wider societal structures (meso system), physical infrastructure (exo system) and national cultures (macro system). Adapted to the context of driver behaviour, the model is illustrated in Figure 2.

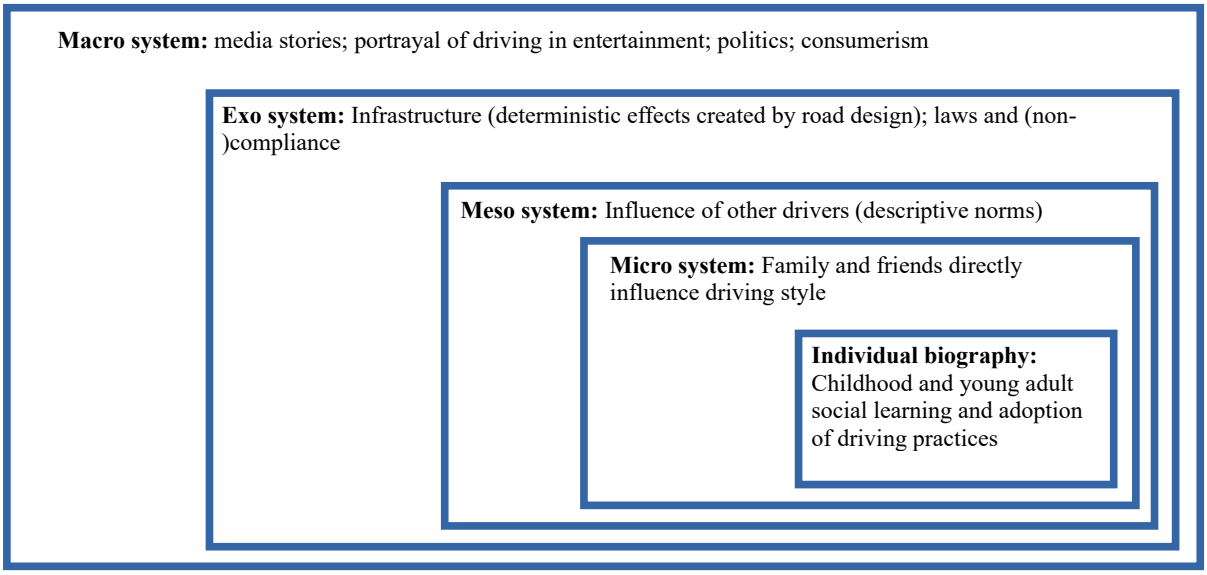

Figure 2 – Brofenbrenner's social ecological model representing the multiple influences on an individual, presented here in the context of driving behaviour influences

Figure 2 illustrates a mutually reinforcing multi-level series of influences that shape an individual's driving behaviour. As children, the first step is to learn that cars are everywhere and that it is common to go by car even for short journeys. Children are also typically exposed to thousands of hours of their parents' driving behaviour and thus have its 'norms' blueprinted upon them **[ref]**. As young adults, going through the process of learning to drive exposes people to the basics of vehicle handling while the 'legal rules' – road laws and safety practices – are presented as a largely temporary hurdle to be abandoned, as soon as they have their licence to drive, in favour of 'meso-level' socially normative rules: the everyday behaviours of speeding, mobile phone use, and so on that are routinely observed out on the road and thus internalised through descriptive normative processes **[Cialdini]**.

At the exo-level, car primacy is promoted by a road system (and, in many locales, a weak public transport system) that makes car use, even for short journeys, easy **(McKenna XXXX)**. Another exo-level influence is car design, which might operate both deliberately and inadvertently. Improvements in design have enhanced the safety of vehicle occupants but, according to some accounts, this increases their risky driving further through risk compensation mechanisms **[refs** but see **refs]**. Recent car designs adjust risk by facilitating the use of mobile devices, and in-car entertainment options, while on the move. Less deliberate, but no less important, is that car design cocoons occupants, and this has recently been found to create the impression that spaces outside the car are more dangerous than they really are **[Gatersleben et al.]** – which might make car-use self-perpetuating. Exo-level forces also include social structures such as laws which, as mentioned above, are frequently inadequate, and poorly enforced **[Voeckler]**.

Finally, macro-level cultural influences are a combination – to some extent purposeful – of the representation of motoring in three key areas: news media, commercial promotion and advertising, and entertainment. The news media's systematic under-reporting or analysis of vehicle crashes, routinely dismissed as 'accidents' and relegated to traffic news or local press, implies these are unexpected and unpredictable events, but which are at the same time minor stories of no particular consequence and certainly not anything against which action should be taken. Commercial advertising presents car travel as joyful and hedonistic in nature, with drivers portrayed in full control, the masters of their domain and often rewarded with sex or power **[refs]**. This in turn is reinforced by the driving behaviour of heroes in films (James Bond) and TV (Top Gear), with cars as the glamorous centre-piece and dangerous or antisocial driving socially and materially rewarded. These images combine to support a suspension of disbelief, countering the everyday drudge of traffic jams and creating a powerful defence against those countering car-cultures **[any refs?]**.

The specific details of the influences on any given individual notwithstanding, this social-ecological approach thus provides a plausible approach for how, as a result of the interplay between individual psychology and wider social and cultural influences, car blindness might be created and maintained such that our respondents applied different standards to driving, as it is practised by themselves and people like themselves, and other activities that are objectively comparable.

The framework we have used here not only provides an account of how car blindness might arise but also suggests that multi-level solutions will be required to solve it. For example it may be possible to create a number of policies such as:

- **Individual level:** make driving tests more stringent and stress duty of care principles and philosophy
- **Micro level:** parents pass on duty of care morality to their children
- **Meso level:** school-based general education on driver psychology (e.g., self enhancement biases that create illusions of superior skill), kinetic energy, the philosophy of duty of care, etc.
- **Exo level:** resourced police structures to prioritise safer traffic management
- **Macro level:** government policies such as presumed liability laws that place strong duty of care on less-vulnerable road users to protect more-vulnerable road users; reduce car use through road pricing and the availability of viable alternatives (especially for short trips); stiffer sentences for dangerous driving; regulation of car and petroleum advertising to bring it into line with other products that cause social harm as side-effects, such as gambling and alcohol.

How can such a 'wish list' of changes be brought about? It is clear that there is little political appetite to take on such powerful vested interests as the automotive and entertainment industries. However, in truth, there may be little public appetite beyond the passionate few, health professionals, or those who have been bereaved by car crashes. One view is that the opinions of the general public need to change before politicians will act. The mechanism of change is therefore to start by changing public opinion, thereby generating increasing pressure for political change. Case studies of how other health epidemics have been overcome may help us, most notably the successful population reductions in tobacco use, albeit this happened over generational time periods – something we might be able to circumvent by learning lessons from that health issue. We may also need to move outside health into wider social change, for example the [this may be contested] progress on social attitudes to equality and diversity, the use of child labour. Examining the mechanisms of change within these case studies may give us clues for solving car blindness. Shock tactics may be effective: asking the public to imagine inventing a popular new method of transport, but with one negative – 40 people each week will be 'accidently' killed from it in the UK, and then asking for popular support for it.

We note that we are not the first to view the phenomenon of car blindness from the outside; other people have commented how, were cars invented today, no device killing 35 people each week would be permitted in our streets, however convenient. So another way to look at what we are talking about here is as an example of *normalization of deviance* **[ref]** over the past century – or, in more colourful terms, we find ourselves in the same sort of uncomfortable state as the slowly boiled frog. It is because every Westerner alive today knows only a world where motoring's problems are the norm that is it so difficult to see with fresh eyes the problems with a legal system that demands 100 pedestrians yield to one motorist, or with allowing children to have toy cars (whilst prohibiting toy cigarettes and guns), or with the first author's GP suggesting he drive the 400 metres to a nearby pharmacy.

So our point is not just that the cultural lens of normalized car-centric thinking exists, but also that it specifically masks public health crises like those outlined at the start of this article by making people selectively apply inappropriate judgement criteria in areas with profound health implications. We provided national-scale data from a large sample because it was important that the existence and power of the phenomenon be shown as incontrovertibly as possible. Our call to action now is for decision-makers to become aware of their own unconscious biases in this area and how these have health and quality of life implications for others. We each need to ask whether the criteria we use when making a decision about transport would be applied equally if we were looking at any other domain. For example, would we teach children that it is their responsibility to dress properly to protect themselves from abusers, as we currently teach them to protect themselves from dangerous drivers? **[http://talesoftheroad.direct.gov.uk/be-bright.php** and **Roberts and Coggan]** Obviously such reflexivity becomes increasingly important as we move from individuals to policy makers.

Just as it was only through recognising shared unconscious prejudices that the UK's Metropolitan Police began to address its problem with 'Institutional Racism' **[Macpherson report]**, our national institutions – perhaps above all the government and the medical profession – need to address what our colleague Charles Musselwhite once termed the 'Instituional Car-ism' underpinning their own thinking. Progress will start to be apparent when car adverts carry 'Please drive responsibly' health warnings like those for alcohol, and when pedestrian crossings are redesigned so that walkers no longer need to stop and ask permission to cross a road on which inactive and polluting motorists are given automatic priority. The extent to which these suggestions currently sound outlandish is the extent to which our society is failing to apply appropriately objective and dispassionate risk analyses.

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Model/diagram round here? Either biographical model like here (or social ecological perhaps..)

1. Children learn that cars are everywhere; that they are expected to go by car even for short journeys – social learning theory.. these are the first steps in the normalisation of deviance.
2. News media lack of reporting of car crashes or reporting as 'accidents' thereby implying no fault, unexpected events. Commercial advertising imagery of car travel as a joyful hedonistic orgiastic transport utopia. Cars portrayed in films (James Bond) and TV (Top Gear) as glamorous. The triumph of rhetoric over reality. Suspension of disbelief to counter the humdrum everyday drudge of traffic jams.. the second step in the normalisation of deviance.
3. Physical experience of car use – back seat as a child = environment of safety, strapped in, bored, looking for entertainment. Driving lessons as an adult, learn the basic skills of vehicle handling and 'get used' to the road.. that's it. Pass the test and now you have total freedom – no penalties for extensive car use beyond petrol prices, policing of driving is rare. Away we go! Another step in the normalisation of deviance.
4. Visible / physical evidence of downsides are unusual: pollution is largely invisible; bad crashes are sufficiently unusual to be pushed to the sub-conscious as possibilities for ourselves. Why do motorists behave the way they do? 1. Because they can – society allows them to. 2. Because day after day they personally benefit – convenience, simplicity, less effort, no penalty for behaving in self-centred ways.
5. [[I'll stop here – this may not be useful]

[just struck me that driving is similar to trolling on social media: human beings if left un-policed/socially un-policed have a tendency to behave in psychopathic ways…our behaviour is civilised by the presence of others behaving civilly. If that presence of 'other' is removed.. we behave deviantly.]