

**Bristol Social
Marketing Centre
BSMC**



Encouraging Road Safety Amongst Young Drivers: How Can Social Marketing Help?

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Executive summary

Reckless driving is anti-social, annoying and, on occasions, dangerous to others. To young male drivers from deprived backgrounds, on the other hand, it is a perfectly rational thing to do: it impresses their friends and affords status; it is considered 'the norm', and it is exciting and fun.

Messages that emphasise how it is dangerous for other people (they may say 'so what?'), it is dangerous for the driver ('it won't happen to me'), or speeding is against the law - you will get caught ('I don't believe it') may work with some segments but with this group are quite easily rebutted and have been shown to be largely ineffective. Most campaigns to date have used 'fear' or 'threat' appeals – the evidence is that young men of low education find it easy to de-select themselves from these messages, and that such appeals are ineffective with this audience.

In addition, message-based approaches such as the above tell drivers not to do something they enjoy but offer nothing in return except – as they see it – the ridicule of their mates, loss of status and the removal of one of the few chances for some excitement in humdrum and often stressful lives.

The first, central task for a social marketing programme would be to attack the current 'norm' that reckless driving is something to be admired. These behaviours are socially embedded. Indeed peer pressure/peer approval of speeding is so endemic that young males would be seen as 'wimps' if they *do not* drive aggressively. Young males in deprived communities seek approval from peers with their fast driving. Fast driving becomes the norm, and within these norms the group jostle for positions of status.

There is little evidence of previous social marketing based attempts to tackle driving norms amongst this audience. In theory there are many possible solutions. One possibility could be to deploy approaches based on message platforms like 'real men drive like grown ups – skilfully', although such a strap line would need careful thought and pre-testing. Such an approach may be backed up with events at a driving centre offering subsidised advanced driving to emphasise safety. An attractive sponsor could be sought – perhaps a car brand that is admired by the audience – and ideas such as recruiting a local racing driver to act as an influential role model and support the idea of 'grown up driving'. These ideas could be usefully backed up with a communications campaign that reinforces the face-face approaches.

If peer approval acts as an external influence, internally these youths are also motivated by the mood arousal – 'the buzz' – that they get from aggressive driving. Experiential thrill is highly likely to be a core behavioural driver. At the extreme, driving fast can create a state of euphoria as an antidote to the tedium of their everyday lives. As a result, a direct appeal to cease fast driving, without offering any substitute for the excitement and thrill, is likely to fail. The solution may be to 'offer an exchange': offer products or services that replace the adrenaline hit of speeding. To work in practice, such offers would presumably be made conditional on safer driving, perhaps through a 'contract' of some kind – although we acknowledge the operational difficulties of enforcing such contracts. 'Offer' ideas may be created by a specialist agency but would presumably need to be subsidised, and capable of being continuous rather than one-off. There may be budget available for outdoor adventure activities, track driving days, off road downhill mountain biking, boxing clubs, football, and so on.

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A number of attempts have been made to offer substitutes to anti social driving that offer an alternative thrill and educate at the same time. These look tempting in theory and should still be carefully considered. They may include ideas such as encouraging skid manoeuvres, speed recovery techniques at specialised centres. However these have been tried in various countries and there is some evidence that these have increased rather than decreased accidents. Clearly then, great care is needed in deciding upon these programmes.

Behind the search for status and thrill seeking, a third driver of behaviour is skill-risk optimism. Young men over-estimate their driving skills and under-estimate the risks of the road. A solution may be an intervention design that involves driving simulators, perhaps with an invitation to 'test yourselves against your friends – who is the best driver?' You would however need to take care that the output is a new awareness of the risks and their own limitations, rather than falsely enhanced optimism.

Of course these behavioural drivers (peer pressure, excitement, status-seeking and skill-risk optimism) are exacerbated if there is little parental control. Poor parental control is often present in deprived low income households. However we found some evidence of success in targeting parents via a campaign called *Checkpoints*: materials to help parents show authority in controlling their kids driving behaviour. Optimistic feedback was obtained in terms of take up of the scheme, although no data is available on subsequent behaviour change. We believe this approach merits further consideration.

One general point about 'channels of delivery': A lot of current intervention work is based on mass communication approaches. The evidence to date leads us to conclude that suggests that such approaches will only succeed with large budgets over extended periods, and may be rebutted by hard to reach groups. Advertising campaigns are too easily ignored or laughed off. Groups such as this probably need direct social contact – face to face work in close quarters. We would suggest localised events based programmes that work 'on the ground' rather than remotely.

That said, face-face or event based solutions will have a higher cost-per-driver than may be possible given limited budgets. In this case, an alternative approach may be to consider a campaign based on the apparent success of some of the *Fool/Speed* elements. We would note a rather weak evidence base in this regard, but we are persuaded that campaigns that emphasise realism, young males 'recognising themselves' in the ads, and self reflection have a reasonable chance of success. In particular, moving away from fear/threat appeals may be wise: moving away from slow motion imagery of a crash and instead prompting self reflection that fast driving is not appropriate behaviour.

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Introduction

You have asked us to investigate social marketing solutions to the problem of aggressive driving amongst young males in deprived areas.

Young drivers are over represented in crash and fatality statistics. The OECD (2006) found that typically between 18 and 30 per cent of killed drivers were between 15 and 24 years old, although this age group represents only about ten per cent of the total driving population.

Traditional approaches such as education programmes, authority driven attempts at enforcement, and fear/threat appeals seem to have had very limited success. A more recent approach called *Keep Your Wheels* trialled locally in Bristol has also had limited success. As a result, we are at the position where social marketing is being considered as a solution to what appears to be well entrenched anti-social behaviours. That is the point of this report.

The nature of this report

We have thoroughly reviewed the literature relevant to the subject of road safety amongst young males of deprived background. We offer a review of the 'evidence base' and combine this with our own judgement to best advise you. There is an important item to note about what 'evidence' means here. We have concentrated on peer reviewed articles, but the studies they represent are typical of the compromises social scientists have to make in proving causal linkage. Field studies are inevitably less than perfect in terms of their control of the variables, and careful measurement of input and dependent variables. At the same time – lessons may be learned from practice that may be helpful. To summarise, throughout this report we discuss findings that reflect the standards of measurement common in the professions of marketing and health promotion. These reflect that marketing has some predictive quality, but is also a craft that cannot be treated as a pure science.

The data reviewed mostly refers to males aged 17-25 (younger where data from the US or other countries with earlier licensing) and is sourced mainly from UK and comparable western cultures, for example the US, Australia, New Zealand and Scandinavia. Studies are mostly quantitative, for example cohort studies, telephone surveys, questionnaires, crash data analyses and experimental studies. Some qualitative studies are also included but these represent the minority of the literature. A number of studies are compromised with many researchers using students (which may exclude those who have left education early) and very few randomised controlled trials.

Databases checked include: Cochrane Injuries Group Specialised Register, Cochrane Central Register of Controlled Trials, Department for Transport, MEDLINE, BioMed, EMBASE, TRANSPORT, PsycInfo, ERIC, Zetoc, and Science and Social Science Citation Indexes and Google Scholar.

We now move to the main sections. We have divided the report into two main parts. The first section builds on the platform of understanding of the socio-psychology of the target market to offer (largely judgement based) social marketing solutions. The second part of the report returns to the core of the evidence base that we have assembled to create the platform of understanding for this report.

Part One

Social marketing solutions: Evidence based proposals

This first section of the report follows the framework of a typical social marketing plan. The logic is that social marketers first scope the problem, then create strategies – guides to provide direction for specific designs, before moving onto the actual design options. These may include ‘propositions’ – offers to these young males in exchange for behaviour change; communications based programmes may also be considered.

But we start with a short explanation of social marketing.

1 An explanation of social marketing

Much of this section leans on the work of Smith (2006).

Social marketing is not a science but instead is a professional craft. It examines human behaviour using fields such as psychology and sociology and then uses a set of principles to design attractive offers to influence behaviour change. Social marketing sits between education on the one hand and legislative control on the other, looking to change behaviour voluntarily by offering the citizen something of value in return. As much as anything, social marketing is a way of thinking for the public servant – asking them to place themselves in the position of the citizen, and to ask themselves ‘if I was one of these people, what would change my behaviour?’.

Understand your audience and look for useful insights

Example: young men drive fast because of the pressure to conform with their friends and not be seen to be a sissy.

Design an offer that will be attractive to the target audience

Social marketing is not about ‘awareness campaigns’ or ‘leaflet drops’. We should not offer advice. We should try and solve our audiences’ problems.

Example: A day’s driving instruction at a racetrack.

Making a deal with the audience

Social Marketing is about persuading people to substitute bad behaviours with good behaviours, by providing a better exchange.

Example: You stop driving aggressively and in return we will provide a local facility for you to let off steam.

Communicating the offer in a persuasive and likeable way

Traditional government sponsored education/promotion makes no attempt to creatively persuade – to connect with people in their own language, with messages they can identify with. Social marketing communications rectifies this.

Example: employ local young people to make their own film of their lives and fast scooter riding – designing the message their way.

Think laterally

Smith (2006) often recommends that we *reframe the problem*, and he applies this to road safety among young people. So, the current problem we have framed is that of trying to change the attitudes and hence behaviour of 17-24 year old drivers. Smith poses the question: 'what are the parents thinking?', and asks whether it may be possible to change the focus of the behaviour change to trying to persuade parents to change their behaviour. We are not directly recommending this as a strategy, but we can see the value in what Smith is trying to do here in asking us to think laterally, or outside the box.

We now move onto a series of points we'd like to make in Scoping the Problem.

2 Scoping the problem

2.1 Fitting social marketing into wider programmes: Education and regulation

Social marketing cannot operate in a vacuum, but must instead integrate with other disciplines. Social marketing tends to sit between 'soft' approaches such as education, and 'hard' approaches such as enforcement and regulations.

Educating young people about driving safety is an important policy lever open to you, which does have some overlaps with social marketing strategy. However the evidence for the effectiveness of isolated driver education (primarily through school environments) is poor. The Cochrane review of randomised controlled trials evaluating post-license driver education concluded that there is not evidence that education alone is effective in reducing road injuries or crashes (Roberts *et al.* 2002). However there was little segmentation to assess whether such interventions were more effective in some groups.

Pre-license driver education is also unlikely to make a difference to crash rates, with Christie (2001) concluding that "*[t]here is little evidence that pre-license training per se reduces crash rates among novice drivers in the short or longer term*". Williams and Ferguson (2004) reviewed such interventions and found a number of studies that showed no difference in crash rates of driver education graduates compared to equivalent groups with no formal driving education (e.g. Christie 2001; Mayhew *et al.* 1998; Vernick *et al.* 1999; Woolley 2000). Williams and Ferguson (2004) conclude that such courses are generally too short, and messages are "*overwhelmed by ongoing parental, peer, personal, and other social influences that shape driving styles and crash involvement*" (p.4), with longer term, community based programmes more likely to be successful as they have been for other comparable behaviours.

We understand, however, that education will remain a mainstay of road safety and there are quite strong potential overlaps between the principles of social marketing and education situations. An illustration can be seen from the work of Tilleczek (2004) who, in her ethnographic study of classroom education of young drivers in Canada, identified what she felt were good practices:

- relaxed tone in which local knowledge was shared
- students treated in a grown up way, not authoritarian, adult to adult
- participative and discursive from the start
- realistic and using local situations that are clearly 'real' and not acted or staged

These practices sit well with marketing ideas of messages being attractively packaged.

Moving from education to enforcement, there is strong evidence in the literature (see, for example, Keating *et al.* 2008 and others) that graduated driving licenses (GDLs) can be effective in reducing accident rates. However we understand this is not currently a policy option and so will not comment further here.

An Australian report by Hutchinson (2008) produced some very interesting lines of attack for policy makers in road safety. Hutchinson concentrated on the issue of courtesy as a prelude to good driving behaviour. He notes that as an attitude – thinking about possible actions of other road users and adjusting ones own behaviour, and avoiding aggressive driving – courtesy should be encouraged. Of course these are precisely the social elements that are lacking in young male drivers, so the key question is: are there strategies available that can encourage courtesy? Courtesy depends on interaction – eye contact, communication of some sort. This becomes difficult or impossible when speeds are high, so there is a *Catch 22* here. But Hutchinson notes that studies of driver aggression repeatedly show that anonymity is a big factor in their poor behaviour. Wider policy angles could concentrate on ways of abolishing anonymity – the technology exists to create ways of providing instant identification of who the driver is – though we recognise that this is neither easily done, nor within the direct remit of yourselves.

2.2 General lessons from commercial marketing to teens

Smith (2006) briefly examined commercial marketing to teens and concluded:

- teens change rapidly and therefore correct segmentation by age is vital
- teen opinions are very strong and they want to be listened to not talked at
- rebellion and independence from authority is a strong motivator
- embedding messages in other content is better than straightforward, hard sells
- social networks may be more important than generalised 'coolness'
- brands are important – a brand represents something they come to trust
- there is evidence that fads and fashions (behaviour changes) pass through an innovator-early adopter-mainstreamer framework.

Our own work, again looking at the commercial marketing techniques used for teenagers, highlighted the need to talk in the language of teenagers and resonate with their perceptions of 'cool': this seems highly pertinent in the case of risky driving (Bird and Tapp 2008).

For you and road safety officers, these characteristics imply:

- treating different age bands/groups differently
- using face-face workers trying to act from a position of authority will fail
- source credibility of messages may be very important/ elaboration likelihood model may be vital

2.3 Behavioural Drivers and Social Marketing Principles Relevant to Aggressive Driving

Hutchinson (2008) distinguishes between 'active' disrespect, such as joyriding, 'reactive' disrespect, such as tailgating, impatience, hooting and flashing headlights, and 'passive' disrespect, such as exceeding the speed limit by a small proportion. Our main focus here is excessive speeding by young males, which probably fits into the 'reactive' disrespect sector.

In addressing these behaviours, what helpful principles can we establish? Smith (2006) found that social marketers are increasingly sceptical of the idea that information (i.e. education) leads to behaviour change, except for simple, often health related behaviours e.g. check your blood pressure, give blood, get a donor card, place your baby on its side to prevent cot death, etc.

We would note that behaviour change to slow down one's driving is physically and technically easy to do. We are not asking people to quit smoking or lose weight – so in that regard influencing aggressive driving might, on paper, not be regarded as too challenging. Self efficacy – confidence to change behaviour – is not in itself an issue. But this is to ignore what are likely to be **the key drivers of reckless (or risk-taking) driving behaviour**.

The first is the **peer approval and status of driving fast** (Clark and Powell 1984). A cultural norm amongst young male drivers in deprived areas is to drive fast and aggressively. This norm is reinforced by peer pressure, often directly by passengers. Such cultural norms are likely to be tied in with masculine identities – 'to drive fast is to be a real man'. Here is where self efficacy to change – to drive slowly in the face of peer norms to go quickly – is much more of an issue. Social, rather than technical, confidence is what may be lacking.

Peer pressure is part of an elaborate system of communication between these young men. They constantly signal to each other and compete for status and peer approval. They send messages: "I'm up for it; I'm a real man – just like you; I belong in the elite group who have 'got the bottle' ", and so on. Driving aggressively is a means of accumulating this both through driving skill and the material possession of a car. What can social marketing do about this system of cultural capital? These problems cannot be addressed without giving the audience a chance to achieve status in some other way. On the plus side, cultural norms are capable of being changed, given enough money, effort, and time. For instance Senserrick (2006) noted in his review that in the US much of the compliance with existing traffic rules and regulations is not only a result of voluntary compliance or active policing, but is also due to successful socialisation. For example drink driving is now socially unacceptable to the majority.

The second 'behavioural driver' (Machin and Sankey 2008) is the **experiential thrill** of driving fast. This is an emotional response, a mood change. Driving fast is fun, and may give the driver a sense of power and control. Crucially, driving fast may give these deprived young males some brief moments of fun and pleasure in otherwise very humdrum lives. They may also feel a sense of achievement and status amongst peers as a 'good driver'.

We would finally note the tendency to **skill-risk optimism** amongst young male drivers (Deery 1999). Young men have a distinct tendency to both overstate their

own skill levels in driving, and to simultaneously understate the risks they are taking. This is clearly a lethal combination.

A number of other socio-psychological motivators of behaviour should be noted: the role of the car and driving in expressing adult identity; their role in expressing masculinity; individuality and independence from parental control; the car as social and personal space; driving as an outlet for aggression – all are potential targets for social marketing.

That concludes our brief scoping summary. Much more discussion of behavioural traits is provided later in Section 2 of this report. But now we move onto the next step of our social marketing strategic review – is there scope for segmenting our audience further?

3 *Micro segmentation of 17-24 year olds*

Segmenting a group allows you to unravel the differences between people and avoid the mistake of making marketing offers that may resonate with some people but not others. These benefits must be balanced against the costs of segmenting: these may be monetary costs, or the possible management headaches of dealing with too much complexity.

Bearing these warnings in mind, the following segmentations are worthy of consideration.

3.1 Age-based segmentation

Smith (2006) emphasises the complexity of age based changes in teens and the dangers of treating this group as the same. Presumably a similar warning applies to 17-25 year olds. We'd advise possibly splitting your audience into 3 age bands for guidance for face-face workers (based on our experiences in using social marketing in sexual health):

17-19 year olds - very inexperienced; very prone to influence from elders (20s)

20-22 year olds – settled into patterns of driving; very confident (and the peak group for risk-taking related crashes)

23-25 year olds – some may adopt leadership roles influencing younger people around them

3.2 Personality/behaviour based segmentation

There is some debate about the value of personality profiling in defining segments of more risky drivers, with for instance Hutchinson's (2008) study into road safety finding that personality profiles and psychology measures were both quite poor predictors of aggressive driving.

However a number of authors have used both retrospective and prospective studies to define clear groups amongst the public in general, and young men in particular, who are more likely to be risky drivers.

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For instance, the two following high-risk groups have been identified by Ulleberg (2002).

1. One high-risk group consists mostly of men, characterised by low levels of altruism and anxiety, and high levels of sensation-seeking, irresponsibility and driving related aggression. They perceived the risk of injury through a road traffic collision as low, and had high confidence in their skills as drivers, despite their high degree of accident involvement.
2. A second high-risk group also reported high sensation-seeking, but high anxiety and high aggression. This cluster did not rate their driving skills very highly and perceived their risk of being in an accident as high: this group also included more women than men.

Musselwhite (2006) identified four groups specifically amongst young men:

1. Continuous risk-takers (14 per cent of total sample – the ‘hard core’ who may be beyond help with social marketing) – accelerate hard and brake hard, drive over 30mph in low-speed zones even if it feels unsafe, and continue to do so even if it means other cars having to take evasive action, least likely to reduce speed if realise they are travelling faster than they think they are
2. Unintended risk-takers (39 per cent of total sample) – low frequency of unsafe behaviours, likely to reduce speed if they realise they are travelling faster than they think and less likely to respond to motives to increase risk-threshold e.g. being in a hurry
3. Calculated risk-takers (23 per cent of total sample and likely targets for social marketing) – mostly male, tended to take opportunities if they felt safe e.g. using an alternative lane, going faster than 30mph
4. Reactive risk-takers (23 per cent of total sample) – tended to respond to motives to drive faster e.g. being late, or drive faster when angry, annoyed or irritated. But they did not drive faster than 30mph when it felt unsafe and didn’t overtake dangerously. This group is mainly female (73 per cent).

Road safety campaigns have been found to be more likely to appeal to low risk groups and not these high-risk groups, echoing findings from elsewhere and posing the problem of how to change behaviour in the most high-risk, yet hard to reach, groups.

The practicality of dividing targets into these sub-type groups is low, however the creation of interventions that are more likely to appeal to these groups would help to target them rather than more conservative drivers. We are more likely to be able to map behaviours onto the high-risk groups e.g. owning a performance car, customising a car, meeting at certain places at certain times, wearing certain clothes, attending certain pubs and clubs and other venues. In-depth qualitative research is required to do this for local Bristol people to gather enough understanding to target them effectively.

We’re now ready to examine what broad directions our social marketing solutions should take.

4 Social Marketing Strategies

“Driving is a shared and worshipped activity thereby creating the basis for the use of the car as a tool for self-expression, show-off, competing and entertainment with friends through risk-taking behaviour”.

Moller 2004

“Perhaps the thrill, excitement and social kudos that speeding generates [for this group of persistently reckless drivers]...may be sufficient to maintain the behaviour despite the threat of negative consequences. Different forms of interventions may be necessary for this group”

Fylan et al. 2006

4.1 Replacing ‘driving for thrills’

Young drink drivers often see positive outcomes from the behaviour: fun; thrills; social acceptance and reinforcing social norms amongst their peers; freedom; independence, and machismo (Fry and Holden 2007). Social Marketing embraces a concept of exchange which posits that workers have to offer a ‘better deal’ than the audience currently receive for their current behaviour. This is a significant challenge, and we would argue that few researchers or practitioners have seriously considered this for road safety.

As we have mentioned, seeking excitement is a core behavioural driver of fast driving (Machin and Sankey 2008; Corbett 2003; CDCP 2008). For these young men driving fast engenders mood changes as an antidote to the tedium of their everyday lives. One solution may be to create an adrenaline substitute. The idea would be to offer ‘an exchange’- look to ‘solve the problem’ by offering products or services that replace the adrenaline hit of speeding. This would involve ‘making a deal’ with the audience – they receive something attractive, but only in return for better behaved driving. Such a ‘deal’ may need to be enforced (if we catch you speeding we will withdraw the offers), or it may be that genuine buy-in may be obtained through a maturing process created by the substitute offer. If, say, the fire service ran events looking at car handling, emergency recovery techniques and so on, if presented well the desired outcome would be the young driver saying to himself:

“OK – I get it. Speeding around the estate really isn’t clever. I’m into driving fast – but only on track days. Being a man is all about being responsible and controlling myself”

And so on.

4.2 Advanced driving courses

“There is little evidence that courses teaching advanced driving manoeuvres such as skid pan control improve driver safety, and they can produce adverse outcomes”

(Williams and Ferguson 2004, p.4)

Offers such as track days giving youngsters the chance to drive quickly in safe conditions would need to be considered very carefully and we strongly advise you need to further examine the available evidence in greater detail before proceeding with these ideas. Norwegian studies from 15-20 years ago (reported in Tronsmoen 2008) found an increased accident rate from people who had been on skid courses – probably because of over-confidence. An Australian based ‘viewpoint’ from the Insurance Institute for highway safety’s Status Report (2001) quoted un-referenced studies that concluded ‘males who received training in skid control and other emergency manoeuvres had higher crash rates than those who did not take the training’. This was part of an opinion article which was clearly political in nature – lobbying for enforcement – so we should be careful about over-concluding from this report. Courses have been trialled extensively in the U.S., taught by police or specific driving schools, however a number of studies (U.S., Norway) indicate that young drivers who joined these courses went on to have higher crash rates than those who did not (Jones, 1993; Glad, 1988). Williams and Ferguson (2004) attribute this to inspiring overconfidence and/or that tempt young people to try out the manoeuvres, while Horswill *et al* (2003) suggest that raising people’s estimations of their hazard detection skills through hazard perception improvement interventions may cause them to drive more riskily because they think they can handle the risk better.

Recommendation #1

Offer an exchange: ‘solve the problem’ by offering products or services that replace the adrenaline hit of speeding. Ring fence your offer making it conditional on safer driving. Offer ideas may be created by a specialist agency but would presumably need to be subsidised, and capable of being continuous rather than one-off. This is tricky. There may be budget available for outdoor adventure activities, track driving days, off road downhill mountain biking, boxing clubs, football, and so on. However, ideas centred on improving drivers car handling need to be approached with great care – the literature is patchy, but there are reports that such ideas may lead to increased, rather than decreased accident rates. Further literature research is needed.

4.3 Social display and status

“Although most people are aware of the physical danger teens face when driving with peers (i.e. injuries or death in crashes), they may not recognise that driving also entails...a potentially large social threat – damage to peer relationships and peer status”

(Allen and Brown 2008, p.S290).

Risk-taking behaviour is an important aspect of identity construction for teenagers (Tilleczek 2004). It has been linked to gains in self-esteem (Silbereisen and Reitzle 1992), perhaps because of reinforcement from other peers engaged in similar activities (Kaplan *et al.*1987) which makes it ‘fun’ (Maggs *et al.* 1995).

Wilson and Daly (1985) found that higher mortality for young male drivers is likely to be related to social display. For example male drivers are quicker to attempt a risky turn into traffic when they have male passengers than with female passengers or alone, whereas female passengers not influenced by passengers (Jackson and Gray 1976 – cited in Wilson and Daly 1985).

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Under such circumstances, behaving unconventionally - bucking the social norms of their parents' generation - is a way of establishing credibility and status amongst peers. To act 'normally' and safely is to be boring and risk social status (Allen and Brown 2008).

Attacking these behavioural drivers is a very positive direction for possible further work from the road safety team. Work by Clark and Powell as far back as 1984 found that peer group discussions worked well in changing attitudes amongst young drivers. They found that peer group discussions were, in themselves, an effective intervention. Clark and Powell's technique was to use peer group decision processes that will 'unfreeze' the peer group's attitude and use group decisions to shift it to a new one. Each individual then shifts their attitude in line with the dominant group attitude. The effect of group discussions could be tested by measuring the effect of the focus groups themselves in changing attitudes through 'before and after' responses to say, the 'driver role scale' (Clark and Powell 1984).

In Clark and Powell's experiment the group discussions were conducted with the aim of getting the group to explore their own attitudes and behaviour rather than any outside attempt to moralise or use fear appeals. Nor were attempts made to feed in information about things such as reaction times. Typical facilitator questions were: what do you think about the idea that people should be able to drive at any speed they feel safe? Is there any such thing as courtesy on the road? What do you think about the way other people drive? Do you often get frustrated on the road? What do you think is the attitude of the police to young drivers? Do you feel you drive any differently when you are with your mates? What do you think of their driving? Their experiment group shifted attitudes from '20' to '24' using a driver attitude measure.

This positive message does by no means give a green light to the general use of social norms marketing. 'Social norms marketing' is often communications based - the deployment of messages that imply that good behaviour is the norm: 'most 18 year olds drive safely, with only one in ten doing stupid things' etc. These are legitimate ideas, with some theory to back up their usage - however, as Wechsler *et al.* (2003) illustrate with an example on students heavy alcohol use, it is by no means foolproof. Their intervention was not successful, and other authors such as Clapp *et al.* (2003) argue that there is little evidence that social marketing campaigns that aim to change social norms are effective.

Our interpretation would be that such remote communication approaches operate as 'weak forces', which have a slow drip-drip effect which may succeed over a long time period, but may not be of much use for localised work contemplated by yourselves.

Recommendation #2

A central task for a social marketing programme would be to attack the current 'norm' that aggressive driving is something to be admired. The evidence suggests that communication-only approaches will only succeed with large budgets over extended periods, and may be rebutted by hard to reach groups. We would suggest events based programmes that work 'on the ground' rather than remotely. A suggested theme could be along the lines of 'real men drive like grown ups - skilfully', backed up with events at a driving centre offering subsidised advanced driving. An attractive sponsor could be sought - perhaps a car brand that is admired by the audience - and ideas such as recruiting a local racing driver to attend some of the track sessions. These ideas could be usefully backed up with a communications campaign that reinforces the face-face approaches.

4.4 Addressing skill-risk optimism

Risk perception is often poor: British novice drivers were less able to predict potentially hazardous situations than more experienced drivers (Jackson *et al.* 2008) and this could be attributable to the ability to recognise what is hazardous and the speed and efficiency of doing so in a driving situation, and overall acceptable levels of risk.

Perceptions of skill levels are equally inaccurate: young male drivers are particularly likely to rate their own driving ability as equal to that of older drivers and superior to that of their peers (Matthews and Moran 1986; Begg and Langley 1999), and are more likely to do so than women (Harré *et al.* 2005).

This reveals a *'notable dissociation between perceived and actual ability and...a tendency to view themselves as immune from the effects of higher levels of risk, which they are prepared to ascribe to their peers but not to themselves'* (Matthews and Moran 1986, p.299).

How can skill-risk optimism be addressed? The literature is very bare in helping us design solutions. Direct, face-face interventions may be able to improve hazard perception and hence reaction times. Remote communications campaigns are too easily rejected by individuals as not applying to them. A better solution may be to entice the audiences into one-to-one simulation tests that surprise them into confronting their own poor hazard perceptions. Offers such as 'come and show how good a driver you are' are likely to work well.

One thing to be careful of is the importance of NOT increasing their confidence. If not handled carefully, young men may leave such simulations even confident of their hazard perception skills than before. This may mean people do not think they require training. There is evidence that increasing people's estimations of their hazard detection skills may cause them to drive faster (Horswill *et al.* 2003) – another example of the potentially double-edge sword of interventions in driving behaviour.

Recommendation #3

Consider trialling local on-street interventions with the use of simulators and the offer of 'test your driving skills against your friends'. Ensure the trial is done in such a way as to engender self reflection from the audience.

4.5 Making use of parental influence

The *Checkpoints* campaign (Simons-Morton and Hartos 2002), based on authoritative parenting, included a videotape and newsletters designed to persuade parents that teen driving is risky, but that parental restrictions on teen driving are common and effective and that the programme itself is useful for managing teen driving. This programme made use of a 'Parent-teen driving agreement'. Parents reported using, liking and adopting the programmes and using the agreement (Hartos *et al.* 2001) with just under half reporting completing the agreement (Simons-Morton and Hartos 2003). Parents and teenagers negotiate initial limits on driving under certain conditions such as the number of teenage passengers, night time driving, weather conditions, and road conditions, or trip conditions, such as where and when they are going, who was riding with them and when they would return. 'Checkpoints' in the time were used to review teenage driving performance and revise the terms of the agreement.

The attitudinal data was very strong, though there is little evidence to describe the behavioural outcomes of the *Checkpoints* programme.

Anecdotal reports of interventions targeting girlfriends or other passengers of young male drivers have been heard, but no data has been identified that measures the effectiveness of these.

One tiny study by Hutton *et al.* (2002) did look at the effects of passengers giving feedback to drivers over a number of sessions: however only two drivers participated and the effects, although noticeable, were limited, for example, the young male driver learned to check his mirrors more but effects on speed were limited. Despite the severe limitations of this study it seems that passenger intervention may be worth further consideration.

4.6 Contracts

As we've just noted, one idea noted in the literature was that of 'signing a contract' (Cialdini *et al.* 1978). An authority figure came into classes of 16-17 year olds and gave a 1 hour talk, at the end of which the students were asked to sign a pledge – a contract with themselves – not to drive in an anti-social manner. The signing of this was presented as a voluntary act, though clearly there was some situational pressure to do so at the time. This idea is based on work by Cialdini who observed that people wish to behave consistently with themselves and their previous behaviour. Similar work in dietary change has proven promising.

4.7 The principle of self interest – incentive based campaigns

You have already trialled the *Keep Your Wheels* campaign in the related field of driver safety amongst young scooter riders. *Keep Your Wheels* was an example of an incentive appeal - based on the principle of self interest. There is a strong academic school of thought, led by US social marketers such as Rothschild, that contends that self interest is the key driving force of behaviour, and that to obtain behaviour change you need to offer something that offers a higher value to the individual than the current behaviour. This may take the form of an incentive – hence the *Keep Your Wheels* trial.

In general in the field of social marketing there is pretty solid evidence that incentives can work quite well in creating 'instant', short term, behavioural change in arenas where such changes are quite easy to make – blood donations, self examinations for cancer, etc. In the US Rothschild was responsible for the development of Road Crew – a programme in which working class men were offered subsidised taxi facilities to prevent them drinking and driving (see for example Deshpande *et al.* 2004).

We do not have much direct evidence of road safety improvements to inform our thinking on the use of incentives. *Keep Your Wheels* was not successful, but this does not mean the core principle of incentive based change does not work. The lack of success may be for a variety of reasons – the communications approach for example.

Recommendation #4

We do not have sufficient evidence from the literature to make a firm recommendation to you. Our judgement would be that incentives may well be effective but are likely to be expensive, and may only work as short term

'bribes', without infusing long term behaviour change in people. If the incentive is removed in future, then behaviour typically simply reverts to its previous state. For these reasons we would suggest incentives are considered as a back up option to recommendations 1 and 2, but that the latter be considered first.

4.8 Multi-faceted interventions

Interventions such as the 'You Hold the Key' programme in the U.S. have produced positive effects amongst teenagers, apparently leading to increases in seatbelt use and safe driving (King *et al.* 2008).

The intervention included a number of approaches delivered over a 10-week programme in schools in Ohio:

- Presentations including graphic images of crashes
- Presentations from law enforcement officials regarding the laws around safe driving and drink driving
- Presentations from judicial prosecutors regarding the local court system and penalties
- Panel discussions with young adults describing how risky driving affects their lives
- Discussions with crash victims about experiences of being victimised by risky and unsafe drivers
- Practical videos about how to avoid collisions, drive more safely, use seat belts etc
- Educational prevention videos.

The impact of this suite of interventions was assessed by surveys, which is an unfortunate flaw in the study as socially desirable responding may well be at work given the clear intentions of the programme. It is also disappointing that changes in behaviour were not assessed.

Furthermore, some elements of this complex intervention are contraindicated elsewhere, and it is impossible to identify which elements were effective. Finally, this was delivered in an education environment, and those most likely to drive dangerously may have dropped out of education by this stage or react differently to such interventions.

That concludes our discussion of possible intervention programmes. We now move to a discussion of social marketing communication campaigns

5 Social marketing communications

5.1 Message design recommendations

There is some evidence that population wide social marketing communication based campaigns can indeed have positive effects in road safety provided that large budgets are deployed over an extended time period.

In the field of road safety, prominent UK examples include the iconic *Clunk Click* seat belt campaign of the 1970s, and the UK wide *Think!* campaign running since the late 1990s. The Institute of Practitioners in Advertising authored paper on *Think!* is perhaps not an independent review of the evidence of effects but its conclusions were of an acceleration in the drop in overall number of accidents which they attribute to the campaigns.

Communications campaigns: any evidence?

Smith (2006) reports the following primarily US based evidence on seat belt wearing:

- Click it or Ticket increased seat belt usage in North Carolina from 63 per cent to 80 per cent
- Zero Tolerance means Zero Chances found awareness of the no tolerance law rose very modestly from 61 per cent to 63 per cent during the campaign
- Friends don't let friends drive drunk reported an 85 per cent recall of the messages. 80 per cent of those who recalled the message also reported that they took action to stop a friend from driving.
- Social norming programmes such as Montana's *2 out of 3* reported a slight reduction in impaired driving by university teens.

However there is little we could find that tackled the specific segment and context of interest here: young males of deprived backgrounds in the UK. There is a lot of evidence to demonstrate that localised, one-off communication campaigns are largely ineffective. Wolburg (2006) talks about the problems of 'denial, defiance, and other boomerang effects' that social marketers often encounter. We strongly suspect that 'defiance' and 'denial' aptly sum up the response of young males to authority sourced campaigns to reduce speeding. The Scottish Road Safety Campaign case study below sums up many of the problems.

Case Study – The Scottish Road Safety Campaign

In February 2005 the SRSC launched a two week campaign comprising a 40 second radio advert, 180 outdoor panels and 30 bus sides.

In creative development, it was found that adverts needed to be direct and avoid using analogies which required thought. Young males switched off very quickly when required to decipher something. Adverts which depicted activities with which young people could identify had the greatest potential impact. Young males did have a tendency to try and deflect messages aimed at them.

In focus groups carried out for the campaign development, young men (it is hard to avoid the conclusion here that young men can be total idiots) generally displayed a sense of immortality, focusing less on injury. However they were more likely to mention the legal consequences of irresponsible driving such as higher insurance premiums, fines, re-sitting tests or being banned from driving. There may be some traction here – but it was noted that these potential outcomes were seen as rather remote and not of immediate consequence. This was due to young men displaying very high levels of confidence in their driving skills.

Evaluation of creative routes (Radio/poster)

One route focused on the idea that certain driving phrases may well be people's last words. This idea was poorly received. The idea of dying as a result of poor driving was too remote a concept to cause an emotional reaction amongst young respondents.

Others were found to be confusing or unrealistic. One execution was more light hearted in tone and went down better with males, but whether it would have the desired effect is another matter. The creative idea that was best received started with the noise of young people getting into a car, talking to friends and turning on the radio as they pull away, with the music fading away to leave the sound of a heart monitor beeping and eventually flat lining before the message was delivered. The music at the beginning was a key hook, grabbing respondents' attention before revealing the core message. The in-car scenario was familiar to them, drawing them into the execution.

Evaluation results: Not clear from the paper what actually went out but there was little spontaneous awareness of the campaign. Prompted awareness/recall was over 50 per cent. But there was little connection made between the person in the advert and themselves. An authoritarian tone in the radio advert resulted in wide dislike.

To reduce deflection of messages, the execution needed to depict people and activities to which young men can relate, using a young male voice and serious injuries that have obviously been caused by careless driving. The evaluators also suggested that the financial and legal consequences of being in a car accident should be emphasised.

One interesting insight into the mentality of young male drivers was revealed by the work. They appear to have socially acceptable – normed – levels of speeding and driver behaviours which they regard as fine. They justify this through regarding official speed limits or driving practices as outdated and lacking understanding of driving conditions in the 21st Century. Media messages regarding speeding were seen as authoritarian, judgemental, misinformed and lacking credibility if they came from an official source.

A statistic used in the campaign was that 1 in 5 new drivers have an accident. Young males interpreted this as '4 in 5 have no accident' – so that's all right. This statistic was not strong enough to impress them.

The conclusion was that this campaign had pretty limited success, and that campaigns will have to work much harder to influence the young male audience.

5.2 Road safety advertising – best practice

So, how should we make progress with social advertising? Is there anything that can work? One important start point is that with young audiences, it is particularly important that messages come from credible channels (for example trusted radio stations) and trusted people (Smith 2006). This was backed by findings on the Scottish Road Safety Campaign (MRUK Ltd 2005) which found that young males were put off by the authority figures in the campaign. The Family Health International report (2008) looking at marketing of reproductive health pointed out the views on the importance of role models. This is based on Bandura's ideas (ensconced in social learning theory) that we become confident about our actions as a result of observing others who we see as successful.

Our second point is that message designs should be built on the micro-cultures of the people you want to influence. Cultures are belief systems: if your social marketing design runs counter to these beliefs it will probably fail. To illustrate, let's look at the work done by Stead and Eadie (2007) who ran ten focus groups reviewing the

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Scottish *Foolspeed* campaign. This was a TV campaign with various creative treatments depicting the negative consequences of speeding. The final campaign was aimed at 25-44 year old white collar males, and was, strictly speaking, outside the target market of interest here. However some less savoury male aspects were revealed: there was a tendency to view road safety ads as a form of entertainment. Some respondents focused on production techniques of the crash sequences, and enjoyed the gore scenes, treating the whole thing as a mini horror film.

Both the *Foolspeed* and smaller Scottish Road Safety Campaign evaluations focused on the importance of the audience identifying with the behaviour in the advert, empathising with the drivers (and/or the victims, although, with young males, the latter is difficult). There is a balancing act between portraying the drivers as on the one hand realistic and similar to the target market, and on the other hand doing things that the audience will describe as foolish. Depicting very poor or foolish driving is very easy for the audience to reject as 'not like them'. Overall we felt that the Stead and Eadie report on *Foolspeed* offered a valuable lesson for us. Their respondents did note that the *Foolspeed* executions lacked drama and that there 'weren't many children flying through the air'; but when asked to reflect, respondents were quite impressed by the realism depicted in the ads, the fact that the people, and the driving, in the ads were scenes they could sometimes identify with, and that some of the ads made them reflect and think a little about their driving behaviour. So, although the shock effect of the ads was fairly minimal, they nevertheless got attention by being more true to the lives of the audience. There were hints from the research that "this 'everyday/realistic' approach may not only foster stronger identification but also encourage deeper self reflection than more graphic advertising. On the other hand adverts with more drama and incident proved to be more engaging than less dramatic ads. So – a balance needs to be struck.

The *Mirror* Ad

The most successful of the *Foolspeed* adverts was the *Mirror* ad, which attempted to change attitudes towards speeding. Longitudinal studies showed that *Mirror* did indeed successfully change attitudes over time.

"The advert features a male driver in his 30s driving in an urban residential environment. The driver's conscience appears in the rear view mirror and points out the foolishness of urban speeding by noting that the car which the driver previously raced away from has caught up with him at the traffic lights. As the driver nears a school the conscience argues about the appropriateness of his speed, to which the driver retorts that he is a 'better driver than most'. The driver's attention is then distracted by a young woman with a small child and when he looks back at the road he is shocked to see that the car in front of him has stopped at a school crossing. The driver comes to a noisy halt and the conscience shakes his head in the mirror. The strapline reads: 'Take a good look at yourself when you're driving'"

The *Foolspeed* campaign included a 'social norms' element which rests on the assumption that being made aware of other people's disapproval can influence a driver to reassess his behaviour. Respondents in the focus groups had mixed views of this idea, with most male drivers claiming that disapproval from girlfriends or parents would have no effect on their behaviour. The one exception was that if a male friend criticised their driving, they felt they would take notice.

Recommendation #5

Our belief is that your first priority lies with addressing social norms and the excitement/thrill factors debated earlier in this report. Our judgement would be that these ideas should be attempted as a higher priority. However the solutions debated earlier will have a higher cost-per-audience than may be possible given limited budgets. In this case, an alternative approach may be to consider a campaign based on the apparent success of some of the FoolSpeed elements. We would note a rather weak evidence base in this regard, but we are persuaded that campaigns that emphasise realism, young males 'recognising themselves' in the ads, and self reflection have a reasonable chance of success. In particular, moving away from fear/threat appeals may be wise: moving away from slow motion imagery of a crash and instead prompting self reflection that fast driving is not a very grown up thing to do.

In spite of the modestly positive findings about the *FoolSpeed* campaign, we would not change our minds about the need to keep advertising in perspective. In support of an integrated campaign that centres on localised interventions, we can see that broadcast media based campaigns can be very valuable. Or, if budgets are large and the campaigns will run over a long time frame, there may be a chance to change attitudes and behaviours over time. However our understanding at this stage is that you are not in the business of contemplating a long sustained campaign burst to tackle young males aggressive driving, and short bursts are in our opinion, simply too weak to have much effect *on their own*.

An alternative approach? 'Road safety advertisement that belittles the boy racers'

"There is not a mangled body in sight. Australian safety campaigners have decided to hit boy racers where they are vulnerable. It is the latest road safety campaign, and there is not a mangled body in sight. Australian safety campaigners have decided to hit young speedsters where they're vulnerable - between the legs.

The latest TV campaign to encourage drivers to respect speed limits features young women wiggling their little fingers at passing speedsters. The gesture represents a small penis in youth culture but in the ads, even an elderly woman uses the signal. So, too, do other young men who are not in the driver's seat.

The new, low-hitting advert has been introduced as safety campaigners do not believe that traditional messages showing bloody accidents have the ability to horrify young drivers into slowing down as they are watching increasingly violent video games and films.

The government agency responsible for the campaign - the New South Wales Roads and Traffic Authority - stopped short of admitting length was the issue.

"To me the gesture says 'speeding - no one thinks big of you'", said the authority's spokesman, John Whelan. "It will cause people who are speeding to think twice about the image they are creating."

The young women featured in the ads however appear to be much more specific about what part of speedsters they think are not big. And the young male speedsters who notice the gesture appear suddenly crest fallen.

Mr Whelan said the ads were intended to be controversial. He said the traditional "shock and horror" television advertisements that warned against speeding by showing graphic images of car crashes and injuries were no longer effective for young people who frequently viewed worse images on computer games or in horror films.

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The authority's research, he said, suggested that young males were becoming de-sensitised to the shocking images of fatal road crashes used in past Australian road safety campaigns. Said Mr Whelan: "I wouldn't say it's more light hearted - there's element of I suppose darkish humour to what we're doing in this advertisement.

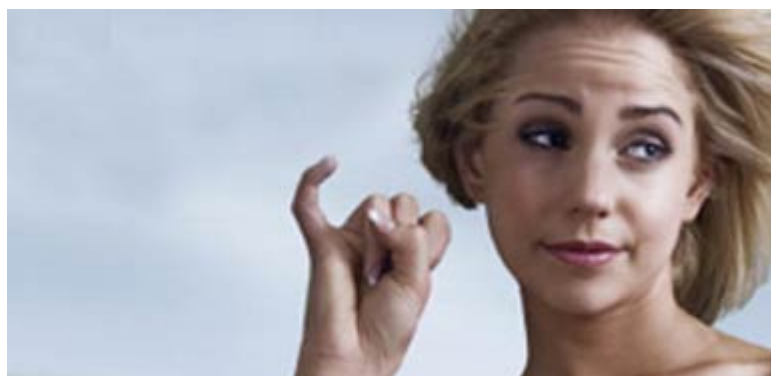
"This gesture to which we're referring is part of everyday language and part of our culture. So to align that message to our anti-speeding message, I think is going to have an impact."

The campaign which will include television, cinema ads and bus stop posters will also feature a 15 second viral internet ad that will offer speedsters an 'xtra xtra small' condom.

The £850 million (\$A2 million) campaign has been prompted by widespread public concern in Sydney over a series of multiple road fatalities involving young, inexperienced male drivers still on their restricted, provisional driving licences. Speed has been a factor in many of the recent accidents.

Known as 'P platers', the young drivers will from next month have additional restrictions placed on their driving licences including a complete ban on hands free mobile phone use in their cars and the exclusion of young passengers from their vehicles at night.

Harold Scruby, the head of the road safety lobby group, the Pedestrian Council of Australia, said targeting the image of young male speedsters was clever and commendable.



Our comment: Creative 'devices' such as the little finger sign are potentially powerful because they are simple and compelling and have a social 'edge' to them. They can work well in changing cultural norms quite quickly. However, we are concerned that such an approach will be met with defiance by our audience. Should you be interested in this approach, careful pre-testing would be needed.¹

¹ Ramachandran, A. (2007) Making them feel small: ads wag the finger at speeding young men. Sydney Morning Herald June 25. Accessed from <http://www.smh.com.au/news/national/making-them-feel-small-ads-wag-the-finger-at-speeding-young-men/2007/06/24/1182623748453.html>

Ramachandran, A. (2007). Pinkie Ads Slow Down Speedsters. Sydney Morning Herald, October 15. Accessed from <http://www.smh.com.au/news/national/pinkie-ads-slow-down-speedsters/2007/10/15/1192300647849.html>

Watson and Hutchinson (2006) point out that 25 years of road safety advertising has trained UK viewers to expect a car crash moment in the adverts. Such adverts may still have an effect on viewers predisposed to self-reflect. But for others who are less reflective there may be a need to look at different ways of getting them to 'internalise' the messages to the extent that they will be more likely to change their behaviours.

5.3 Fear/threat appeals

"The available evidence questions the relevance, and hence effectiveness, of strong physical threat with this group"

(Lewis *et al.* 2007a, p.2).

Fear appeals have been fairly extensively examined in the psychology and marketing literature. A review of the literature shows inconsistent findings to support the use of fear/threat, especially in young males (Lewis 2007a).

A particular argument against the use of fear appeals with these sensation-seeking groups is that they tend to be less affected by fear messages than those less at risk (Keller 1999; Hastings *et al.* 2004). These groups have shown little change in behaviour in response to fear campaigns, compared to significant changes for young women and older people (data on file). This may widen the gap between those who are already less at risk and those in high-risk groups.

A more rounded debate was provided by the review of Hastings, Stead and Webb (2004). They concluded that lab based experiments do provide some support for fear appeals as one-off devices. But, over time, they suggest it is very difficult to make fear appeals work and what may be, at first, shocking may become laughable with prolonged exposure. Repetition may result in habituation, annoyance, fatalism or formulation of arguments against the proposition. Furthermore, modern society is no longer shocked by scenes of carnage (Lewis 2007b).

Young males are, as we know, very resistant to fear appeals – they feel indestructible and tend to say 'oh well that won't happen to me' – so use avoidance mechanisms to upsetting imagery. They may also have low self confidence to change, especially in the face of peer attitudes that pressure them into rejecting the fear appeal.

Hastings *et al.* (2004) suggest it is often better to use positively framed messages – based on humour, for example. Or to emphasise realism-based approaches with which young males can readily identify, maybe sourcing highly localised work that is created in familiar surroundings. The emphasis is on empathy – we know what makes you speed, we understand, why, and so on.

Social threat may be a more valuable tool than physical threat, and has been shown to be more persuasive for the hard-to-target, sensation-seeker audience (Schoenbachler and Whittler 1996). Similar results have been shown by Tanner, Hunt and Eppright (1991) for encouraging safe sex and by Pechmann (2001) for smoking prevention. In an environment where the opinion of friends and peers outweighs most health concerns, social threat may bear significant weight.

For the record there are academic arguments about the merits of strong fear appeals (seen as good when the avoidance behaviour is easy – which it is in speeding), and perhaps fear-relief appeals which arouse fear, then show how good behaviour can

relieve that fear. Rossiter and Thornton (2004) conducted some (extremely complex) experiments which they assert support the fear-relief approach.

Our summary would be that, in general, there *may* be a place for fear based campaigns in road safety advertising – after all, the *Think!* campaigns are largely based on shock, threat, and fear. But young males from deprived backgrounds are a very tough audience to influence with fear appeals because of deflection – ‘it won’t happen to me’, peer pressure – ‘I’ll look a sissy if I change’, or self efficacy – ‘I am not skilled enough to self reflect and confident enough to change my behaviour’. You should therefore be very cautious of this approach and perhaps consider social threats instead.

5.4 The danger of fear appeals backfiring

‘It is not enough to inform young people of what is risky and the consequences of risky behaviour. While this may have a positive impact on a large portion of risk-averse young people, there is little doubt that these types of messages will do nothing more than inspire the more risk-prone young people to further demonstrate their prowess’

(Rhodes et al. 2005, p.499)

Reactance Theory helps us explain this negative reaction to fear appeals. We react to attempts to restrict our behavioural freedom by acting in the opposite fashion. For example, if a young driver sees an advertisement exhorting them to drive more slowly and next time they are in a car with friends they attempt to drive faster than ever in an effort to react against dictatorial authority.

The assumption of Reactance Theory is that threats to personal freedom result in a state of motivational arousal, which can drive individuals to defend this state of freedom by acting in the opposite way to that requested. This counterforce to reduction of freedom is termed ‘psychological reactance’.

That concludes this Part One of the report. The recommendations made to date depend on a thorough understanding of behaviour for their accuracy. The second and final section, Part Two, creates the platform for this understanding.

Part Two: Understanding behaviour – Creating the platform for the social marketing strategy

Part Two looks at the characteristics of crashes for young male drivers, and the research into the reasons behind these. By understanding these motivating factors and the circumstances under which reckless driving takes place, we are in a better position to develop attractive exchange offers, in tune with young men's real lives and with the most likely chance of success.

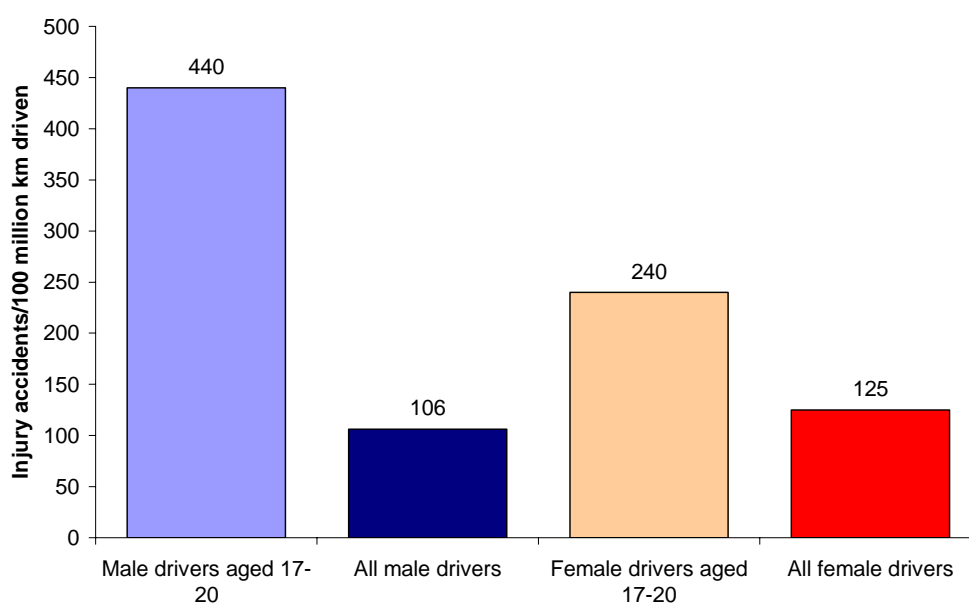
6 Road safety data

There is a lack of reliable data in the area of road safety (Wentz *et al.* 2001), but traffic crashes are the single biggest killer of 15-24 years olds in many countries including the UK: and for every driver that dies 1.3 passengers are also likely to die in the same crash (OECD 2006).

These are typically more than double those rates for older drivers (OECD, 2006; Forsyth, 1992) (see Figure 1), and this has continued to be true despite improvements in road safety and training.

These figures drop rapidly with age, for instance male drivers aged 20-24 years show a drop of 180 injury accidents per 100 million kilometres driven, however this rate is still 70 per cent higher than the baseline for all male drivers (Forsyth 1992)

Figure 1: Injury Accident Rates for UK Young Drivers compared to the General Population



(Adapted from Forsyth 1992)

Very few crashes occur during the learner stage, though there is a significant peak in the first month after being licensed. This drops sharply over the ensuing months into a slower decline over the next year and a half (Williams 2003). Data in Sweden indicates that the risk of crash injury is 33 times greater in the first year of licensing than during the learner period (Gregersen *et al.* 2003), though, as the data above shows, these rates remain high compared to the general population for a number of years.

6.1 Young male drivers much higher risk than females

Accident related death rates for young men are typically 3-4 times higher than those for women, even taking into consideration that men drive more than women, and this risk has increased considerably over the last decade for young men, but not young women (OECD 2006).

In the UK, young male drivers are substantially overrepresented in crashes, being involved in 12-14 per cent of fatal accidents from 1991 to 2003, though only holding 7-8 per cent of drivers licenses in the UK: large-scale analysis of U.K. data suggests that this peaks for men aged 20-22 (and 17-19 in London) (Grey *et al.* 2008).

Similar data is found around the world: in Sweden male single-vehicle crash fatality rate is about five times that of females (32.1 vs. 6.1 per 1000, respectively) in the first year of licensing (Monarrez-Espino *et al.* 2006), and they are also more likely to have injurious crashes and crash sooner after qualifying. A U.S. study of almost 400,000 crashes showed that the youngest and male drivers were at significantly higher risk of crash injury than the general population, particularly at night, on freeways and with passengers (Aultman-Hall and Padlo 2004). Young male drivers were also significantly more likely to be involved in single-vehicle crashes, which are more often linked to risk-taking behaviour.

With each year after getting a license, the likelihood of committing a driving offence decrease by 8 per cent regardless of gender, and the chance of an at-fault crash declined by 6 per cent each year – however this decline was twice as fast for women as for men (Waller *et al.* 2000)

Males are also more likely to become *persistent* risky drivers (Begg and Langley 2004) between 21 and 26 years old, compared to little evidence of the same in 26-year-old females. It is difficult to assess what factors affect accident rates, however these discrepancies between rates for males and females is one indicator of behaviours that are specific to males that lead to higher accident rates.

What factors lie behind these disparate statistics for men and women? Why are men more likely to be involved in accidents that are their fault and how can we help them to reduce these rates? Many different factors are at work, broadly split into developmental (including psychological and behavioural aspects) and structural, which, for young men in combination with motor vehicles combine to create 'a perfect storm' according to Allen and Brown (2008)

First we analyse the characteristics of these accidents to help us understand the circumstances in which these behaviours occur, and then we look at the psychological underpinnings.

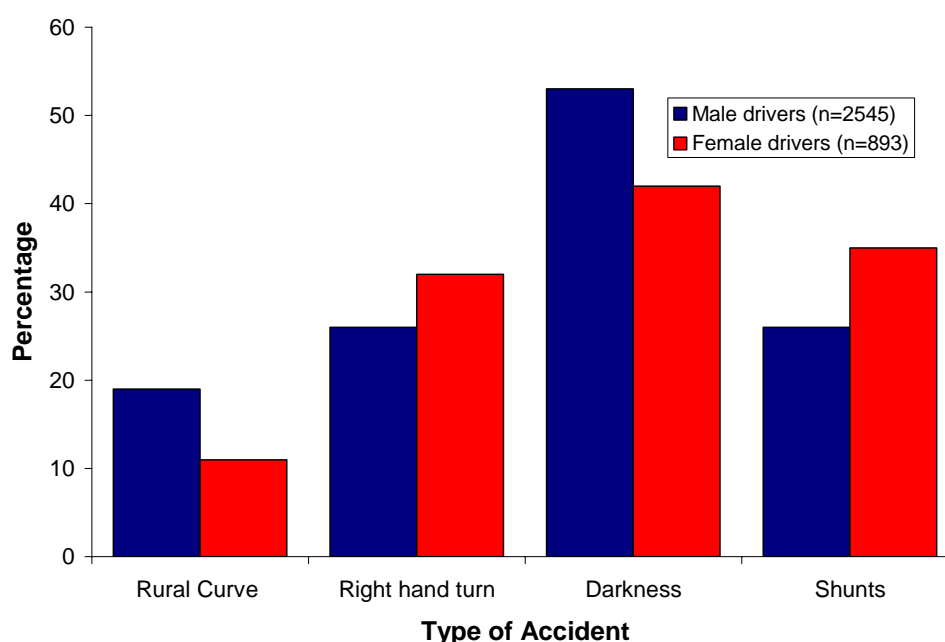
6.2 Types of accidents

Analysis of 3,437 UK Police records from 2 Midlands police forces, including 1,296 in detail, has shown that young drivers (aged 17-25) tend to have different kinds of accidents than older drivers, with four particular types standing out (see Figure 2), with Clarke *et al.* (2006) concluding that, in addition to cross-flow turns,

“Generally, being a young (17-19 years) male accident-involved driver means being significantly more likely to be involved in accidents during the hours of darkness; on rural curves; and actively involved in rear-end shunts...when compared with male drivers aged 20-25 years”

(Clarke *et al.* 2006, p.877)

Figure 2: Percentage of Four Accident Types in Each Gender Group



(Adapted from Clarke *et al.* 2006)

6.2.1 Cross-flow turns

Drivers aged under 25 are three times more likely to be involved in cross-flow turn accidents than expected for the mileage travelled.

West and French (1993) found that this includes a high proportion of younger drivers who are the passive participant in the crash i.e. where another driver turns in front of them. This may be because of factors such as driving at speed, slow perception of potential hazards and 'a [determination] to assert their own right of way' according to Clarke *et al.* (2006). This is backed up by data from Clarke *et al.* (1999)

6.2.2 Rear-end shunts

Around 30 per cent of accidents on the UK's roads are rear end shunts (West and French 1993) and, according to West, 'active involvement in shunts [is] a function of being young and male'

Females are significantly more likely to be the passive victim of such shunts, while males are significantly more likely to be the active participant (Clarke *et al.* 2006)

6.2.3 Rural curve accidents

Across the UK, police records show that younger drivers aged 17-19 are in twice the proportion of accidents occurring while negotiating a curve than older drivers (30-39 years). Of these, 'rural curve accidents involving young females are relatively rare' (Clarke *et al.* 2006 p.873), and young men account for the overwhelming majority of rural curve accidents.

6.2.4 Accidents during darkness

As described below (Section 6.4.1) rates of accidents for young male drivers during darkness are disproportionately higher than those of female or older driver (Grey *et al.* 2008).

A pan-UK study confirms these accident types as the most common for young men, but also adds 'rubbernecking' and overtaking (Grey *et al.*, 2008).

6.3 Characteristics of crash risk in this group

While the true causes of many accidents are unlikely to be truly known (for instance, *why* was someone distracted) the data points to the majority (95 per cent) of accidents being due to a human component of error (Sabey and Taylor 1980). In a review of the literature, Shope (2006) offers the following common characteristics of the physical and social environments, skills and behaviour, of the young male drivers involved in crashes.

Figure 3: Overall influences on Youthful Driving Behaviour (Shope 2006)

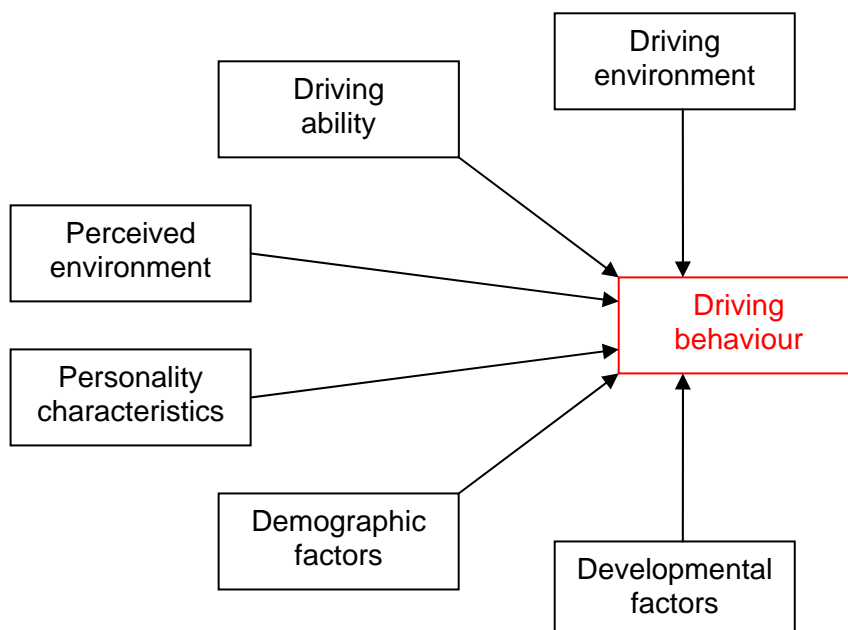


Figure 3 outlines the broad areas of influence on driving behaviour of young people, which mirrors the layout of this section.

In the sections to follow we will examine these factors in slightly more detail. We begin with Driving Environment.

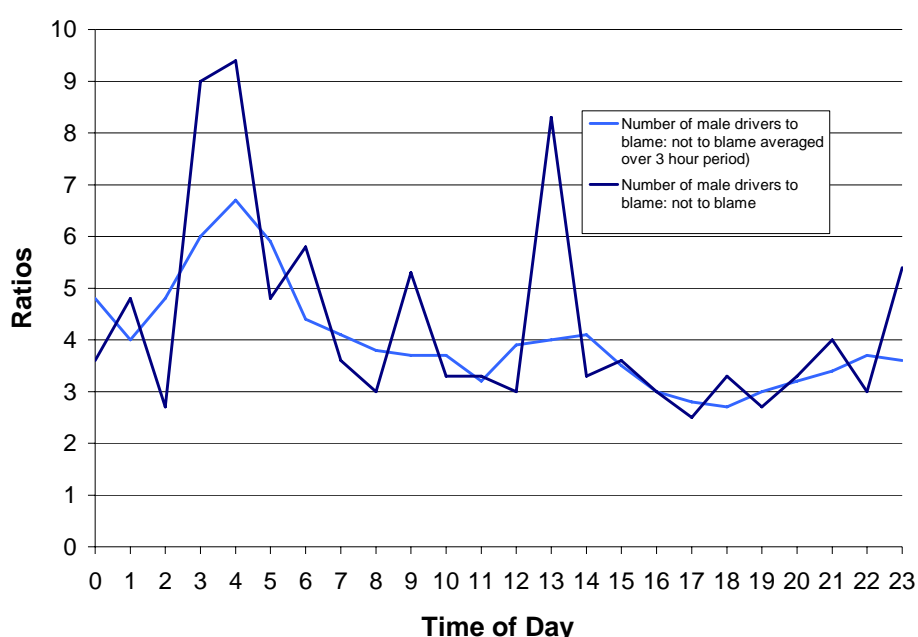
6.4 Driving environment

6.4.1 Time of day

Figure 4 shows data from two Midlands police forces, adjusted to show the ratio of accidents where a young male driver (aged 17-25) was to blame versus those where they were not to blame (Clarke *et al.* 2006).

There are two clear peaks in the early hours of the morning, during the hours of darkness, and between 2pm and 3pm in the afternoon. Such peaks, especially at night time have been observed elsewhere in the world, and confirmed across the UK (Grey *et al.* 2008).

Figure 4: Ratios of Male Drivers to Blame: Not to Blame by Time of Day (24h) n=2545



The daylight peak in Figure 4 was attributed by the authors to poor observation and close following, but the data was not analysed for whether passengers were present in the car (as may be the case if leaving school or college after lessons) or whether post-lunch fatigue may play a role.

Although only about 15 per cent of the total mileage of 16- to 17-year-olds in the US occurred between 9:00 p.m. and 6:00 a.m., about 40 per cent of their fatal crashes took place during these hours (Williams and Preusser 1985).

Evidence that driving at night is a significant risk factor for young drivers as shown in Section 6 (particularly 6.2.4) above by the recent UK data from Clarke *et al.* (2006). But data from around the world corroborates this:

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- In Australia, the rate of fatal night time crashes (between 9pm and 5.59am) is three times of the daytime risk (Williams 2003).
- US teenagers have a tendency to drive and have more accidents in night time hours than national average (CDCP-NCIPC 2008)
- Introduction of GDL programmes with curfews (in New Zealand and U.S.) for young drivers has provided a pre- post-experiment that demonstrates significant reduction in crashes when night time driving is curtailed for young drivers (Begg *et al.* 2001; Preusser *et al.* 1984; Preusser *et al.* 1990; Preusser *et al.* 1993; Williams and Preusser 1987; Williams *et al.* 1985; Lin and Fearn 2003) - though note that some of these are for drivers aged 15-17 or even younger.
- Levy (1988) – 28 per cent reduction in multiple vehicle driver fatality rates and 25 per cent reduction in single-vehicle driver fatality rates where curfew exists, across 47 U.S. states
- Up to a 69 per cent reduction in crash involvement for 16-year-olds in Pennsylvania during curfew hours (Preusser *et al.* 1984)
- General curfews that restrict night time activities of teenagers in the absence of adult supervision also reduce late night motor vehicle accidents with a 23 per cent reduction for 13-17 year olds across 32 US states (Preusser *et al.* 1993).

Why is darkness such a significant factor?

One potential answer is fatigue: teenagers are thought to have problems with fatigue at all times, and this is thought to be worse at night, but inexperience of driving and particularly night time driving more problematic (Williams 2003). However fatigue was found to be a factor in less than one per cent of the UK sample used by Clarke *et al.* (2006).

It is more likely that recreational driving at night increases the risk for this age group (Williams 2003).

“Darkness seems not to be especially dangerous in itself, rather it is the young drivers’ reasons and attitudes towards driving in the evening that put them at increased risk of accident. Deliberate speeding, recklessness and excessive alcohol consumption seem to be their main problems”
(Clarke *et al.* 2005, p.528)

These reasons are driving for social purposes and driving for pleasure, both of which young drivers do more often than older drivers (Stradling and Meadows 2000) and which may often take on reckless characteristics.

6.4.2 Time of week

In the UK, crashes resulting in fatality or severe injuries for young male drivers peak on Thursday, Friday and Saturday nights, and the early hours of Sunday morning (Grey *et al.* 2008). This is likely to be related to socialising, driving for fun and the influence of alcohol.

6.4.3 Time of year

UK data shows that January, April, May and August are the most dangerous months for young male drivers. While weather conditions may account for the January peak, the weather most associated with severe injury is, in fact, fine weather, presumably because greater speeds are reached on fine days (Grey *et al.* 2008).

The peaks in April and May be associated with the coming of spring and longer, lighter evenings encouraging socialising, or even seasonal surges in testosterone. Meanwhile August is a time of long days and warm evenings, encouraging socialising.

Targeting likely reckless drivers during these peak months is advisable, with messages appropriate to the risk (for example, drink/driving, passenger distraction or bad weather conditions). However many of these associated risks are assumed and more data is needed to confirm these.

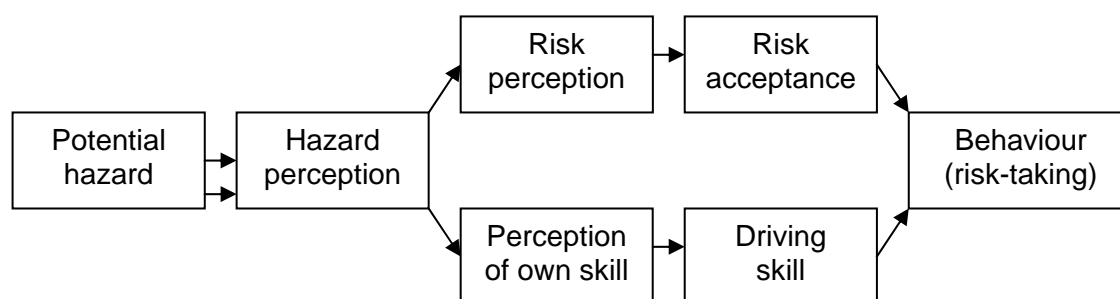
6.4.4 Road conditions

Surprisingly little on this, probably because other factors described are more influential and conditions have a similar effect of exacerbating existing issues for all drivers.

7 Aspects of skill, experience, and judgement

Aspects of skill, experience and judgement interact (as suggested in Figure 5 below) in response to potential hazards, as part of driving behaviour, specifically risk-taking. This balances perceptions and reality, with (mis)perceptions on the part of the driver (regarding the magnitude or nature of the risk and their own ability to handle it) possibly at odds with the true nature of the hazard and their own skill.

Figure 5: Model of Processes Underlying Driving Behaviour in Response to Potential Hazards (Adapted from Deery 1999)

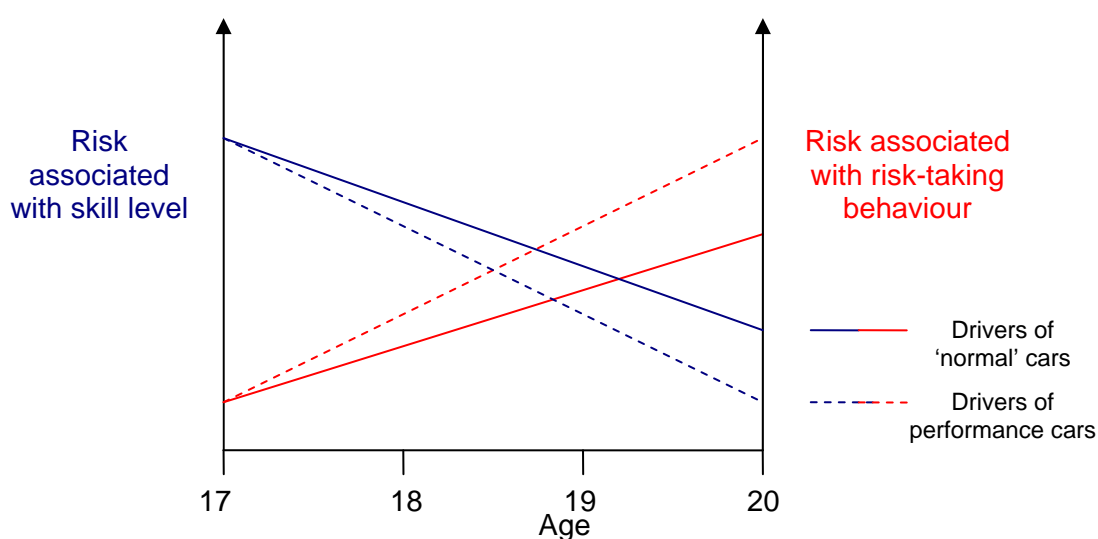


This section considers the actual skill levels of novice drivers compared to these perceptions, in order to try and isolate the true factors affecting driving behaviour.

7.1 Skill

It is difficult to differentiate the independent effects of skill levels and risk-taking behaviour in crashes and dangerous driving, and some data indicates that as skill level increases so does the inclination to take risks, especially among males (Rhodes *et al.*, 2005, see Figure 6). This indicates that, even within the age group 17-20, skill is more of an issue for younger drivers, while risk-taking needs to be addressed for older drivers.

Figure 6: Hypothesised relative risk of crashing associated with skill and risk-taking behaviour (Adapted from Rhodes *et al.*, 2005)



For instance, Clarke *et al.* (2005) analysed 1,296 reports of accidents involving drivers aged 17-25 and found that accidents were often the result of risk-taking behaviour rather than skill deficit, for example speed involved in 26 per cent of ‘to blame’ cases, or recklessness (6 per cent):

“Although we usually assume that young/inexperienced drivers are both less skilled and (for males in particular) willing to take more risks, it may also be that as experience increases, certain types of risk taking may increase as skill levels increase”

(Clarke *et al.* 2006)

This relationship may be steeper for young males driving performance cars i.e. that skill levels may increase over and above those of ‘average car’ drivers, but that risk taking also increases at a similarly steep rate (represented by the dotted lines in Figure 6 and discussed further in Section 7.5.5)

7.1 Practical driving experience

Driver error accounts for some 75-80 per cent of teenage driving fatalities in US (NHTSA 2002), though there is a great deal of discussion as to how much of this is down to practical skills, and how much to lack of judgement. Either way, experience is one of the most valuable learning tools.

Young, novice, drivers are less able to control vehicle, especially at speed (IIHS-HLDI 2008). The effects of experience can be quickly overcome, and risk is reduced by around two-thirds in the first 500 miles of driving (McKnight and McKnight 2003). These authors contend that *lack of experience* accounts for the majority of novice drivers’ (aged 16-19) accidents and that most result from lack of experience, for example, errors in attention, visual search, speed relative to conditions, hazard recognition, and emergency manoeuvres, and unlike most other research in this area. Williams and Preusser (1997) also blamed the high crash rate in this group on

youthful age and lack of experience, with the emphasis being on experience. These authors deny that deliberate risk-taking is as much of a factor as other authors: however they appear to be in the minority.

Again, issues lie in the use of retrospective data to attribute causal factors to accidents: we can tell what kind of accident happened but whether this was attributable to risk-taking, error of judgement or simply lack of experience is difficult to tell without more qualitative research in discussion with drivers.

7.2 Hazard detection, risk recognition

Hazard detection, risk recognition and hazard perception are all aspects of driving judgement, which Vernick *et al.* (1999) and other authors think more important than experience or skill in determining crash risk. Using hazard perception tests a number of studies have found that drivers who are better at perceiving a hazard generally have lower crash rates (Pelz and Krupat 1974; Quimby *et al.* 1986; McKenna and Horswill 1999; Horswill *et al.* 2003).

Young drivers are less able to detect hazards and respond in a timely manner, with driver error being responsible for 75-80 per cent of teenage driving fatalities in the U.S. (National Highway Traffic Safety Administration 2002), and novice drivers detect hazards less quickly and efficiently than more experienced drivers (Deery 1999). Some of this is attributable to learned behaviours such as scan patterns and longer fixation durations on road relevant objects (Crundall and Underwood 1998), and slower response to hazards (McKenna and Crick 1991), other elements are due to inability to recognise risk.

Risk recognition has been pinpointed as a particular problem for younger drivers. Certain risks were acknowledged by a mixed group of Alabama students in focus groups conducted by Rhodes *et al.* (2005): for instance, driving after drinking, driving while reading, driving while putting on make-up, driving without a seatbelt and tailgating. However these same groups did not see other statistically more risky behaviours as risky: such as driving with multiple friends, listening to loud music, eating while driving. Young male drivers generally see potentially risky driving situations as lower risk than older drivers do (Matthews and Moran 1986), and such conceptions result in young male drivers being unable to recognise hazardous situations and react appropriately when they do so.

7.3 Perceptions of own ability

“...relatively naïve drivers tend to create accident opportunities for themselves because they often overestimate their ability to recover from error”
(Brown 1982)

Across populations, there is clear evidence that people tend to think they are superior to others, including being safer drivers than average and more skilful drivers than average (Groeger and Brown 1989), and less likely to have an accident than average (McKenna 1993). For instance, McKenna *et al.* (1991) found that drivers rated themselves as better than average on 20 out of 20 different components of driving skill. Many drivers attribute crashes to skill deficits, and do not feel that they are at personal risk because they consider their own skills to be more than adequate.

Young male drivers are particularly prone to this, and rate their own driving ability as equal to that of older drivers and superior to that of their peers (Matthews and Moran 1986; Begg and Langley 1999), and are more likely to do so than women (Harré *et al.* 2005).

This reveals a *“notable dissociation between perceived and actual ability and...a tendency to view themselves as immune from the effects of higher levels of risk, which they are prepared to ascribe to their peers but not to themselves”* (Matthews and Moran 1986, p.299).

Many authors, such as Brown (1982), suggest that young male drivers are overconfident in their skills and are less concerned about risk (see Section 8). Such drivers were also found to characterise those who were more likely to speed and underestimate the potential risk of driving situations (Castella and Perez 2004; Deery 1999; McKenna and Horswill 2006)

Harré *et al.* (2005) termed this as ‘crash-risk optimism’, and observed that young men tend to dissociate themselves from the type of behaviour seen in traffic safety advertisements.

In conclusion, as Deery neatly summarises it *“...young drivers underestimate the risk of an accident in a variety of hazardous situations. At the same time, they overestimate their own driving skill. Young drivers are also more willing to accept risk while driving than experienced drivers”* (p.225).

7.4 Social environment

7.4.1 Presence, number and type of passengers

The presence of passengers has been found to *‘powerfully affect the likelihood of a crash’* in this age group (Williams 2003, p.12), especially when compared to drivers aged over 30 for whom passengers are associated with a slightly decreased risk of crashing (Preusser *et al.* 1998).

Figure 7 summarises data from a large U.S. study of sixteen- and seventeen-year old drivers which showed dramatic increases in the relative risk of death with the number of passengers, particularly for male drivers with three passengers compared to with no passengers. Finally, this risk increased to 21.88 per 10 million trips for teenaged drivers travelling with passengers between midnight and 5.59AM (Chen *et al.* 2000). These figures are backed up by Doherty, Andrey and MacGregor (1998) who also linked the risks of carrying passengers and driving at night time.

Figure 7: Relative Risk of Death Associated with Passengers (adapted from Chen *et al.* 2000)

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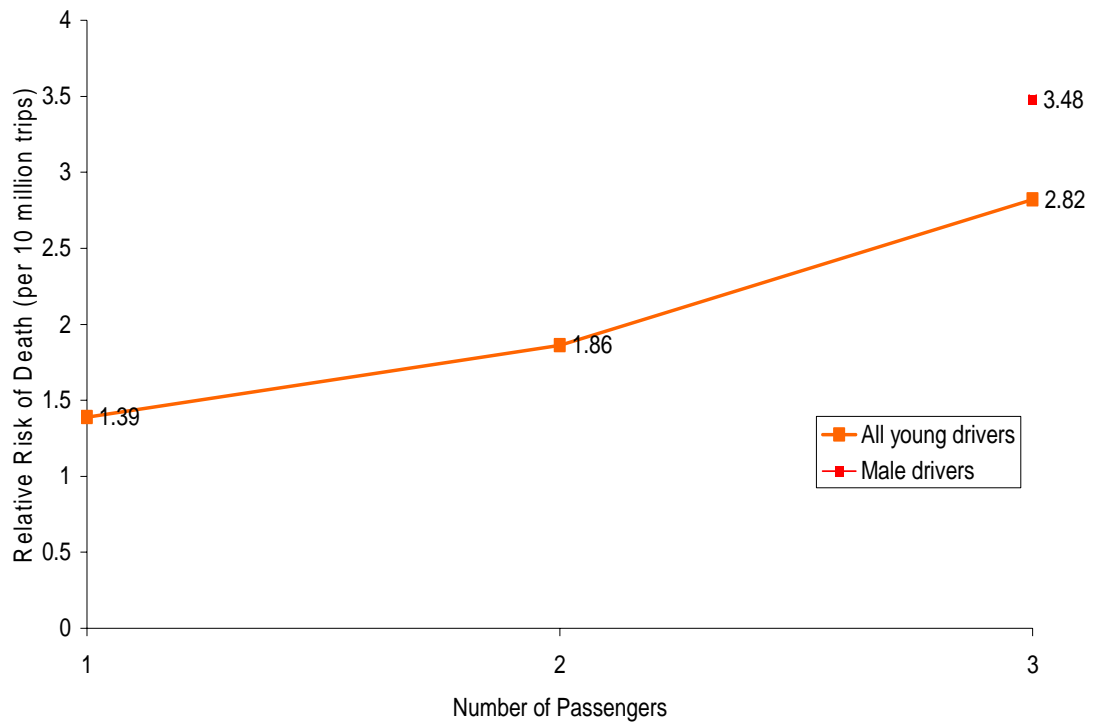


Figure 8: Relative Impact of the Total Number of Passenger on Crash Cause Propensity (Adapted from Aultman-Hall and Padlo 2004)

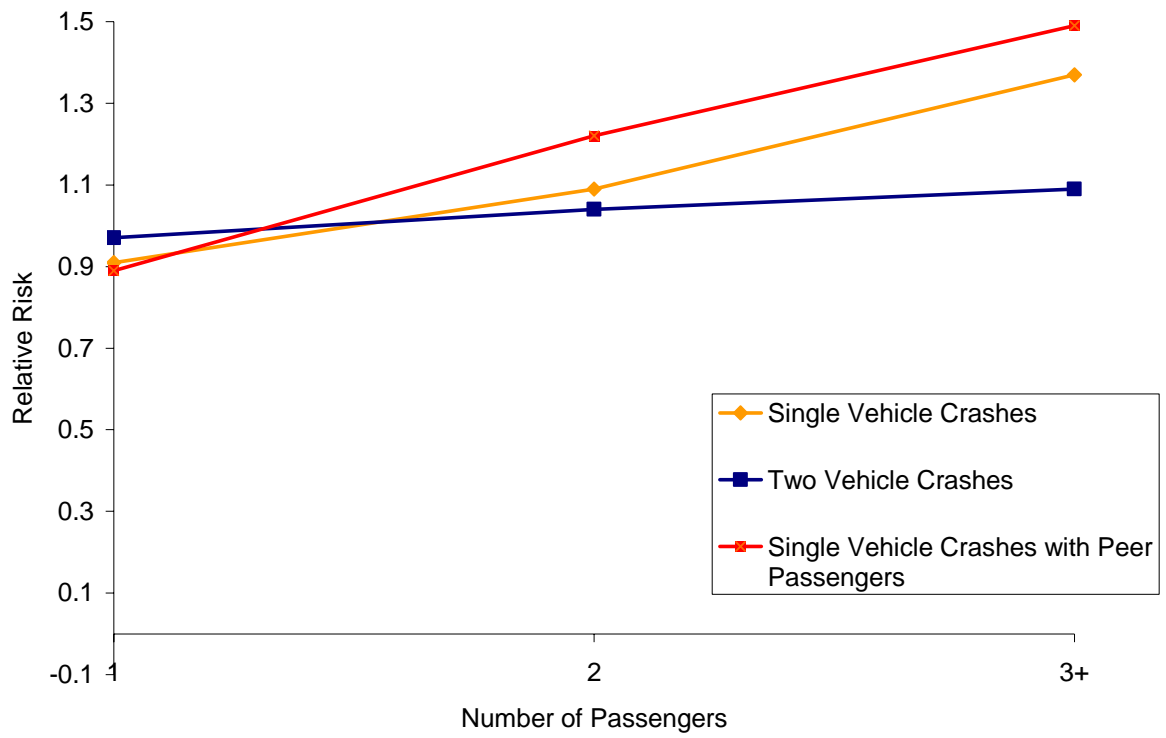


Figure 8 further shows the *types* of accidents that passengers have an effect on, with single-vehicle accidents (those most characteristic of greater risk-taking) outweighing multiple vehicle accidents with greater numbers of passengers, particularly when those passengers are peers (Aultman-Hall and Padlo 2004).

The age and gender of passengers are important: a large, U.S. study of over 77,000 accidents in Kentucky showed that carrying adult or child passengers led to the lowest propensity for young drivers to have accidents, which increases significantly when carrying peers (Aldridge *et al.* 1999). This risk has been shown to decline rapidly within 2 years of licensing, as rates of fatalities are 4.2 times higher in 16-17 year olds transporting passengers under the age of 20 compared to 18-year-olds transporting any passengers in the US (Chen *et al.* 1999).

This is also linked to peaks before and after school hours, when fatal crash rates also often show peaks in this age group, and teenagers are more likely to be driving and often with passengers of their own age (Williams, 2003).

Whatever the sex of the driver, carrying male passenger significantly elevates their risks of being involved in an accident (Williams 2003; Chen *et al.* 2000), and the risk increases with increasing numbers of passengers. This is compared to Australian data that shows that having a woman passenger or parents in the car can positively affect young people's driving, whether they are male or female, but particularly for young male drivers.

In the presence of male passengers, teenage drivers tend to drive faster and allow shorter headways (Simons-Morton *et al.* 2005). They are also more likely to drive more than 15mph above the speed limit compared to general traffic.

It is believed that the concept of the car as a place for social interaction, independent of parents, contributes to this effect (Arnett 2002), with young people likely to urge each other to take more risks and distract novice drivers by urging them to take risks, causing them to show-off, physically interfering with the driver or the driver turning to look and talk to passengers. Alcohol may also be a factor (Preusser *et al.* 1998). Indeed, dangerous driving behaviours, such as driving after drinking or using drugs, speeding, swerving, crossing the centre line, purposely skidding, and running red lights, were strongly associated with the presence of peers.

Passengers may also be a source of distraction, with in-car distractions tending to be more disruptive than those outside the vehicle (Lam 2002).

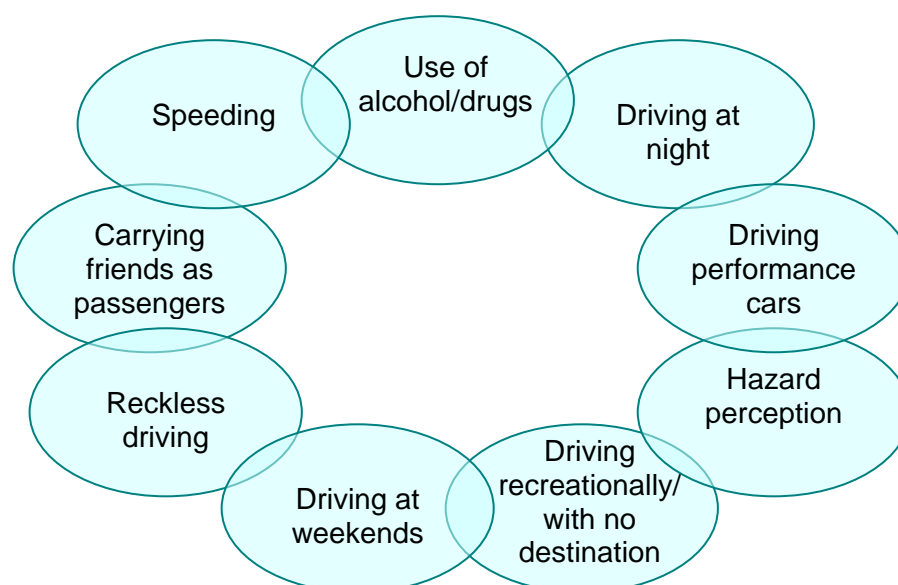
The effects of peers are considered by some to be developmental aspects (Allen and Brown 2008). The evidence for the effects of passengers on young drivers is so strong that, as of the year 2000, nine U.S. states enforced restrictions on teenaged drivers carrying passengers.

7.5 Behavioural factors

In our view behavioural factors are best viewed as an interacting suite of factors that should be viewed as a whole. This is not the way that much of the existing literature offers up evidence. Highly quantitative approach often seek to measure and characterise the links between each factor and dangerous driving in isolation, for example, Keall *et al.* 2004.

We'd prefer the overview of Figure 9

Figure 9: Suite of Young Male Driving Behaviours suggested by Literature



Let us now take a look at the most important of these factors.

7.5.1 Speed

“Speed not only affects the severity of a crash, but is also related to the risk of being involved in a crash”

(Aarts and van Schagen 2006)

Just a one mph increase in average traffic speed accounts for 1.9-5.3 per cent increase in accident rates in UK (Taylor *et al.* 2000). Clarke *et al.* (2005) characterise speed as a voluntary, risk-taking behaviour which accounted for 26 per cent of accidents for 17-25 year olds in the Nottingham area between 1994 and 1996. An earlier study by Clarke *et al.* (1998) also found that speed accounted for a number of other accident types such as overtaking accidents in this age group.

Speeding behaviour is linked to age, gender and driving experience (French *et al.* 1993; Stradling 2000) and was by far the most common offence for both young male and female drivers in the UK in the early 1990s (Forsyth *et al.* 1995). Evans (1991) suggests that is ‘almost a law of nature’ that young male drivers are those most likely to have speed-related accidents and this statement may have some literal truth to it as sociobiological factors may account for the risk-taking tendencies involved (See Section 8.1.1)

Fu Corbett (2003) noted that young male drivers often have an intrinsic enjoyment for fast driving, however this may be confused with an intrinsic drive to undertake risky behaviour. Speeding offers intrinsic enjoyment for sensation-seeking young men (Corbett 2003) and is mediated by the effects of peer groups and significant others (often as passengers) which can cause the young driver to have a perceived lack of control over their speed (Parker 1991).

7.5.2 Alcohol

Despite 20 years of drink driving interventions and high cognitive awareness of the impact of drink driving, this continues to be a major factor in casualties around the world (Fry and Holden 2007).

There is evidence that young drivers drink and drive less than their older counterparts, but are more likely to crash when they do (Williams 2003), with the risk for drivers under the age of 20 being five times that of that drivers aged over 30 with comparable blood alcohol concentrations (Keall *et al.* 2004). Those whose friends support drinking are more likely to engage in high-risk driving (Shope *et al.* 2003)

Adolescent substance use, particularly alcohol, is considered a predictor of high-risk driving; yet young drivers often do not consider it as a significant problem (Rhodes *et al.* 2005).

An Australian study of young drivers aged 17-25 showed clear segmentation between three groups:

1. those who never drank and drove - likely to have deep moral and social objections to drink driving
2. those who were borderline - likely to justify their actions and not consider their behaviour unsafe
3. those who were extreme drink drivers - enjoyed the 'sublime thrill' of driving when drunk and even thought their driving improved: they often indulged in multiple forms of risky behaviour (Fry and Holden, 2007).

For those who did reject drink driving, key motivations were feelings of responsibility to their friends and others and fear of prosecution and of telling their parents (Fry and Holden 2007). For borderline and extreme drink drivers these were not relevant and no clear disincentives were suggested: they had a fatalistic view of driving that disassociated their physical state from any accident that might occur.

This kind of research is useful for defining target segments and the positioning strategy required to appeal to them specifically, and is likely to reflect the personality sub-types for overall risky driving.

7.5.3 Drugs

Driving under the influence of drugs is not investigated in depth here, but we wonder whether this activity may be becoming more prevalent given the continuing rises in drug use, particularly as certain drugs, such as cocaine, become so much cheaper and more accessible to these deprived areas.

Self-reported risky driving is linked to cannabis dependence (Begg and Langley 2004) and drug-driving is predicted by adolescent marijuana use, as well as greater alcohol use and tolerance of deviance (Bingham and Shop 2004b).

The associations between drug-use and driving have been found to be stronger amongst women than men; however women had fewer risk-driving incidents than men (Elliott *et al.* 2006). This indicates that is unusual for women to drive riskily, and if they do so it is more likely to be associated with substance use, while young men are generally more risky drivers anyway. However, men are more likely to have been using marijuana if involved in a single vehicle crash than women in general (Elliott *et al.* 2006).

Data is needed for Bristol crashes to assess whether this is a relevant factor locally.

7.5.4 Driving without destination

One of the key predictors for 'aberrant' driving behaviour in a Greek population (measured with a modified version of the DBQ) was 'driving without a destination' i.e. driving for fun rather than the purpose of getting somewhere in particular (Chliaoutakis *et al.* 2005).

This may be an important aspect for young male drivers seeking status etc. and with no better places to go:

"A lifestyle with few planned activities, few hobbies and meeting with friends as the centre of activities seems to facilitate the use of the car in a way that leads to risk-taking behaviour"

(Møller 2004, p.1087)

7.5.5 Type of vehicle

There is little accessible data regarding the types of vehicles young male drivers are driving, and their relation to risk of accident and injury.

A number of "common-sense" hypotheses could be proposed:

- That young drivers are less likely to be able to afford more modern cars with the most advanced safety systems, perhaps resulting in more injuries and more crashes
- That those who choose higher performance cars may have more identity issues associated with their cars and may more aggressively compared to the general young male population as a result.

'Performance' cars were defined by Clarke *et al.* (2006) as those with larger engine capacities (above average for the model and range) and those with optional extras such as turbo-charging, and drivers of these cars were indeed found to be associated with distinct accident patterns compared to other young drivers.

Accidents in performance cars peaked in the evening hours, and were more likely to be associated with recklessness and deliberate speeding (which also peaked in the hours of darkness, though possibly increased skill levels. They were also more likely to have taken the car without the owner's consent (Clarke *et al.* 2005), though no more likely to have drunk excessive alcohol or run red lights. The same authors (2006) also hypothesised that this time would be prime for 'recreational' and leisure driving. Interestingly there was little variance in the number of accidents in performance cars across the age bands, unlike 'normal' cars where rates decrease significantly towards the mid-twenties (Clarke *et al.* 2005).

7.6 Other demographic factors

(Besides age and gender which are predetermined filters for this literature review)

7.6.1 Links to education levels

Education is an indicator of the 'socioeconomic position' of destination, i.e. where the individual is likely to end up in terms of class and socioeconomic status (SES) (Hasselberg *et al.* 2005), and as such can be used as a substitute for SES. It could be argued that educational achievement may simply reflect the ability to gain and assimilate information, however these authors ascertain it is more valuable as a measure of social stratification.

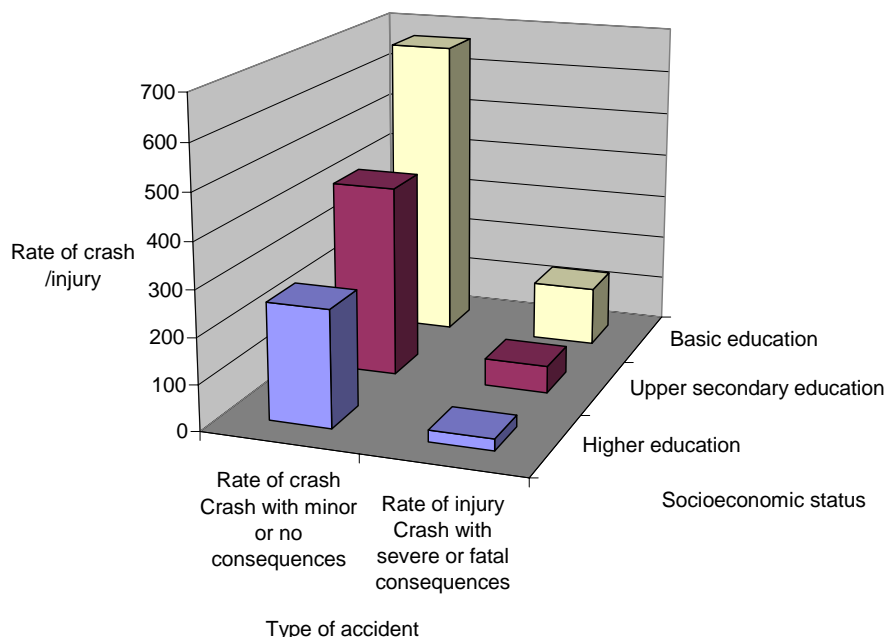
Education levels have been found to be more highly correlated to crash rates than other indicators of SES, both in terms of educational level reached and the grades received, with men with compulsory education only and lower average marks, and men with vocational (rather than academic) secondary education over represented amongst drivers involved in accidents (Murray 1998). An early but large-scale follow-up study of 14,000 students also associated drop-out rates and low grades with increased crash risk for young drivers (Harrington 1972).

Those with lower education levels are more likely to have crashes and to suffer severe injury (Hasselberg *et al.* 2005; Laflamme *et al.* 2005; Vaez and Laflamme 2005) (see

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Figure 9), with a longitudinal study by Bingham and Shope (2005) linking risky driving to lower educational achievement, while low crash rates were associated with better marks in school. The magnitude of this effect is exaggerated for young men compared to young women (Hasselberg *et al.* 2005).

Figure 9: Incidence of different crash consequences among Swedish drivers aged 18-30 years, by educational attainment (Hasselberg *et al.* 2005)



We noted earlier, but it bears repetition here, a study by Møller (2004) that supports many of the claims above also found that an early departure from education was associated with *‘driving as a shared and worshipped activity thereby creating the basis for the use of the car as a tool for self-expression, show-off, competing and entertainment with friends through risk-taking behaviour’*. This may account for why some of these differences are observed, if driving has more meanings for those with lower educational attainment/lower SES.

Low marks or early departure from education are also likely to be associated with other problem behaviours and precursors, such as levels of self-esteem and socioeconomic status, which are also likely to affect driving behaviour (rather than low school grades being causally related to risky driving). For instance, Bingham and Shope (2005) also demonstrated that those with lower crash risk also had stronger orientation towards their family and lower tolerance of deviance than those with higher rates. Vaez and Laflamme (2005) found significant correlations between low educational attainment/SES and the likelihood of impairment due to alcohol or drug use. Some or all of these factors may account for some of the observed differences in crash rates in the UK according to the area of origin of the driver.

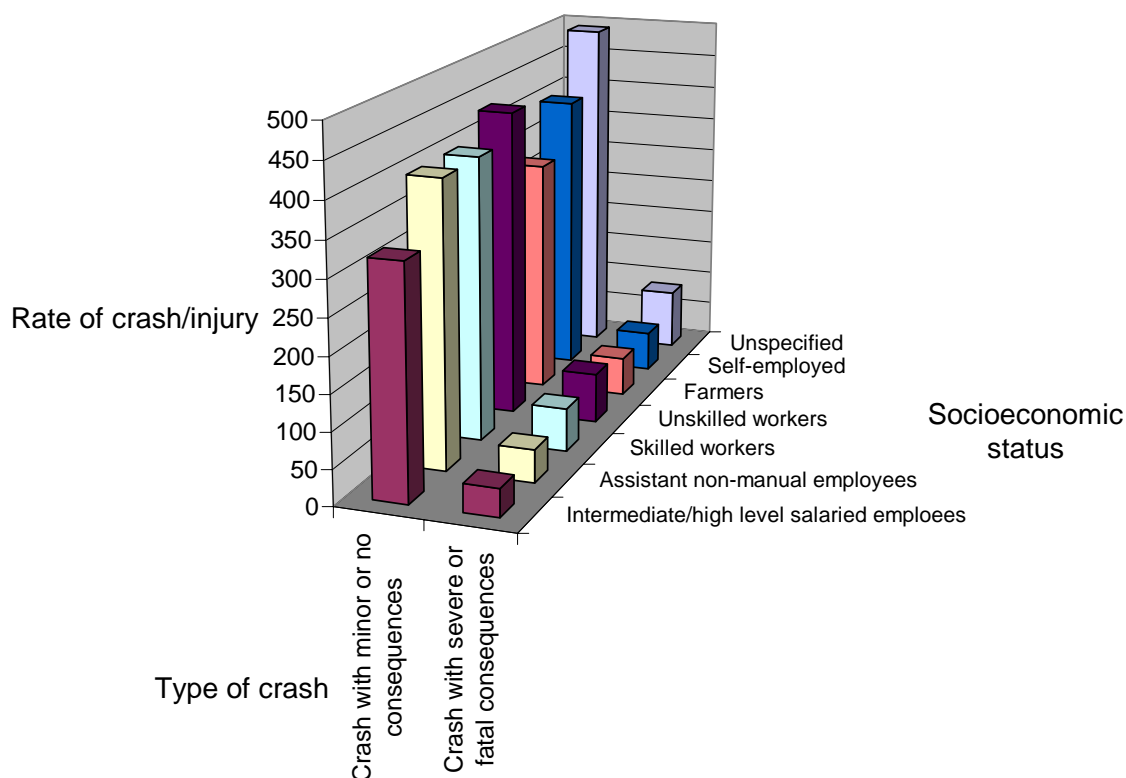
7.6.2 Social background

A large scale, longitudinal US study of approximately 2000 students found that those with lower levels of parental monitoring, greater permissiveness, weaker social development and higher levels of drug, alcohol and cigarette use were more likely to become risky drivers as young adults (Bingham and Shope 2004a). Also those with family problems have been found to have a higher crash risk for men but not for women (Sobel and Underhill 1976; Choque and Menke 1987)

There are indicators that young people from different socioeconomic backgrounds have different risks of crash, injury and fatality from road traffic accidents (Hasselberg

et al. 2005; Hasselberg and Laflamme 2008) (see Figure 10), with those from lower SES groups (except farmers) more likely to have more accidents than higher SES groups. The authors concluded that if all groups had the same rates of crash and injury as higher SES groups, 33 per cent of minor injuries and 53 per cent of severe injuries would be avoided.

Figure 10: Incidence of different crash consequences among Swedish drivers aged 18-30 years, by SES of origin



The *types* of accidents across different SES groups also varied, with those in lower SES groups more likely to be involved in overtaking/front-on collisions and single vehicle collisions which together account for 43 per cent of crashes investigated and are associated with the highest morbidity and mortality rates. These are far more likely to involve young men than young women (Hasselberg 2005). From data elsewhere in this literature review, we know that these types of collisions typify more risk-taking driving behaviour which raises the question of whether risk-taking while driving is associated with lower SES.

The types of cars that young people drive is also under scrutiny (Laflamme *et al.* 2005) with those from lower SES backgrounds likely to drive less safe cars, but this seems to be outweighed by other factors such as circumstance and exposure to risk.

Like much of the other data in this review, these studies tend to be retrospective analyses of injury statistics revealing patterns of data, but there is a major gap in understanding *why* these patterns occur and how they could be avoided.

7.7 Psychological factors

Psychological factors are extremely important to social marketers. They are covered in more detail in the rest of this review, but many authors, such as Tuohy and Stradling (1992) conclude that while young drivers have a good knowledge of road craft, “[they] knew what was the correct behaviour but attitudes, opinions and beliefs usually stopped them practising it” (Clarke *et al.* 2005 p.524).

It is clear that psychological factors such as when and why young men drive and the impact of passengers rather than just driving skills per se underpin most of the characteristics of accidents. Many of these psychological factors are intricately associated with developmental stage, as discussed later, as well as more general psychological characteristics.

It is suggested by this literature review that factors such as socialising while driving (which may encourage alcohol and drug use while driving for recreation at night, and the influence of peers to indulge in risk-taking behaviour while being distracted from potential hazards) or exhibitionism through driving (which may encourage risk-taking behaviour such as reckless driving or speeding, while using performance cars and entertaining peers as passengers) may be the kinds of unifying factors which deserve more qualitative investigation in order to understand the true unifying motivations to dangerous for young men. Without this understanding, trying to change one factor in isolation is likely to be unsuccessful, and with this understanding we are more likely to be able to be able to develop effective interventions that truly target the root causes of dangerous driving behaviour and effect change across a suite of behaviours.

7.7.1 *Anger, impulsiveness, aggression, rebellion and boredom*

Investigations into the psychological correlates of risky driving behaviour found that driving anger was one of the most predictive psychological factors. In the case of a small sample of U.S. students, this was followed by sensation-seeking and impulsiveness and boredom (Dahlen *et al.* 2005).

Personality factors such as physical/verbal hostility, aggression, and tolerance of deviance were also found to be significant predictors of a competitive attitude toward driving, risk-taking driving, high-risk driving and driving aggression (Patil *et al.* 2006). High levels of antisocial behaviour and aggression, combined with low levels of empathy have been found to be precursors to risky driving and speeding violations in an Australian cohort (Vassallo *et al.* 2007; 2008). Risky driving did *not* appear to be related to issues such as depression or anxiety (Vassallo *et al.* 2008). Those drivers (mostly male) who persisted in seeking such thrills through fast driving at the age of 26 were typified by low scores in self-control, harm avoidance, and traditionalism, as well as a disposition to aggressive behaviour and cannabis dependence (Begg and Langley 2004).

Other small surveys have shown links between specific behaviours such as speeding and authority rebellion, and drinking and driving and sensation seeking and crash-risk optimism. One such study on Australian students demonstrated that certain risky driving behaviours may be linked to certain characteristics and therefore targetable in different ways (Fernandes and Job 2003).

It is unclear whether psychological traits such as aggression are expressed through driving or relieved by driving recklessly (Vavrik 1997), however, what is clear is that such traits, such as anti-social behaviour, rise dramatically over this age period for young males. There can be a ten-fold temporary increase during adolescence which peaks at around age 17 (Moffitt 1993). This will impact on risky driving but the peaks do not quite tally, so other factors must also be at work.

7.7.2 Other psychological factors

Machin and Sankey (2008) calculated numerical values upon relationships between factors such as altruism, aversion to risk-taking and excitement-seeking and speeding, based upon the limited factors identified from previous quantitative studies. They included items such as altruism, which echoes the use of Moral Norms in some uses of the Theory of Planned Behaviour (see Section 9.1), antisocial behaviour (mentioned above) and the finding that those with lower levels of altruism are more likely to speed. The impact of moral obligation or altruism to others is an interesting aspect that has been used elsewhere in social marketing for certain target groups.

McKenna and Horswill (2006) suggest that concern about being involved in an accident, either for one's own safety or the safety of others, is at a much lower level for those who are likely to speed than fear of being caught by the police: this indicates that appeals to altruism or morals are unlikely to be successful for those most likely to speed.

Adolescent emotionality, i.e. the tendency towards mood swings (particularly negative) has also been hypothesised to contribute towards dangerous driving in teenagers (Arnett 2002), and could be seen to exacerbate many of the underlying psychological factors described above.

7.7.3 Sensation-seeking

Sensation-seeking is defined in two parts – to seek novel and intense sensations but also to take physical, social, legal and financial risks to find these sensations (Zuckerman 1994). Therefore the motivations for risk-taking, described below, account for some of this behaviour but there is also a desire for heightened sensation that may be linked to other behaviours such as alcohol and drug use and sex (Arnett 1995).

Sensation-seeking individuals have been found to be more likely to speed, not wear seat belts, drink frequently, drive after drinking, perceive a low risk of detection for impaired driving and perceive that they could drink more alcohol before being impaired, compared to low sensation-seekers in Canada (Jonah *et al.* 2001). They were also more likely to say that they would drive faster on wet roads and on highways.

Young New Zealand male drivers who admitted to 'driving for thrills' in a self-reported longitudinal study were more likely to report high negative emotionality, high substance use, aggressive behaviour, having a previous traffic conviction and cannabis dependence (Begg and Langley 2004), indicating that this tiny minority of 'hard-core' dangerous drivers are likely to exhibit a suite of problem behaviours.

A wider study of almost 2000 Norwegian adolescents found that factors such as normlessness, as well as sensation-seeking, affect attitudes towards traffic rules and

the enjoyment of driving, which then impact on driving style (Ulleberg and Rundmo 2003).

Such data may reflect the findings that those who drive within the law are more likely to be highly sensitive to punishment, while those who drive more recklessly are more sensitive to reward, i.e. the reward of thrills and sensation (Castell and Perez 2004). Such a finding will affect the exchange mechanism commonly thought to underpin social marketing, as long-term reward such as safety is unlikely to offset the more immediate returns of thrilling driving, and these particular drivers have low sensitivity towards punishment.

7.7.4 Risk-taking

“a large number of young driver accidents are caused by voluntary risk-taking alone”

(Clarke *et al.* 2005, p.525)

Many of the behaviours described above can be considered as risk-taking behaviours, and the psychological factors described are likely to impact on this (Ulleberg and Rundmo 2003).

Risk-taking may be a deliberate choice for sensation-seeking or may be considered risky by others, but those engaging in the activity may not perceive the risk or believe that their driving ability is superior to others, and therefore perceive that the activity may be risky for others but not for them (Begg and Langley 2004).

Clarke *et al.* (2005) concluded that nearly 50 per cent of accidents involvement in 3,437 UK accidents for young drivers aged 17-25 were attributable to risk-taking behaviour: such risk-taking factors include alcohol, recklessness and deliberate speeding, which account for most accidents on rural curves and during darkness (both factors highly associated with young *male* drivers).

Similar findings have arisen in the U.S., where 16 year old drivers were more likely to be reported as driving recklessly or speeding, and more likely to be involved in rollovers, running off the road or single-vehicle crashes (Gonzales *et al.* 2005). This study also found that over half of those involved in fatal crashes were not wearing their seat belts: this has anecdotally been reported not to be an issue in the UK so is not covered in depth in this review but should be considered.

The motivation to drive plays an important role in how people drive and their exposure to risk. Møller (2004) identified four broad reasons for driving from qualitative research in Denmark: visibility, status, control and mobility. Other authors have further divided these sub-categories.

7.7.5 Driving to attract attention

There is little evidence beyond Møller's (2004) study to support the assertion that some young people simply want to be seen, by mates and members of the opposite sex. The respondents in that study were keen to be acknowledged and looked at, and this seems to tie in closely with the category of 'status'.

7.7.6 Driving for status

This category incorporates driving as a means of expressing identity, especially compared to others and compared to childhood. For instance one may accumulate

status through fast and assertive driving or demonstrating mastery of the task (Møller 2004; Allen and Brown 2008) and recognition by peers or other road users is an important aspect of this.

7.7.7 Driving for control

Møller (2004) saw this as the desire to be in control of a large vehicle, against the odds of ever changing road conditions, and through successfully handling risk-taking. Other authors have interpreted this as a means of gaining status versus peers and road users, and especially in the eyes of young women.

7.7.8 Driving for mobility – physical and psychological

The respondents that expressed this view of driving saw it as a means to get to places, but also achieving fulfilment of plans and goals, and as an escape route even if not immediately required (Møller 2004). The above non-material aspects of youth driving culture are bolstered by the material culture of owning a car, gaining access to new venues and a wider geographical area, and it may be better terminology to describe this as the car being a symbol of identity and freedom.

And, for many, data from the US indicates that the youngest drivers tend to use cars for simply getting to and from school and work, running errands and driving siblings (Rhodes *et al.* 2005), so we cannot forget their inherently practical meanings.

Further categories have been identified through other studies, and could be seen to overlap Møller's categories but we consider them distinct enough to be worth describing in more detail.

7.7.9 Driving as a rite of passage

Many teenagers consider driving a rite of passage as a sign of maturity and adulthood (Arnett 2002)

Driving as a right of adulthood, rather than a privilege dependent on ability (Fry and Holden 2007), which may lead to less emphasis being placed on skill. Therefore, to be chastised into driving 'safely' is demeaning and they perceive this as trying to prohibit their move to adulthood (Tilleczek 2004).

This suggests that tone of voice is very important. Education or event based interventions need to treat targets as adults and not as children.

7.7.10 The car as a social space

Many authors, particularly those discussing the impact of passengers on crash risk, see the car as a place for social interaction, independent of parents, and it may be the first truly personal space for those living at home (Arnett 2002). Cars and driving are therefore an important social context for teenagers (Allen and Brown 2008).

It could be hypothesised that, for British young men from deprived areas, moving away from home may occur later and so the car takes on more importance as an independent social space: it would be very interesting to further investigate this aspect of car use amongst the target audiences

7.7.11 The car as territory

Many authors have suggested that the car may be a form of territory (Diekstra and Kroon 1997; Malmberg 1980; Urry 1999; Sandqvist 1997), however little systematic

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research has been done. Theories of territory have been led by Altman (e.g. Altman 1975), who has defined different levels of territory, each of which are characterised by different levels of emotional, cognitive and behavioural tendencies towards that area or object.

Many of these authors see the car as a 'home from home' that united exploration and owned space, but with disagreement as to whether this space is a public territory open to interactions from others or a more private area.

More recently Fraine *et al.*'s (2007) exploratory study, featuring a group of young men but from a university background, found that cars were viewed as an 'intimate social environment' i.e. extremely territorially. One's car was considered a 'safe haven', where young men in particular could find solitude and a sanctuary: the pertinence of this for young men who may still be living at home is clear.

Such territoriality was displayed through populating the car with personal objects (car care items, maps, books, personal number plates etc.), and customising the car itself to reflect personal taste (under-car lighting, bodywork, audio equipment) – all clearly mechanisms used by young men. Such display also uses the car to communicate identikits, opinion and image.

Territoriality was also expressed in driving style: men and young drivers were particularly likely to interpret the driving style of others as an 'invasion of personal space', prompting retaliatory behaviour in some cases. They were also more likely to believe another driver was deliberately trying to irritate them or restrict their driving, for example, by being slow in front of them.

These findings indicate that car territoriality is a particular issue for young men; however this study was very small and needs to be pursued further. Such territoriality can be seen to reflect many of the other issues in this review, but whether it is caused by these other factors or causal itself is unclear.

7.8 Driving for thrills

Distinct from notions of identity and status, US teenagers are also more likely to drive simply for fun, which translates into a tendency to drive and have more accidents in nighttime hours than average which is a time of more social activity (CDCP-NCIPC 2008).

Corbett (2003) noted that young male drivers often have an intrinsic enjoyment for fast driving, however this may be confused with an intrinsic drive to undertake risky behaviour.

If this is the case of Bristolian and UK teenagers in general, it is important to understand this mindset of fun rather than responsibility when addressing problem driving behaviour.

We have already noted the importance of risk and risk perception. The next section tackles this concept in more detail.

8 Risk-taking behaviour for young men

Risk-taking behaviour is a developmental factor witnessed in adolescent males across mammalian species (Wilson and Daly 1985), and across behaviours such as reckless driving, drug use, risky sexual activity and criminal behaviour (Arnett 1995). For driving, studies have consistently confirmed that young men have a much greater tendency to engage in unsafe behaviours than young women (Harré *et al.* 2000). Contrary to initial impressions, risk-taking may have multiple advantageous outcomes associated with leaving the family clan. In a conscious and highly social species such as humans, risk-taking has benefits in terms of identity construction and non-verbal communication amongst peers. Such benefits are counterbalanced by the raised risk of death or injury, but for those who avoid long-term consequences they may achieve higher social status, more developed practical skills and improved ability to cope with new, stressful and unfamiliar situations. Some of these possible benefits are explored below.

When considering social marketing and the prospect of offering better alternatives in exchange for the dangerous driving behaviour that often characterises risk-taking behaviour, we need to consider how to offer the same opportunities for social and practical advancement, but through alternative means.

Many of these echo some of the findings for driving in particular as *“violating parental rules, behaving unconventionally, and demonstrating comfort with risk-taking behaviour all serve...natural development goals and, not coincidentally, enhance the likelihood of risky driving”* (Allen and Brown 2008, p.S290).

8.1 Possible functions/causes of risk-taking behaviour for young men

A number of explanations exist for the function of risk-taking behaviour, but it is clear that almost all of these are associated with a developmental role for young males: equipping them to handle the adult world (though possibly a prehistoric one). In the modern context of fast cars and a materialistic culture mediated by an older, more rule-bound generation, such developmental responses may seem unnecessary, but they may be biologically ‘hard wired’.

8.1.1 Sociobiologically wired

Sociobiological theory suggests that risk-taking behaviour can have positive consequences in the competition for females amongst adolescent males – whether directly by impressing women or, more likely in this case, indirectly by affecting status against the other males in the group (Wilson and Daly 1985).

Such sexual selection theory would account for why such behaviour is seen during this most intense phase of reproductive competition, especially in circumstances that predict reproductive failure e.g. deprivation (Wilson and Daly 1985). So, such a theory would posit that men are competing for kudos, resources, political power amongst social groups, ultimately to win females, and risk-taking behaviour is part of this.

During adolescent years, testosterone levels can be up to 20 times higher than before puberty, with clear repercussions for aggressive behaviour and facilitating

risk-taking behaviour, which is also consistently higher in young men than young women (Arnett 2002). Risk-taking behaviour can evoke admiration amongst males and competition is similarly encouraged amongst males, but not seen to be as prominent amongst females (Wilson and Daly 1985). Advantages to risk-taking behaviour may also be based on facilitators to moving out from the family aided by the desire to explore new environments (Spear 2000). Such sociobiological theory is based upon the observed characteristics across adolescent male mammals – not restricted to *Homo sapiens* – and characterised by changes in the brain at this age (Spear 2000).

8.1.2 Peer pressure

This has been a major factor in this report. Susceptibility to peer pressure is a predictive factor for risky driving (Shope *et al.* 2003), and declines in U.S. accident rates around the age of 18 have been linked to a sudden decline in peer pressure with the move from high school to work or college (Arnett 2002).

Less 'well-adjusted' teens appear more likely to give in to peer pressure (Allen *et al.* 2006), however, better adjusted and more popular teens are still highly susceptible to different aspects such as peer values (Allen *et al.* 2005).

So for many, risk-taking behaviour helps them to be accepted amongst their peers (normative behaviour) and to develop skills (formative) unless there are negative long-lasting consequences.

Group shift-to-risk

Group shift-to-risk effect means that groups tend to arrive at riskier decisions than individuals (Kogan and Wallach 1964; Zaleska 1976 – cited in Wilson and Daly 1985) and this effect is stronger in men than in women (Johnson *et al.* 1977 – cited in Wilson and Daly 1985).

This often explained by the social desirability or prestige that accompanies risk-taking behaviour in group situations (associated with peer pressure) (Wilson and Daly 1985) possibly because advocates of risk are seen as particularly capable.

8.1.3 Developing practical adult skills

Driving allows young people to explore adult behaviour and privileges (Silbereisen and Reitzle 1992) and to develop and express mastery of hierarchical challenges associated with certain risky behaviours (Csikszentmihalyi and Larson 1978) – which ties in with the desire to be seen as 'capable' described above.

The car frees them from parental control over their movements (Fraine *et al.* 2007) and allows autonomy from parental surveillance (Allen and Brown 2008)

8.1.4 The positive feelings associated with risk-taking, and the need to repeat these

Whatever the cause, risk-taking, for certain groups of young men, results in a state of positive arousal with sensations of novelty, complexity, change or intensity of experience (Zuckerman 1991).

Worse still, the 'rush' and perceived level of risk declines with repetition and age (Irwin 1993), so greater risks are sought and an escalation in risk-taking behaviour may be seen, particularly in those with poor prospects for attaining other reinforcers (Wilson and Daly 1993).

Jessor *et al.* (1996) also explore determinants of risk-taking behaviour e.g. individual disposition, social influences and environmental stressors which map closely onto those for dangerous driving.

8.1.5 Masculinity

Men strive to express masculinity through risk-taking behaviours such as risky driving (Courtenay 2000) and identification with a 'macho' personality is associated with aggressive driving behaviour (Krahe and Fenske 2002). Even priming male drivers with 'masculine' messages, much as male passengers might, lead to more aggressive driving behaviour (Schmid Mast *et al.* 2008).

There is relatively little literature assessing how social norms around risky driving are instilled in modern society, but as Harré observes, risky driving behaviours for young men are "*propped up with an entire social system of norms and media images that equate fast driving and 'skilful' manoeuvres with masculinity, adulthood, and peer group approval*" (p.218).

As a new James Bond film is released, games consoles thrive on the sales of driving games and films such as *The Fast and The Furious* spawn copycat behaviour, it is unlikely that such media influences are without effect.

Furthermore, there is a wealth of literature that assesses the comparative pressure to be more masculine in deprived communities than relatively wealthier areas, and risky driving may be a tool to express this hyper-masculinity.

8.2 Influence of parents as controllers of driving access and experience

Parents are often the first people to provide driver experience to new drivers and may also be responsible for delaying driver education and licensing which is a preventative factor in crash rates (McKnight and Peck 2002; Preusser *et al.* 1985).

Parents can also exert influence in terms of requiring permission to drive and/or use the car, being home by a certain time, or carry passengers etc. (Hartos *et al.* 2000) although the degree of this influence will vary greatly, especially with age – this influence makes most difference in the first few months of licensure.

These reasons contribute to why, in the US, low parental monitoring is related to higher risk of risky driving, traffic violations and motor vehicle crashes (Hartos *et al.* 2000). For instance, traffic violations were approximately four times more likely with lenient restrictions related to friends as passengers, and two times more likely with low parental control (Hartos *et al.* 2000). Teens who reported less parental monitoring also reported more frequent risky driving behaviour at follow-up (Hartos *et al.* 2002).

However, parents were found to be unaware of the majority of incidents, such as their teenage sons or daughters driving after drinking, riding with other drinking

drivers, being distracted, not wearing seatbelts, running red lights or driving aggressively.

Parents, like teenagers, have a tendency to misperceive risks (all this from Simons-Morton and Hartos 2003), with the following ratings for teen driving risks:

Extremely risky

- 92% - driving after using alcohol or drugs

Risky

- 61% - driving without a seat belt
- 48% - driving in bad weather
- 42% - driving with friends on a weekend
- 32% - driving at night in the rain
- 28% - driving with two or more teenagers in the car

Parents are concerned about the risks of their offspring driving, but this is offset against the advantages of no longer having to ferry teenagers around – leading to a state of ambivalence (Simons-Morton and Hartos 2003). They perceive their children to be generally responsible (Simons-Morton and Hartos 2003) and are not aware of the true risks for this group.

Parents are in a position to help control driving behaviour – though ownership of the car or access to petrol money.

8.2.1 Parents as driving models

Young drivers tend to model themselves on parents (Bianchi and Summala 2004) both for cognitive and motivational factors of driving. They may also do so in terms of temperament such as sensation-seeking (Zuckerman 1993) and aggressiveness (DiLalla 1992).

For instance, the more errors and violations exhibited by parents, the more of such specific behaviour is expected in their offspring, though this was not reflected in terms of aggressive behaviour (a possibly genetic influence) suggesting this is more through observation than predisposition (Bianchi and Summala 2004).

This was somewhat linked to family connectedness, with children who are closer to their parents less likely to commit aggressive driving violations. Hence, changing behaviour in this generation may have impact on the next generation and more long-term effects than might have been expected.

The next and final section of Part Two summarises this second section by examining the use of a few integrated theories to explain aggressive driving behaviours.

9 Theory

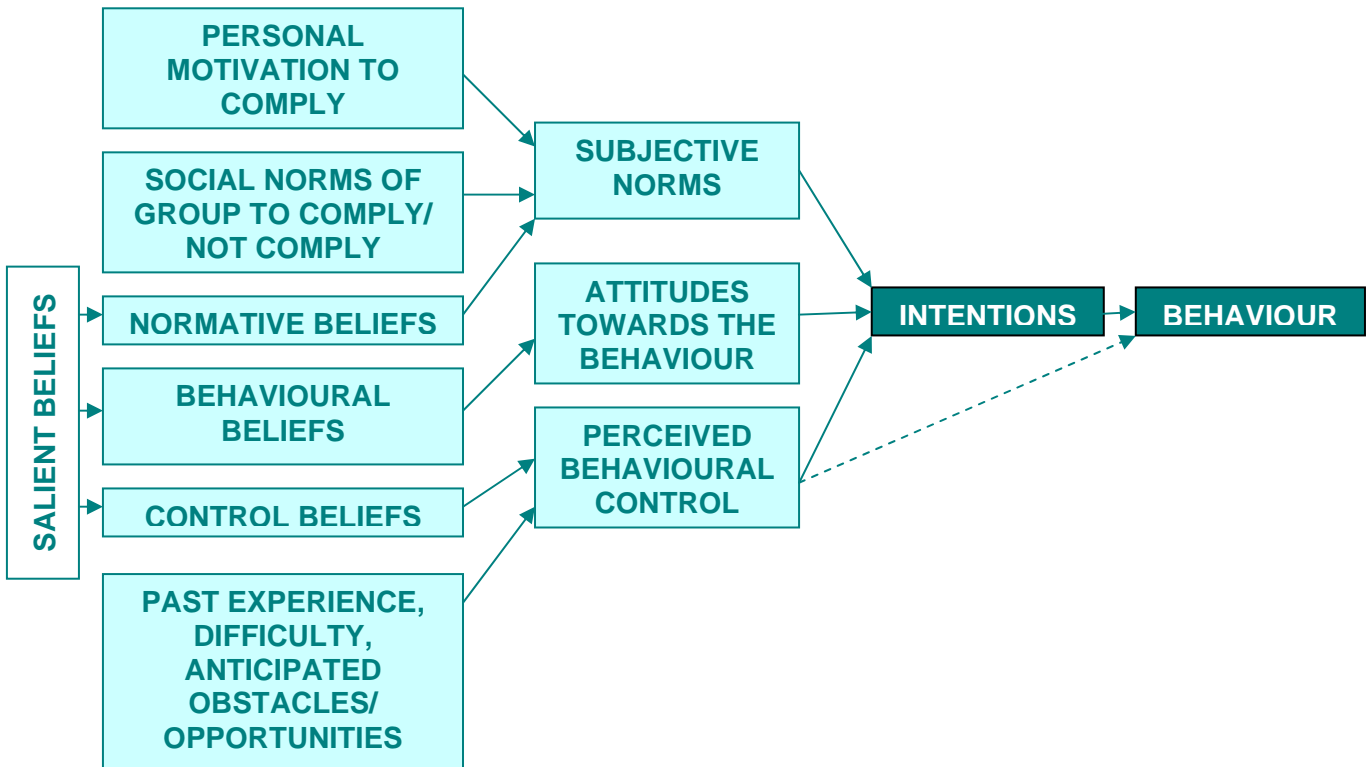
Social marketing incorporates the use of theory wherever possible, and behavioural theories are valuable tools for helping us to understand why people behave as they do and how we can guide behaviour change.

Relatively few theories have been applied to this area of interest compared to health issues such as obesity, smoking cessation and safer sexual behaviour, which means there are a number of theories that could be tested in this area and ideas we can 'borrow' from other areas.

9.1 Theory of Planned Behaviour

The Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1981; Fishbein and Ajzen 1975) and its successor, the Theory of Planned Behaviour (TPB) (Ajzen 1991) try to account for intention and behaviour by estimating the impact of social norms, normative beliefs (shaped by culture) and personal motivation on attitudes and ideas of personal norms (i.e. what is considered to be normal/desirable or acceptable behaviour amongst your peers). The TPB includes the element of perceived behavioural control to account for behaviours with incomplete volitional control.

Figure 11: Theory of Planned Behaviour



Perceived behavioural control (PBC) is roughly the same as the concept of perceived self-efficacy (PSE) (Bandura 1977; 1982). This describes one's feeling that one can perform a behaviour successfully. This can influence:

- choice of activity i.e. one that they can expect to succeed at
- preparation for an activity – to maximise chance of success e.g. having the correct equipment, finding social support, mental preparation
- effort expended during performance
- thought patterns and emotional reactions (Bandura 1982).

Conner *et al.* (2007) used the TPB across two studies, and incorporated additional elements of moral norms, anticipated regret and past behaviour to predict intention to speed and objectively measured speeding behaviour (unobtrusive speed camera). They found that they could explain 82 per cent of the variance in *intentions* by measuring attitudes, subjective norms, PBC, moral norms, anticipated regret and past behaviour, and intentions could predict 35 per cent of behaviour in a driving simulator. When translated into a real road situation, 76 per cent of variance in intentions could be predicted mostly through assessing attitudes, moral norms, anticipated regret and past behaviour, but these intentions accounted for only 17 per cent of observed driving behaviour.

These results show that theories such as TPB can be used to identify some of the contributing factors to the formation of intention and ultimately behaviour, but that they cannot account fully for the behaviour observed. Furthermore, in real life situations, although intention could largely be accounted for, actual behaviour was difficult to predict. Lastly, we note that these studies were also conducted in groups of much older participants with much longer driving careers than our young male drivers so may not take into account the issues peculiar to this group, such as peer pressure and risk taking behaviour.

The implications for you are:-

- that measuring attitudes or intention is not enough to predict behaviour
- that more work needs to be done in this area particularly for young male driving
- but that such rational decision-making models may not suit this group as emotional pressures such as peer pressure and risk-taking behaviour are prominent

Elliott *et al.* (2003; 2007) looked at speeding behaviour in built up areas.

- They reported an intention-behaviour relationship of 0.67 over three month interval and intentions and PBC accounted for 32 per cent of variance in behaviour after controlling for demographic variables
- They concluded that their study provided strong support for the TPB when used for drivers' compliance with speed limits in built up areas suggesting it may be a useful model for this study.

Moral norms are rarely used in other areas of social marketing, but dangerous driving clearly has wider consequences than just for the driver. Beck and Ajzen (1991) included perceived moral obligations in the TPB to help assess actions such as cheating on a test, shoplifting and lying, and found that this did indeed improve predictive ability.

9.2 Problem Behaviour Theory

Problem Behaviour Theory (PBT) has been promoted as an approach to adolescent risk-taking behaviours such as risky driving. Three interrelated systems that contribute to likelihood of problem behaviour are proposed

1. Personality system
2. Perceived environmental system
3. Behavioural system

Used by Bingham and Shope (2005), Jessor (1987a; 1987b), Jessor *et al.* (1991) and Wilson and Jonah (1988), there is ample evidence that the PBT provides some prediction of problem behaviours. However, Vavrik (1997) had little success applying PBT to driving behaviour. Clearly more work is required in the use of this theory.

9.3 Health Belief Model

Other models such as the Health Belief Model may be useful if adapted to the driving environment, as there are parallel example of perceived threat, risk and susceptibility combined with perceptions

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These can help us understand how the low perceived risk of reckless driving for some young male drivers contributes to lack of preventative behaviour, and the other elements in decision making that could be affected.

McKenna and Horswill 2006 propose that the unrealistic crash-risk optimism (as described by Harré 2005) may undermine this.

9.4 Social Learning Theory

We found no specific literature discussing the use of SLT in explaining aggressive driving. But we'd propose that Bandura's SLT is worthy of consideration here. SLT posits that young men will observe their older peers being socially rewarded for driving quickly and will copy this behaviour accordingly. Peer approval allows them to build a positive self identity for themselves. This identity is continuously checked for peer reaction.

10 Conclusion

The knowledge base on aggressive driving is incomplete. However, the evidence that psycho-social factors are important is reasonably compelling. This gives us the basis for social marketing solutions. Up to now, most attempts to address anti-social driving have centred on environmental or physical infrastructure, or education, or on fear appeals. But we have seen that young males from deprived backgrounds are however quite resistant to such approaches.

The use of social marketing methods other than fear appeals is still in its infancy. This report suggests that there is a strong a priori case for social marketing to address motives such as thrill seeking, status, masculinity, and perceptual issues such as risk perception, lack of empathy, and skill perceptions. Devices such as peer reflection, exchange, incentives, and creative communications require testing and further exploration.

11 References

- Aarts, L. and van Schagen, I. (2006). Driving Speed and the Risk of Road Crashes: A Review. *Accident Analysis and Prevention*, 38:215-224
- Ajzen, I. and Fishbein, M. (1981). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, NJ: Prentice-Hall
- Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behavior and Human Decision Processes*, 50: 179-211
- Aldridge, B., Himmler, M., Aultman-Hall, L and Stamatiadis, N. (1999). Impact of Passengers on Young Driver Safety. *Transportation Research Record* 1693: 25-30 (paper no.99-0710)
- Allen, J.P. and Brown, B.B. (2008). Adolescents, Peers and Motor Vehicles: The Perfect Storm? *American Journal of Preventive Medicine*, 35(3S): S289-S293
- Allen, J.P., Porter, M.R. and McFarland, C.F. (2006). Leaders and Followers in Adolescent Close Friendships: Susceptibility to Peer Influence as a Predictor of Peer Pressure, Risky Behavior and Depression. *Developmental Psychopathology*, 18: 155-172
- Allen, J.P., Porter, M.R., McFarland, C.F., Marsh, P.A. and McElhaney, K.B. (2005). The Two Faces of Adolescents' Success with Peers: Adolescent Popularity, Social Adaptation, and Deviant Behavior. *Child Development*, 76: 747-760
- Altman, I. (1975). *The Environment and Social Behavior*. Monterey, CA: Brooks/Cole
- Arnett, J.J. (1995). Sensation-Seeking, Aggressiveness, and Adolescent Reckless Behaviour. *Personality and Individual Differences*, 20(6): 693-702
- Arnett, J.J. (2002). Developmental Sources of Crash Risk in Young Drivers. *Injury Prevention*, 8(Suppl II): ii17-23
- Aultman-Hall, L. and Padlo, P. (2004). *Factors Affecting Young Driver Safety*. Storrs, C.T.: University of Connecticut Transportation Institute.
- Bandura, A. (1977a). Self-Efficacy: Toward a Unifying Theory of Behavioral Change. *Psychology Review*, 84(2):191-215
- Bandura, A. (1982). Self-Efficacy Mechanism in Human Agency. *American Psychologist*, 37(2): 122-147
- Beck, L. and Ajzen, I. (1991). Predicting Dishonest Actions using the Theory of Planned Behaviour. *Journal of Research in Personality*, 25: 285-301
- Begg, D.J. and Langley, J.D. (1999). Road Traffic Practices among a Cohort of Young Adults in New Zealand. *New Zealand Medical Journal*, 112: 9-12
- Begg, D.J. and Langley, J.D. (2004). Identifying Predictors of Persistent Non-Alcohol or Drug-Related Risky Driving Behaviours among a Cohort of Young Adults. *Accident Analysis and Prevention*, 37: 1067-1071
- Begg, D.J., Stephenson, S., Alsop, J. and Langley, J. (2001). Impact of Graduated Driving Licensing Restrictions on Crashes Involving Young Drivers in New Zealand. *Injury Prevention*, 7(4): 292-296
- Bianchi, A. and Summala, H. (2004). The "Genetics" of Driving Behaviour: Parents' Driving Style Predicts their Children's Driving Style. *Accident Analysis and Prevention*, 36: 655-659
- Bingham, C.R. and Shope, J.T. (2004a). Adolescent Developmental Antecedents of Risky Driving Among Young Adults. *Journal of Studies on Alcohol*, 65(1): 84-94
- Bingham, C.R. and Shope, J.T. (2004b). Adolescent Problem Behaviour and Problems Driving in Young Adulthood. *Journal of Adolescent Research*, 19: 205-222
- Bingham, C.R. and Shope, J.T. (2005). Adolescent Predictors of Traffic Crash Patterns from Licensure into Early Adulthood. 49th Annual Proceedings of The Association for the Advancement of Automotive Medicine (September 12-14)
- Bird, S and Tapp, A. (2008). Social Marketing and the Meaning of Cool. *Social Marketing Quarterly*, 14:1, 18 - 29

- Brehm, J.W. and Brehm S.S. (1981). *Psychological Reactance: A Theory of Freedom and Control*. New York: Academic Press
- Brehm, J.W. (1966). *A Theory of Psychological Reactance*. New York: Academic Press
- Brehm, J.W. (1989). Psychological Reactance: Theory and Applications. *Advances in Consumer Research*, 16: 72-75
- Brown, I.D. (1982). Exposure and Experience are a Confounded Nuisance in Research on Driver Behaviour. *Accident Analysis and Prevention*, 14(5): 345-352
- Carcaillon, L. and Salmi, R. (2005). Evaluation of a Programme to Reduce Motor Vehicle Collisions Among Young Adults in the County of Landes, France, *Accident Analysis and Prevention*, 37: 1049-1055
- Castella, J. and Perez, J. (2004). Sensitivity to Punishment and Sensitivity to Reward and Traffic Violations. *Accident Analysis and Prevention*, 36: 947-952
- Chen, L-H., Baker, S.P., Braver, E.R. and Li, G. (2000). Carrying Passengers as a Risk-Factor for Crashes Fatal to 16- and 17-Year-Old Drivers. *JAMA*, 283(12): 1578-1582
- Chliaoutakis, J.E., Koukouli, S., Lajunen, T. and Tzamalouka, G. (2005). Lifestyle Traits as Predictors of Driving Behaviour in Urban Areas of Greece. *Transportation Research Part F*, 8, 413-428
- Choquet, M. and Menke, H. (1987). Young People in Difficulty and the Risk of Accidents – A Longitudinal Approach. In *Young Drivers Impaired by Alcohol and Other Drugs*. Proceedings of a Symposium organised by the International Drivers' Behavior Research Association held in Amsterdam 13-15 September 1986. Royal Society of Medicine Services, London
- Christie, R. (2001). *The Effectiveness of Driver Training as a Road Safety Measure: A Review of the Literature*. Australia: Royal Automobile Club of Victoria Ltd.
- Cialdini, R., Cacioppo, J., Bassett, R. and Miller, J. (1978). Low-all Procedure for Producing Compliance: Commitment then Cost. *Journal of Personality and Social Psychology*, 36(5): 463-476
- Clapp, J.D., Lange, J.E., Russell, C., Shillington, A. and Voas, R.B. (2003). A Failed Norms Social Marketing Campaign. *Journal of Studies on Alcohol*, 64(3): 409-414
- Clark, A. and Powell, R. (1984). Changing Drivers' Attitudes Through Peer Group Decision. *Human Relations*, 37(2): 155-162
- Clarke, D.D., Forsyth, R.S. and Wright, R.L. (1999). Junction Road Accidents during Cross-Flow Turns: A Sequence Analysis of Police File Cases. *Accident Analysis and Prevention*, 31: 31-43
- Clarke, D.D., Ward, P. and Truman, W. (2005). Voluntary Risk Taking and Skill Deficits in Young Driver Accidents in the UK. *Accident Analysis and Prevention*, 37: 523-529
- Clarke, D.D., Ward, P., Bartle, C. and Truman, W. (2005). Young Driver Accidents in the UK: The Influence of Age, Experience, and Time of Day. *Accident Analysis and Prevention*, 38: 871-878
- Clarke, D.D., Ward, P.J. and Jones, J. (1998). Overtaking Road Accidents: Differences in Manoeuvre as a Function of Driver Age. *Accident Analysis and Prevention*, 30(4): 445-467
- Conner, M., Lawton, R., Parker, D., Chorlton, K., Manstead, A.S.R. and Stradling, S. (2007). Application of the Theory of Planned Behaviour to the Prediction of Objectively Assessed Breaking of the Posted Speed Limits. *British Journal Of Psychology*, 98: 429-453
- Corbett, C. (2003). *Car Crime*. In: Crime and Society Series. Willan Publishing, Devon, UK (serie Editor: Hazel Croall)
- Courtenay, W.H. (2000). Constructions of Masculinity and their Influence on Men's Well-Being: A Theory of Gender and Health. *Soc Sci Med*, 50: 1385-1401
- Crundall, D.E. and Underwood, G. (1998). Effects of Experience and Processing Demands on Visual Information Acquisition in Drivers. *Ergonomics*, 41(4): 448-458

Encouraging Road Safety Amongst Young Drivers: How can Social Marketing Help?

- Csikszentmihalyi, M. and Larson, R. (1978). Intrinsic Rewards in School Crime. *Crime and Delinquency*, 24: 322-335
- Dahlen, E.R., Martin, R.C., Ragan, K. and Kuhlman, M.M. (2005). Driving Anger, Sensation Seeking, Impulsiveness, and Boredom Proneness in the Prediction of Unsafe Driving. *Accident Analysis and Prevention*, 37(2): 341-348
- Deery, H.A. (1999). Hazard and Risk Perception among Young Novice Drivers. *Journal of Safety Research*, 30(4): 225-236
- Deshpande S., Rothschild, M. and Brooks, R. (2004). New Product Development in Social Marketing'. *Social Marketing Quarterly*, 10(3): 39-49
- Diekstra, R.F. and Kroon, M.C. (1997). Cars and Behaviour: Psychological Barriers to Fuel Efficiency and Sustainable Transport. In: R.Trolley (Ed.) *The Greening of Urban Transport: Planning for Walking and Cycling in Western Cities* (pp.147-157). Chichester: Wiley
- DiLalla, L.F. (1992). Behavior Genetics of Aggression: Review and Future Directions. *Developmental Research*, 22(4): 593-622
- Doherty, S.T., Andrey, J.C. and MacGregor, C. (1998). The Situational Risks of Young Drivers: The Influence of Passengers, Time of Day and Day of Week on Accident Rates. *Accident Analysis and Prevention*, 30(1): 45-52
- Elliott, M.A., Armitage, C.J. and Baughan, C.J. (2003). Drivers' Compliance with Speed Limits: An Application of the Theory of Planned Behaviour. *Journal of Applied Psychology*, 88: 964-972
- Elliott, M.A., Armitage, C.J. and Baughan, C.J. (2007). Using the Theory of Planned Behaviour to Predict Observed Driving Behaviour. *British Journal of Social Psychology*, 46: 69-90
- Elliott, M.R., Shope, J.T., Raghunathan, T.E. and Waller, P.F. (2006). Gender Differences among Young Drivers in the Association Between High-Risk Driving and Substance Use/Environmental Influences. *Journal of Studies on Alcohol*, 67: 252-260
- Evans, L. (1991). *Traffic Safety and the Driver*. New York: Van Nostrand Reinhold
- Family Health International (2008). Promoting RH for Young Adults through Social Marketing and Mass Media; accessed from www.fhi.org
- Farrow, J.A. (1987). Young Driver Risk Taking: A Description of Dangerous Driving Situations Among 16-19-Year-Old Drivers. *International Journal of Addiction*, 22: 1255-1267
- Fernandes, R. and Job, R.F.S. (2003). Different Factors Predict Different Risky Driving Behaviours: A Challenge to the Assumed Generalizability of Prediction and Countermeasure. Sydney, Australia: *Proceedings of 2003 Road Safety Research Policing and Education Conference*.
- Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, and Behaviour: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley
- Forsyth, E. (1992). Cohort Study of Learner and Novice Drivers, Part 1: Learning to Drive and Performance in the Driving Test. TRL Report 338. Transport Research Laboratory, Crowthorne.
- Forsyth, E., Maycock, G. and Sexton, B. (1995). Cohort Study of Learner and Novice Drivers. Part 3. Accidents, Offences and Driving Experience in the First Three Years of Driving. TRL Report 111. Transport Research Laboratory, Crowthorne.
- Fraine, G., Smith, S.G., Zinkiewicz, L., Chapman, R. and Sheehan, M. (2007). At Home on the Road? Can Drivers' Relationships with their Cars be Associated with Territoriality? *Journal of Environmental Psychology*, 27: 204-214
- Freeman, J., Davey, J. and Wishart, D. (2007). A Study of Contemporary Modifications to the Manchester Drivers Behaviour Questionnaire for Organizational Fleet Settings. In *Proceedings 3rd International Driver Behaviour and Training Conference*, Dublin, Ireland

Encouraging Road Safety Amongst Young Drivers: How can Social Marketing Help?

- French, D., West, R., Elander, J. and Wilding, J. (1993). Decision Making Style, Driving Style and Self-Reported Involvement in Road Traffic Accidents. *Ergonomics*, 36: 627-644
- Fuller, R. (2005). Towards a General Theory of Driver Behaviour. *Accident Analysis and Prevention*, 37:461-472
- Fuller, R., Bates, H., Gormley, M., Hannigan, B., Stradling, S., Broughton, P., Kinnear, N. and O'Dolan, C. (2006). Inappropriate High Speed: Who Does it and Why? Behavioural Research in Road Safety. Department for Transport.
- Fylan, F., Grunfeld, B., Conner, M. and Lawton, R. (2006). *Effective Interventions or Speeding Motorists*. Road Safety Research Report No.66. Department for Transport: London
- Glad, A. *Phase 2 Driver Education, Effect on Accident Risk*. Oslo, Norway: Transport Institute, 1988
- Gonzales, M.M., Dickinson, L.M., DiGiuseppe, C. and Lowenstein, S.R. (2005). Student Drivers: A Study of Fatal Motor Crashes Involving 16-Year-Old Drivers. *Annals of Emergency Medicine*, 45(2): 140-146
- Gregersen, N., Nyberg, A. and Berg, H. (2003). Accident Involvement among Learner Drivers: An Analysis of the Consequences of Supervised Practice. *Accident Analysis and Prevention*, 35: 725-730
- Grey, R.C., Quddus, M.A. and Evans, A. (2008). Injury Severity Analysis of ccidents Involving Young Male Drivers in Great Britain. *Journal of Safety Research*, need to confirm volume and page numbers as not on PDF
- Groeger, J.A. and Brown, I.D. (1989). Assessing One's Own and Others' Driving Ability – Influences of Sex, Age and Experience. *Accident Analysis and Prevention*, 21(2): 155-168
- Gullone, E., Moore, S., Moss, S. and Boyd, C. (2000). The Adolescent Risk-Taking Questionnaire: Development and Psychometric Evaluation. *Journal of Adolescent Research*, 15: 231-250
- Harré, N. (2000). Risk Evaluation, Driving, and Adolescents: A Typology. *Developmental Review*, 20: 206-226
- Harré, N., Brandt, T. and Dawe, M. (2000). The Development of Risky Driving in Adolscence. *Journal of Safety Research*, 31(4): 185-194
- Harré, N., Foster, S. and O'Neill, M. (2005). Self-enhancement, Crash-risk Optimism and the Impact of Safety Advertisements on Young Drivers. *British Journal of Psychology*, 96(2): 215-230
- Harrington, D.M. (1972). The Young Driver Follow-Up Study: An Evaluation o the Role of Human Factors in the First Four Years of Driving. *Accident Analysis and Prevention*, 4: 191-240
- Hartos, J.L., Eitel, P. and Simons-Morton, B.G. (2002). Parenting Practices and Adolescent Risky Driving: A Three-Month Prospective Study. *Health Education and Behavior*, 29(2): 194-206
- Hartos, J.L., Eitel, P., Haynie, D.L. and Simons-Morton, B.G. (2000). Can I Take the Car? Relations Among Parenting Practices and Adolescent Problem Driving Practices. *Journal of Adolescent Research*, 15(3): 352-367
- Hartos, J.L., Nissen, W.J. and Simons-Morton, B.G. (2001). Acceptability of the Checkpoints Parent-Teen Driving Agreement: Pilot Test. *American Journal of Preventive Medicine*, 21(2): 138-141
- Hasselberg, M. and Laflamme, L. (2008). Road Traffic Injuries Among Young Car Drivers by Country of Origin and Socioeconomic Position. *International Journal of Public Health*, 53: 40-45
- Hasselberg, M., Vaez, M. and Laflamme, L. (2005). Socioeconomic Aspects of the Circumstances and Consequences of Car Crashes among Young Adults. *Social Science and Medicine*, 60: 287-295
- Hastings, G., Stead, M. and Webb, J. (2004). Fear Appeals in Social Marketing: Strategic and Ethical Reasons for Concern. *Psychology and Marketing*, 21(11): 961-986

Encouraging Road Safety Amongst Young Drivers: How can Social Marketing Help?

- Horswill, M.S., Waylen, A.E. and Tofield, M.I. (2003). Drivers' Illusions of Superiority for Hazard Perception and Vehicle Control Skill. *Behavioural Research in Road Safety*, 12th Seminar. Pp.234-238
- Hutchinson, T. (2008). *Road Courtesy and Road Safety*. Centre for Automotive Safety Research, Aus.
- Hutton, K.A., Sibley, C.G., Harper, D.N. and Hunt, M. (2002). Modifying Driver Behaviour with Passenger Feedback. *Transportation Research Part F*, 4: 257-269
- Insurance Institute for Highway Safety's Status Report (2001). *Viewpoint: 'Auto-Safety: Enforcement, Not Education, Works'*. Insurance Institute for Highway Safety, US
- Irwin Jr., C.E. (1993). Adolescence and Risk-Taking: How are they Related? In: Bell, N.J., Bell, R.W. eds. *Adolescent Risk-Taking*. Newbury Park, CA: Sage Publications. Pp. 7-28
- Jackson, L., Chapman, P. and Crundall, D. (2008). What Happens Next? Predicting Other Road Users' Behaviour as a Function of Driving Experience and Processing Time. *Ergonomics* (need vol and page)
- Jessor, R., Donovan, J.E. and Costa, F. (1996). Personality, Perceived Life Chances and Adolescent Behavior. In: Hurrelman, K. and Hamilton, S.F. eds.. *Social Problems and Social Contexts in Adolescence*. New York, NY: Aldine de Gruyter. P.219-233
- Jessor, R. (1987a). Risky Driving and Adolescent Problem Behavior: An Extension of Problem-Behavior Theory. *Alcohol Drugs Driving*, 3: 1-11;
- Jessor, R. (1987b). Risky Driving and Adolescent Problem Behavior: Theoretical and Empirical Linkage. In: Benjamin, T. (ed.) *Young Drivers Impaired by Alcohol and Other Drugs*. London: Royal Society of Medicine Services. Pp.97-110
- Jessor, R., Donovan, J.E. and Costa, F.M., (1991). *Beyond Adolescence: Problem Behaviour and Young Adult Development*. New York: Cambridge University Press
- Jonah, B.A., Thiessen, R. and Au-Yeung, E. (2001). Sensation Seeking, Risky Driving and Behavioral Adaptation. *Accident Analysis and Prevention*, 33: 679-684
- Jones, B. (1993). *The Effectiveness of Skid-Car Training for Teenage Novice Drivers in Oregon*. Salem, OR: Drive and Motor Vehicle Services.
- Kaplan, H.B., Johnson, R.J. and Bailey, C.A. (1987). Deviant Peers and Deviant Behavior: Further Elaboration of a Model. *Social Psychology Quarterly*, 50: 277-284
- Keall, M.D., Frith, W.J. and Paterson, T.L. (2004). The Influence of Alcohol, Age and Number of Passengers on the Night-time Risk of Driver Fatal Injury in New Zealand. *Accident Analysis and Prevention*, 36: 49-61
- Keating, D. and Halpern-Fisher, B. (2008). Adolescent Drivers: a Developmental Perspective on Risk, Proficiency, and Safety'. *American Journal of Preventive Medicine*, 35(3S): 272-277
- Ker, K., Roberts, I., Collier, T., Beyer, F., Bunn, F. and Frost, C. (2005). Post-License Driver Education for the Prevention of Road Traffic Crashes: A Systematic Review of Randomised Controlled Trials. *Analysis and Prevention*, 37: 305-313
- King, K.A., Vidourek, R.A., Love, J., Wegley, S. and Alles-White, M. (2008). Teaching Adolescents Safe Driving and Passenger Behaviours: Effectiveness of the *You Hold the Key* Teen Driving Countermeasure. *Journal of Safety Research*, 39: 19-24
- Krahe, B. and Fenske, I. (2002). Predicting Aggressive Driving Behaviour: The Role of Macho Personality, Age and Power of Car. *Aggressive Behaviour*, 28: 21-29
- Laflamme, L., Vaez, M., Hasselberg, M. and Kullgren, A. (2005). Car Safety and Social Differences in Traffic Injuries among Young Adult Drivers: A Study of Two-Car Injury-Generating Crashes in Sweden. *Safety Science*, 43(1): 1-10
- Lajunen, T. and Summala, H. (2003). Can We Trust Self-Reports of Driving? Effects of Impression Management on Driver Behaviour Questionnaire Responses. *Transportation Research, Part F*, 6, 97-107

- Lam, L.T. (2002). Distraction and the Risks of Car Crash Injury: The Effect of Drivers' Age. *Journal of Safety Research*, 33: 411-419
- Lawton, R., Parker, D., Stradling, S. and Manstead, A. (1997). The Role of Affect in Predicting Social Behaviours: The Case of Road Traffic Accidents. *Journal of Applied Social Psychology*, 27: 1258-1276
- Levy, D.T. (1988). The Effects of Driving Age, Driver Education, and Curfew Laws on Traffic Fatalities of 15-17 Year Olds. *Risk Analysis*, 8(4): 565-570
- Lewis, I.M., Watson, B., Tay, R. and White, K.M. (2007a). The Role of Fear Appeals in Improving Driver Safety: A Review of the Effectiveness of Fear-Arousing (Threat) Appeals in Road Safety Advertising. *International Journal of Behavioural and Consultation Therapy*, 3(2): 203-222
- Lewis, I.M., Watson, B., White, K.M. and Tay, R. (2007b). Promoting Public Health Messages: Should We Move Beyond Fear-Evoking Appeals in Road Safety? *Qualitative Health Research*, 17(1): 61-74
- Lin, M-L. and Fearn, K.T. (2003). The Provisional License: Nighttime and Passenger Restrictions – A Literature Review. *Journal of Safety Research*, 34: 51-61
- Machin, M.A. and Sankey, K.S. (2008). Relationships between Young Drivers; Personality Characteristics, Risk Perceptions, and Driving Behaviour. *Accident Analysis and Prevention*, 40: 541-547
- Maggs, J.L., Almeida, D.M. and Galambos, N.L. (1995). Risky Business: The Paradoxical Meaning of Problem Behaviour for Young Adolescents. *Journal of Early Adolescence*, 15: 344-362
- Malmberg, T. (1980). *Human Territoriality: Survey of Behavioural Territories in Man with Preliminary Analysis and Discussion of Meaning*. New York: Mouton
- Matthews, M.L. and Moran, A.R. (1986). Age Differences in Male Drivers' Perception of Accident Risk: The Role of Perceived Driving Ability. *Accident Analysis and Prevention*, 18(4): 299-313 (Abstract)
- Mayhew, D.R., Simpson, H.M., Williams, A.F. et al. (1998). Effectiveness and Role of Driver Education and Training in a Graduated Licensing System. *Journal of Public Health Policy*, 19: 51-67
- McKenna, F.P. and Crick, J.L. (1991). *Hazard Perception in Drivers: A Methodology for Testing and Training: Final Report*. Crowthorne, UK: Transport Research Laboratory.
- McKenna, F.P. and Horswill, M.S. (1999). Hazard Perception and its Relevance for Driver Licensing. *Journal of the International Association of Traffic and Safety Sciences*, 23(1): 26-41
- McKenna, F.P. and Horswill, M.S. (2006). Risk Taking from the Participants' Perspective: The Case of Driving and Accident Risk. *Health Psychology*, 25(2): 163-170
- McKenna, F.P. (1993). It Won't Happen to Me: Unrealistic Optimism or Illusion of Control? *British Journal of Psychology*, 84: 39-50
- McKenna, F.P., Stanier, R.A. and Lewis, C. (1991). Factors Underlying Illusory Self-Assessment of Driving Skill in Males and Females. *Analysis and Prevention*, 23(2): 45-52
- McKnight, A.J. and McKnight, A.S. (2003). Young Novice Drivers: Careless or Clueless? *Accident Analysis and Prevention*, 35:921-925
- McKnight, A.J. and Peck, R.C. (2002). Graduated Driving Licensing: What Works? *Injury Prevention*, 30: 217-222
- Moffitt, T.E. (1993). Adolescence-Limited and Life-Course Persistent Antisocial Behavior: A developmental Taxonomy. *Psychological Review*, 10(4): 674-701.
- Møller, M. (2004). An Explorative Study of the Relationship between Lifestyle and Driving Behaviour among Young Drivers. *Accident Analysis and Prevention*, 36: 1081-1088
- Monarrez-Espino, J., Hasselberg, M. and Laflamme, L. (2006). First Year as a Licensed Car Driver: Gender Differences in Crash Experience. *Safety Science*, 75-85

Encouraging Road Safety Amongst Young Drivers: How can Social Marketing Help?

- MRUK Ltd., (2005). *Creative Development and Evaluation of the SRSC Young Driver Campaign 2005*. Research Findings No. 211, Scottish Executive.
- Murray, A. (1998). The Home and School Background of Young Drivers Involved in Traffic Accidents. *Accident Analysis and Prevention*, 30: 169-182
- Musselwhite, C. (2006). Attitudes towards Vehicle Driving Behaviour: Categorising and Contextualising Risk. *Accident Analysis and Prevention*, 38: 324-334
- OECD (2006). *Young Drivers: The Road to Safety*. Organisation for Economic Co-operation and Development (OECD), Paris
- OECD (2006). *Young Drivers: The Road to Safety*. Organisation for Economic Co-operation and Development (OECD), Paris
- Parker, D. (1991). Intentions to Violate. In: Grayson, G.B. (Ed.), *Behavioural Research in Road Safety*. Transport Research Laboratory, Crowthorne
- Parker, D., Reason, J.T., Manstead, A.S.R. and Stradling, S. (1995). Driving Errors, Driving Violations and Accident Involvement. *Ergonomics*, 38: 1036-1048
- Patil, S.M., Shope, J.T., Raghunathan, T.E. and Bingham, C.R. (2006). *Traffic Injury Prevention*, 7(4): 328-334
- Pechmann, C. 2001. *Changing Adolescent Smoking Prevalence: Impact of Advertising Interventions*. The National Cancer Institute, Smoking and Tobacco Control Monograph No.14, Chapter 10 (online).
<http://cancercontrol.cancer.gov/tcrb/mongrahs> (accessed November 5, 2007).
- Pelz, D.C. and Krupat, E. (1974). Caution Profile and Driving Record of Undergraduate Males. *Analysis and Prevention*, 6: 45-58
- Preusser, D.F., Ferguson, S.A. and Williams, A.F. (1998). The Effects of Teenager Passengers on the Fatal Crash Risk of Teenager Drivers. *Accident Analysis and Prevention*, 30: 217-222
- Preusser, D.F., Ferguson, S.A., Williams, A.F., Leaf, W.A. and Farmer, C.M. (1998). Teenage Driver Licensure Rates in Four States. *Journal of Safety Research*, 29(2): 97-105
- Preusser, D.F., Williams, A.F. and Lund, A.K. (1985). Parental Role in Teenage Driving. *Journal of Youth and Adolescence*, 14(2): 73-84
- Preusser, D.F., Williams, A.F., Lund, A.K. and Zador, P.L. (1990). City Curfew Ordinances and Teenage Motor Vehicle Injury. *Accident Analysis and Prevention*, 22(4): 391-397
- Preusser, D.F., Williams, A.F., Zador, P.L. and Blomberg, R.D. (1984, January). The Effect of Curfew Laws on Motor Vehicle Crashes. *Law and Policy*, 6(1): 115-128
- Preusser, D.F., Zador, P.L. and Williams, A.F. (1993). The Effect of City Curfew Ordinances on Teenage Motor Vehicle Fatalities. *Accident Analysis and Prevention*, 25(5): 641-645
- Quimby, A.R., Maycock, G., Carter, I.D., Dixon, R. and Wall, J.G. (1986). *Perceptual Abilities of Accident-Involved Drivers*. Research Report 27. Transport and Road Research Laboratory, Crowthorne, UK
- Reason, J., Manstead, A., Stradling, S.G., Baxter, J. and Campbell, K. (1990). Errors and Violations: A Real Distinction? *Ergonomics*, 33: 1315-1332
- Rhodes, N., Brown, D. and Edison, A. (2005). Approaches to Understanding Young Driver Risk Taking. *Journal of Safety Research*, 36: 497-499
- Roberts, I. and Kwan, I. (2002). Cochrane Injuries Group Driver Education Reviewers. *School-Based Driver Educations for the Prevention of Traffic Crashes [Cochrane Review]*. The Cochrane Library, Issues 1. Oxford, UK
- Rossiter, J. and Thornton, J. (2004). Fear Pattern Analysis Supports the Fear Drive Model for Antispeeding Road Safety TV Ads. *Psychology and Marketing*, 21(11): 945-960
- Sabey, B.E. and Taylor, H. (1980). *The Known Risks We Run: The Highway Transport and Road Research Laboratory Supplementary Report 567..* Crowthorne, UK: Transport Research Laboratory.

- Sandqvist, A. (1997). *The Appeal of Automobiles: Human Desires and the Proliferation of Cars*. Stockholm: Communications Research Board.
- Schmid Mast, M., Sieverding, M., Esslen, M., Graber, K. and Jäncke, L. (2008). Masculinity Causes Speeding in Young Men. *Accident Analysis and Prevention*, 40: 840-842
- Schoenbachler, D. D. and Whittler, T. E. (1996). Adolescent Processing of Social and Physical Threat Communications. *Journal of Advertising* 25: 37–54
- Senserrick, T., (2006), Reducing Young Driver Road Trauma: Guidance and Optimism for the Future. *Injury Prevention*, 12: 56-60
- Shope, J.T. (2006). Influences in Youthful Driving Behaviour and their Potential for Guiding Interventions to Reduce Crashes. *Injury Prevention*, 12(i): i9-i14
- Shope, J.T., Raghunathan, T.E and Patil, S.M. (2003). Examining Trajectories of Adolescent Risk Factors as Predictors of Subsequent High-Risk Driving Behavior. *Journal of Adolescent Health*, 32: 214-224
- Silbereisen, R.K. and Reitzle, M. (1992). On the Constructive Role of Problem Behavior in Adolescence: Further Evidence on Alcohol Use. In: Lipsitt, L.P. and Mitnick, L.L. eds. *Self-regulatory Behavior and Risk Taking: Causes and Consequences*. Norwood, NJ: Ablex Publishing. Pp.199-217
- Simons-Morton, B.G. and Hartos, J.L. (2002a). Application of the Authoritative Parenting Model to Adolescent Health Behavior. In: DiClemente, R., Crosby, R. and Kegler, M. (Eds.). *Emerging Theories in Health Promotion Practice and Research*. San Francisco, CA: Jossey-Bass
- Simons-Morton, B.G. and Hartos, J.L. (2002b). *How Well Do Parents Manage Young Drivers? Paper Presented at a Symposium on Graduated Driver Licensing: Documenting the Science of GDL, Chatham, MA*
- Simons-Morton, B.G. and Hartos, J.L. (2003). How Well do Parents Manage Young Driver Crash Risks? *Journal of Safety Research*, 34: 91-97
- Simons-Morton, B.G., Lerner, N. and Singer, K. (2005). The Observed Effects of Teenage Passengers on the Risky Driving Behaviour of Teenage Drivers. *Accident Analysis and Prevention*, 37: 973-982
- Smith, W.A. (2006). Social Marketing: An Overview of Approach and Effects. *Injury Prevention*, 12(Suppl I): i38-i43
- Smith, W.A. (2006). Social Marketing: An Overview of Approach and Effects. *Injury Prevention*, 12: 38-43
- Sobel, R. and Underhill, R. (1976). Family Disorganisation and Teenage Auto Accidents. *Journal of Safety Research*, 8: 8-18
- Spear, L.P. (2000). The Adolescent Brain and Age-Related Behavioral Manifestations. *Neuroscience and Behavioral Reviews*, 24: 417-463
- Stead, M. and Eadie, D. (2007). *Evaluation of Foolspeed Campaign*. Transport Research Series: Scottish Executive.
- Stradling, S. and Meadows, M. (2000). Young Driver Attitudes. In: Proceedings of the DETR Novice Driver Conference, Swallow Royal Hotel, Bristol, 1 and 2 June
- Stradling, S. (2000). Drivers who Speed. *Impact*, 9:38-41
- Sümer, N. (2003). Personality and Behavioral Predictors of Traffic Accidents: Testing a Contextual Mediated Model. *Accident Analysis and Prevention*, 35: 949-964
- Tanner, J. F., Hunt, J. B. and Eppright, D. R. (1991). The Protection Motivation Model: A Normative Model of Fear Appeals. *Journal of Marketing*, 55: 36–45.
- Taylor, M.C., Lynam, D.A. and Baruya, A. (2000). The Effects of Drivers' Speeds on the Frequency of Road Accidents (TRI, Report 421). Crowthorne, Berkshire, Transport Research Laboratory
- Telliczek, K. (2004). The Illogic of Youth Driving Culture. *Journal of Youth Studies*, 7(4): 473-498
- Tronsmoen, T. (2008). Associations Between Self-Assessment of Driving ability, driver training and crash involvement among young drivers, Transportation Research Part F 11 p334-346

Encouraging Road Safety Amongst Young Drivers: How can Social Marketing Help?

- Ulleberg (2001). Personality Subtypes of Young Drivers. Relationship to Risk-Taking Preferences, Accident Involvement, and Response to a Traffic Safety Campaign. *Transportation Research Part F: Psychology and Behaviour*
- Ulleberg, P. and Rundmo, T. (2003). Personality, Attitudes and Risk Perception as Predictors of Risky Driving Behavior among Young Drivers. *Safety Science*, 41(5): 427-443
- Ulmer, R.G., Williams, A.F. and Preusser, D.F. (1997). Crash Involvements of 16-Year-Old Drivers. *Journal of Safety Research*, 28(2): 97-103
- Urry, J. (1999). *Automobility, Car Culture and Weightless travel*. Lancaster University: Department of Sociology. Retrieved November 1, 2008, from <http://www.comp.lancs.ac.uk/sociology/soc008ju.html>
- Vaez, M. and Laflamme, L. (2005). Impaired Driving and Motor Vehicle Crashes among Swedish Youth: An Investigation into Drivers' Sociodemographic Characteristics. *Accident Analysis and Prevention*, 37(4): 605-611.
- Vassallo, S., Smart, D. Sanson, A., Cockfield, S., Harris, A., McIntyre, A., and Harrison, W.(2007). Risky Driving Among Australian Drivers II: Co-Occurrence with Other Problem Behaviours. *Accident Analysis and Prevention*, 40: 376-386
- Vassallo, S., Smart, D. Sanson, A., Harrison, W., Harris, A., Cockfield, S. McIntyre, A. (2007). Risky Driving Among Australian Drivers: Trends, Precursors and Correlates. *Accident Analysis and Prevention*, 39: 444-458
- Vavrik, J. (1997). Personality and Risk-Taking: A Brief Report on Adolescent Male Drivers. *Journal of Adolescence*, 20: 461-465
- Vernick, J.S., Li, G., Ogaitis, S., MacKenzie, E.J., Baker, S.P. and Gielen, A.C. (1999). Effects of High-School Driver Education on Motor Vehicle Crashes, Violations, and Licensure. *American Journal of Preventive Medicine*, 16: 40-46
- Waller, P.F., Elliott, M.R., Shope, J.T., Raghunathan, T.E. and Little, R.J.A. (2000). Changes in Young Adult Offense and Crash Patterns over Time. *Accident Analysis and Prevention*, 33(2): 117-128
- Watson, A. and Hutchinson, C. (2006). *Department for Transport – Thinking Like a Brand: How a Brand Idea Drove Down Road Casualties*. IPA Effectiveness Awards, IPA
- Wechsler, H., Nelson, T., Lee, J., Seibring, M., Lewis, C. and Keeling, R. (2003). Perception and Reality: A National Evaluation of Social Norms Marketing Interventions to Reduce College Students' Heavy Alcohol Use. *Journal of Studies on Alcohol*, July: 484-494
- West, R. and French, D. (1993). Direct Observation of Driving, Self-Reports of Driver Behaviour and Accident Involvement. *Ergonomics*, 36(5): 557-567
- Whittam, K.P., Dwyer, W.O., Simpson, P.W. and Leeming, F.C. (2006). Effectiveness of a Media Campaign to Reduce Traffic Crashes Involving Young Drivers. *Journal of Applied Social Psychology*, 36(3): 614-628
- Williams, A.F. and Ferguson, S.A. (2004). Driver Education Renaissance? *Injury Prevention*, 10: 4,7
- Williams, A.F. and Preusser, D.F. (1997). Night Driving Restrictions for Youthful Drivers: A Literature Review and Commentary. *Journal of Public Health Policy*, 18: 334-345
- Williams, A.F. (1985). Nighttime Driving and Fatal Crash Involvement of Teenagers. *Accident Analysis and Prevention*, 17(1): 1-5
- Williams, A.F., Lund, A.K. and Preusser, D.F. (1985). *Graduated Licensing: A Blueprint for North America*. Arlington, VA: Insurance Institute for Highway Safety; Ottawa, Ontario, Canada: Traffic Injury Research Foundation
- Wilson, M. and Daly, M. (1985). Competitiveness, Risk Taking, and Violence: The Young Male Syndrome. *Ethology and Sociobiology*, 6: 59-73
- Wilson, D. and Daly, M. (1993). Lethal Confrontational Violence among Young Men. In: Bell, N.J., Bell, R.W. eds. *Adolescent Risk Taking*. Newbury Park, CA: Sage Publications. Pp. 84-106

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- Wilson, J.J. and Jonah, B.A. (1988). The Application of Problem Behavior Theory to the Understanding of Risky Driving. *Alcohol Drugs Driving*, 4: 173-191
- Wolburg, J. (2006). Denial, Defiance, and Other Boomerang Effects. *Journal of Consumer Affairs*, 40(2): 294-323
- Woolley, J. (2000). In-Car Driver Training at High Schools: A Literature Review. Walkerville, South Australia: Transport SA, Safety Strategy, 2000
- Zuckerman, M. (1991). Sensation Seeking: the Balance Between Risk and Reward. In: Lipsitt, L.P. and Mitnick, L.L. eds. *Self-regulatory Behavior and Risk Taking: Causes and Consequences*. Norwood, NJ: Ablex Publishing. Pp.143-152
- Zuckerman, M. (1993). P-impulsive Sensation Seeking and its Behavioral Psychophysiological and Biochemical Correlates. *Neuropsychobiology*, 28(1-2): 30-36
- Zuckerman, M. (1994). *Behavioral Expressions and Biosocial Bases of Sensation Seeking*. Cambridge: University of Cambridge Press