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Australian Transport Safety Bureau

**ATSB RESEARCH AND ANALYSIS REPORT
ROAD SAFETY RESEARCH GRANT B2001/0342**

May 2006

Beliefs and Attitudes about Speeding and its Countermeasures

**Julie Hatfield and R.F. Soames Job
School of Psychology
University of Sydney**



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Beliefs and Attitudes about Speeding and its Countermeasures

Author(s)

Julie Hatfield and R.F. Soames Job

Performing Organisation

School of Psychology
University of Sydney

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Australian Transport Safety Bureau
PO Box 967, Civic Square
ACT 2608 Australia
www.atsb.gov.au

Project Officer: John Collis

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Abstract

Speeding substantially reduces road safety, and despite efforts to reduce speeding it remains the norm. This research surveyed licenced drivers in metropolitan Sydney, regional NSW, and rural NSW on their attitudes, experience and behaviour in relation to speeding. A significant group (24.0%) of respondents reported being likely to speed “under typical conditions in the middle of the day”.

Self-reported speeding was less likely under poor conditions and near schools, and more likely in situations where it has clear benefits and is perceived as unlikely to result in crashing or being booked. Self-reported speeding was more likely amongst respondents who were male, younger, more educated, and single, and who had held their license for a shorter period.

Respondents recognized that speeding poses a threat to safety, and acceptance of current speed limits and penalties for speeding was relatively high.

The research recommends that campaigns aim to identify that speeding is likely to result in crashing or being penalised, and encourage social disapproval of speeding. In particular, campaigns should address the perception that speeding can be safe under any circumstances.

Keywords

Speeding, self-reported speeding, driver attitudes, driver beliefs, speed risks.

Notes

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Postal address: PO Box 967, Civic Square ACT 2608
Office location: 15 Mort Street, Canberra City, Australian Capital Territory
Telephone: 1800 621 372; from overseas + 61 2 6274 6590
Facsimile: 02 6274 6474; from overseas + 61 2 6274 6474
E-mail: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

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EXECUTIVE SUMMARY

BACKGROUND AND AIMS

Speeding substantially reduces road safety, and despite efforts to reduce speeding it remains the norm. The present research aims to fill critical gaps in the information required for the development and implementation of effective countermeasures.

A schema of the requirements for an effective countermeasure may be gleaned from the success of RBT which has been an extremely effective countermeasure for drink-driving, partly because it has changed social attitudes (Prabhakar, Lee & Job, 1994).

However, we continue to rely on increasing fines and demerit points to deter motorists from speeding, and normative and attitudinal factors are barely employed to counter speeding. Indeed, our understanding of beliefs and attitudes about speeding and its countermeasures in the Australian setting is incomplete, although Mitchell-Taverner and associates have collected much relevant data.

Research in other countries suggests a range of attitudes and beliefs that may be important to speeding, is often methodologically flawed and may not apply to the Australian situation.

Many reasons for speeding may be captured under the rubric of “risk utility”. That is, people may speed because it often has a value; either indirect, as in the case of speeding because of being in a hurry, or direct, as when drivers speed for the thrill of it.

In some cases, though, motorists may speed because they underestimate the negative consequences of speeding for themselves and others. Drivers often think that they can speed safely. Further, drivers often underestimate the risk that speeding poses to themselves in comparison to drivers otherwise like themselves, and this may influence their tendency to speed.

Typically, enforcement influences speeding. However, again, drivers’ underestimation of their chances of being booked for speeding (in absolute and relative terms) may reduce the value of fines/demerit as deterrents. Indeed, drivers believe in and use a range of techniques to avoid being booked for speeding. Motorists’ opinion as to the appropriateness of speed limits and corresponding penalties is likely to influence their decision to speed. If people perceive fines for speeding as mere revenue collection (yet to be tested) they may be less likely to adhere to regulations. A survey of people’s opinions on this matter would be timely and useful.

The present study aimed to further the understanding of speeding in Australia, in order to establish social feasibility of penalties, and barriers to behaviour change, to aid development of appropriate countermeasures.

We investigated various reasons for speeding, including the perceived likelihood of crash or detection, perceived appropriateness of various speed limits, of various levels of fines/demerit points for speeding, and of various methods of enforcement, as well as various attitudes toward speeding, speeding countermeasures, and speeding drivers. Associations of these variables with personal characteristics (e.g. age, gender, licence class) were also examined. Where possible, results were compared to similar data collected in 1993, and to other published data.

METHODOLOGY

Participants were sampled from 3 areas: metropolitan Sydney, regional centres in NSW (Newcastle and Wollongong), and rural NSW (Dubbo and Queanbeyan- chosen partly because they were expected to have a high rate of business). In metropolitan Sydney, RTA motor registries were selected to represent the 5 major metropolitan geographic regions identified by the NSW RTA, to achieve a broad range in socioeconomic status, and to have a high rate of business. There is only one motor registry in each of the regional centres and rural areas.

Pairs of researchers attended RTA motor registries during peak times (e.g. lunchtimes), and positioned themselves on the footpath immediately outside registry grounds. Researchers approached everyone who was entering the registry, and introduced the survey on attitudes to driving. Researchers asked the person to help by completing a survey while waiting in the registry. Only licensed drivers were given the questionnaire. Completed questionnaires were collected when participants left the registry, and participants who had not finished completing their questionnaires were given a stamped, return-addressed envelope and encouraged to complete and return the questionnaire.

A self-completion survey was designed on the basis of relevant literature to address the study aims, and of pilot results from a sample of Psychology 1 students. The survey [see **Appendix A**] assessed participants' frequency of speeding, frequency of speeding for a particular reason, experience of a speed-related crash and of having been booked for speeding in the last 2 years, perceived crash risk of speeding, risk of being booked for speeding, relative risk of crashing or being booked for speeding, perceived relative safety and skill, and beliefs about, and attitudes toward, speeding and countermeasures for speeding. The questionnaire also assessed personal characteristics and demographics.

Ethics approval was sought from and authorised by The University of Sydney Human Ethics Committee (See **Appendix B**). The field team and interviewers were briefed and trained in the methodology that they would employ.

RESULTS AND DISCUSSION

THE FREQUENCY OF SPEEDING UNDER VARIOUS CONDITIONS

Respondents reported being moderately likely to speed: 24.0% of respondents reported being likely to speed "under typical conditions in the middle of the day".

Self-reported likelihood of speeding was significantly reduced under poor conditions (wet, night, winding road). Respondents generally reported being unlikely to speed near a school.

Sydney, regional and rural respondents did not differ in terms of self-reported likelihood of speeding.

REASONS FOR SPEEDING

Results suggest that risk utility plays a role in speeding. Compared to the situation “under typical conditions in the middle of the day”, self-reported speeding was significantly more likely in situations in which it has some indirect benefit. Relatively high self-reported likelihood of speeding was observed for the situations: “you need to overtake”, “you are in a hurry to get to an appointment”, “to avoid an accident”. Keeping up with traffic did not appear to add substantially to the motivation to speed, although it has been identified as a factor for speeding in previous research (Kanellaidis et al., 1995; Parker et al., 1992).

Direct benefits do not seem to be a prominent reason for speeding. Low self-reported likelihood of speeding was observed for the situations “you want to impress others” and “to compete with other drivers”, although socially desirable responding may have distorted these results.

Results also suggest a role of risk perception. That is, compared to the situation “under typical conditions in the middle of the day”, self-reported speeding was significantly more likely in situations in which it may be perceived as less likely to result in a crash (e.g. you know the road very well) or to result in being booked (e.g. you need to overtake- a situation in which many respondents thought they could not be booked).

PERCEIVED BENEFITS AND USE OF TECHNIQUES FOR AVOIDING DETECTION

WHILE SPEEDING.

In the Sydney sample, a small but meaningful number of respondents (>5.0%) reported engaging in practices to reduce their chances of being booked while speeding. These were: “slowing down when you see police or a camera”, “speeding if the traffic around you is speeding”, “taking back streets”, and “avoiding known locations of police or cameras”. In regional centres, “taking back streets” and “slowing down when you see police or a camera” were the most commonly reported practices. “Driving at certain times of the day” was also practiced by 6.9% of the Sydney sample and 5.0% of the rural sample, with the most common and consistent times being early morning, at night, and in the middle of the day.

Sydney respondents were significantly more likely than regional and rural respondents to report “slowing down when you see police or a camera”, “speeding if the traffic around you is speeding”, and “avoiding known locations of police or cameras”.

All practices, except “driving in certain lanes”, were perceived to be effective by 45-50% of the sample. Generally there were no area differences in the perceived effectiveness of the practices, except that Sydney respondents were more likely to perceive “avoiding known locations of police or cameras” as effective. Thus, area differences in use of these practices are likely to arise from something other than their perceived effectiveness (e.g. tendency to adhere to the law, social norms etc.).

Further, campaigns which have stressed that several of these practices have no impact on the likelihood of being booked (e.g. road position, speeding with a column of cars) have been minimally effective.

EXPERIENCE WITH DETECTION, AND INVOLVEMENT IN ROAD CRASHES DUE TO SPEEDING

The rate of self-reported speed-related crashes was low in each sample (though Sydney respondents were less likely to report having had a speed-related crash than both regional and rural respondents). However, these results do not include crashes (perceived to be) caused by another driver speeding. Around 20% of each sample reported having been booked for speeding (with no differences between Sydney, regional, and rural respondents).

In fact rates may be somewhat different, because respondents are unlikely to have perfect recall, and the main reason for including these variables was to check their association with likelihood of speeding.

Respondents who reported having had a crash because they were speeding did not differ from those who did not in terms of self-reported likelihood of speeding. In contrast, respondents who reported having been booked for speeding had higher self-reported likelihood of speeding than those who did not. These results are consistent with the possibility that people who speed more often are more likely to be booked.

PERCEIVED CRASH RISK OF SPEEDING

Generally, respondents seemed to recognise that speeding poses a threat to safety.

Speed was identified as the most important cause of serious car crashes. Further, a substantial proportion of the sample named it as the second or third most important cause.

Sydney respondents were significantly less likely than regional respondents to name speeding as the first most important cause, apparently mostly reflecting regional respondents' emphasis on this factor. In contrast, Sydney respondents were significantly more likely than rural respondents to name speeding, apparently mostly reflecting rural respondents' greater emphasis on fatigue.

Around 55-60% of fatal crashes in the year prior to the survey were estimated to be caused by speeding. In fact, this is an overestimate of the official figure for NSW (between 40-50% for the past several years), and suggests that campaigns that identify speed as a major factor in crashes are working.

The vast majority of the sample responded affirmatively to the question "Do you believe that exceeding the speed limit increases the risk of having a car crash on a clear, dry day?" Between 10-20% of respondents believe that speeding *does not* increase crash risk under these circumstances.

A large proportion of respondents agreed that the crash risk posed by speeding is worsened at night, and in heavy traffic. Wet conditions were almost uniformly recognised to worsen the crash risk posed by speeding, so imposition of a variable speed limit (lower under wet conditions) may be acceptable to the public. Sydney respondents were less likely than regional respondents to view heavy traffic as worsening crash risk, but did not differ from rural respondents.

Respondents who reported thinking that speeding increases the chances of having a crash on a clear dry day reported being less likely to speed (overall), than those who did not. This result is consistent with the view that perceived risk inhibits risky behaviour.

Respondents estimated how many km/hr above a 50km/hr, a 60km/hr, and a 100km/hr speed limit they would have to drive to double their crash risk (compared to driving at the speed limit).

A significant linear increase in the estimated speed over the limit was observed across the 50 km/hr, 60 km/hr, and 100 km/hr speed zone. For the 50km/hr zone the average response was approximately 25km/hr, for the 60km/hr zone it was 25km/hr, and for the 100km/hr zone it was 30km/hr. All of these estimates are significantly greater than the scientific estimates of 5km/hr for 60 km/hr speed zones and 10 km/hr for 100 km/hr speed zones.

Estimates were significantly greater in Sydney than in regional centres. Sydney did not differ significantly from rural areas, although the Sydney means were consistently non-significantly greater.

The estimated number of km/hr above a 60km/hr than a driver would have to drive to double crash risk (compared to driving at the speed limit), was not significantly associated with self-reported likelihood of speeding.

A sizeable proportion of each sample agreed with each of the statements “speeding can be safe for a skilful driver” and “speeding can be safe under some circumstances”, in keeping with many respondents’ perception that speeding does not pose a significant risk on a clear, dry day.

Agreement with these views was associated with higher self-reported likelihood of speeding. One possible interpretation of this finding is that drivers who believe that it can be safe to speed are more likely to do so.

42.0% of the sample agreed with the notion that modern cars make speeding safer. This is concerning because drivers may speed due to thinking that they are safe in a modern car.

Safety considerations appear to play a role in the decision to speed for most respondents. Interestingly, the safety of passengers and of other road users was more likely to be identified as an important factor in the decision to speed than was personal safety. This may reflect some influence of social desirability on responding, or perceived personal invulnerability.

Nonetheless, 21.5% of respondents admitted sometimes feeling uncomfortable at the speeds they drive.

PERCEIVED RISK OF DETECTION WHEN SPEEDING

Overall, a substantial proportion of respondents estimated that *when* speeding their chances of being booked were either “even” or unlikely. Thus, it may be of value to promote the view that detection is more likely (especially given that it may be a more effective deterrent than the possibility of a crash, which people are more likely to deny; see Job, 1988).

A small but meaningful proportion of the sample believed that they *cannot* be booked for speeding when: exceeding the speed limit by no more than 10%, it is an emergency, overtaking, or driving downhill. Further, respondents may think that a police officer may overlook the offence even though it *could* be penalised. Promotion of the idea that tolerance levels are lower than 10% would have to be vague to avoid creating a defacto speed limit above the posted figure, and would thus be unlikely to be persuasive. However, promotion of the irrelevancy of the other situations to the likelihood of being booked may be of value.

Sydney respondents thought they were less likely to be booked by police in a moving patrol vehicle than did rural respondents, and less likely to be booked while speeding downhill than did regional respondents.

Perceived likelihood of detection was not significantly associated with self-reported likelihood of speeding.

PERCEIVED RELATIVE RISK OF CRASHING OR BEING BOOKED AND PERCEIVED RELATIVE SAFETY AND SKILL

Consistent with a large body of literature on “optimism bias” (also referred to as “illusory invulnerability”), and specific findings that drivers believe that they are less likely to have a crash than their average peer (Finn and Bragg, 1986), respondents judged their chances of having a crash *due to speeding* as being significantly “lower than average”. Judgements were in a direction inconsistent with optimism bias for being booked (in contrast to the findings of Job et al., 1995). Respondents’ ratings of their driving safety and skill compared to their average peer demonstrated self-enhancing bias, consistent with earlier findings (safety: Job et al., 1995; skill: Job et al., 1995; Matthews and Moran, 1995).

Sydney respondents showed greater optimism bias than regional respondents in terms of both outcomes, and greater optimism bias than rural respondents only in terms of not being booked. Sydney respondents demonstrated lower self-enhancing bias regarding driving safety than did rural respondents.

Perceived *relative* likelihood of detection *was* significantly associated with self-reported likelihood of speeding. The greater the extent to which people thought they were less likely than average to be booked was associated with greater self-reported likelihood of speeding under typical conditions. The other self-enhancing biases were not significantly associated with self-reported likelihood of speeding.

NORMATIVE VALUES REGARDING SPEEDING DRIVERS

Respondents identified how much over the speed limit a driver would have to drive in order to be regarded as stupid, irresponsible, criminal, or a potential murderer, for a 50km/hr, a 60km/hr, and a 100km/hr zone.

Unsurprisingly, more derogatory descriptors consistently required a greater speed above the limit. The linear increase was observed across descriptors for each of the speed limit zones considered.

A significant linear increase in the number of km/hr over the speed limit was observed across zones for each of the descriptors (stupid, irresponsible, criminal, and potential murderer). Thus, there appears to be a greater tolerance for speeding, as the speed limit increases.

Sydney respondents did not differ significantly from regional respondents for any zone/description combination, but appeared to be less tolerant of speeding drivers than rural respondents for 5 of 12 zone/description combinations. This is consistent with Sydney respondents being more likely than rural respondents to identify speeding as the most important cause of serious crashes.

There was some evidence for an association between normative values and self-reported likelihood of speeding. That is the more tolerant of speeding respondents were (in terms of requiring a driver to exceed a 60km/hr speed limit by a larger number of km/hr before considering the driver to be “stupid” or “a potential murderer”, the more likely to speed they reported being. These results are consistent with the view that being tolerant of speeding increases the likelihood of doing it, *as well as* the view that speeding increases tolerance of speeding.

PERCEIVED APPROPRIATENESS OF SPEED LIMITS AND PENALTIES

53.8% of Sydney respondents rated the limit in familiar 40km/hr zones as too low, and were significantly more likely than both regional respondents and rural respondents to do so. Only 28.7% of regional and 13.8% of rural respondents rated the limit in familiar 40km/hr zones and too low.

Approximately 46% of respondents rated the limit in familiar 50km/hr zones as too low.

Taken together, these findings suggest that regional and rural respondents are more tolerant of school zones, perhaps because of having to drive through fewer of them.

“Just right” was clearly the modal response in regard to the 60km/hr and 100km/hr limit in Sydney and regional centres. 83.0% of rural respondents felt that the limit in familiar 60km/hr zones was “just right”. Only 59.6% of rural respondents rated the limit in familiar 100km/hr zones as “just right”, while 36.2% felt this limit was “too low”. Thus, again, rural respondents appear to be more tolerant of high speeds.

Perceived appropriateness of penalties was not associated with self-reported likelihood of speeding.

PERCEIVED APPROPRIATENESS OF PENALTIES FOR SPEEDING

Very few respondents judged the \$115 and 1 demerit point penalty for exceeding the speed limit by no more than 15km/hr to be “too harsh”, although 25.2% of the sample judged it to be “too lenient”. Thus, there may be some scope for increasing this penalty.

Approximately 11.5% of respondents judged the \$184 and 3 demerit point penalty for exceeding the speed limit by between 15km/hr and 30km/hr to be “too harsh”, whereas, approximately 17.7% of the sample judged it to be “too lenient”. Thus, increasing this penalty may also not be too problematic.

In contrast, the more severe penalty (\$514 and 4 demerit points) for exceeding the speed limit by between 30km/hr and 45km/hr is viewed less favourably. 34% of respondents viewed this penalty as being “too harsh”, and only 15.1% of respondents regarded the \$514 and 4 demerit point penalty as “too lenient”. Thus, an increase in this penalty is unlikely to be well regarded.

BELIEFS ABOUT, AND ATTITUDES TOWARD, SPEEDING AND ITS COUNTERMEASURES

Approximately 63.6% of respondents agreed that demerit points were a consideration (compared to around 19.5% reporting that they were not), and approximately 67.8% agreed that the fine was a consideration. Nonetheless, greater proportions identified safety considerations as important.

Between 12 and 21% disagreed that penalties for speeding are genuinely intended to deter speeding and promote road safety, and around 35% of the sample felt that penalties are just revenue raising. Stronger endorsement of the latter view was associated with greater self-reported likelihood of speeding.

A majority of the sample agreed with serious countermeasures for serious speeding offenders (caught exceeding the speed limit by more than 45km/hr). A court appearance was supported by approximately 77.5% of the sample (and opposed by approximately 10.0%). Thus, such a countermeasure would probably be acceptable to the public. The compulsory fitting of devices to govern cars to “a certain speed” was supported by approximately 55.2%, although a sizeable proportion of the sample opposed this countermeasure (approximately 23.9%). Given that these

figures are not dissimilar to those observed for the existing practice of doubling demerit points during holiday periods (59.5% in favour, and 20.4% against), this countermeasure may also be acceptable. With a speed governor fitted, in order to speed a driver would have to tamper with the governor, and thus spontaneous or unintentional speeding would be eliminated.

Stronger support for compulsory fitting of speed governors for serious speeding offenders was associated with lower self-reported speeding likelihood. This may indicate that people with negative attitudes toward speeding are both less likely to do it, and more likely to support heavy penalties for those who do it.

ASSOCIATIONS WITH DEMOGRAPHIC VARIABLES AND INDICATORS OF EXPOSURE

Males were significantly more likely than females to report speeding, gave a greater estimate of the number of km/hr over a 60km/hr speed limit required to double the chance of crashing, required that a driver be exceeding a 60km/hr speed limit by a greater number of km/hr to be termed stupid or irresponsible, and gave greater estimates of their driving skill relative to average. Males agreed more strongly than females with the attitudes “speeding can be safe for a skilful driver” and “penalties for speeding are just revenue raising”, whereas females agreed more strongly than males with the attitudes “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety” and “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars”. Thus, on the whole, results concurred with previous findings that, compared to females, males have more risky attitudes and behaviours when it comes to driving.

Age was significantly negatively associated with self-reported likelihood of speeding, suggesting that younger people are more likely to speed. Younger people were also more likely to deny that speeding increases the risk of a crash on a clear dry day, and required that a driver be exceeding a 60km/hr speed limit by a significantly greater number of km/hr to be regarded as stupid. Thus, on the whole, results concurred with previous findings that younger drivers have more risky attitudes and behaviours (than older drivers). The possibility of getting a fine appeared to be a stronger deterrent for younger than older drivers (possibly because of their typically lower financial resources). Younger drivers agreed more strongly than older drivers with the statement “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety”, perhaps reflecting a youthful lack of cynicism, or cognitive dissonance with their reported consideration of fines.

Compared to non-English speakers, English speakers were less likely to agree with the attitude “penalties for speeding are just revenue raising”, and more likely to agree with the attitude “demerit points for speeding should be doubled during holiday periods”.

More educated respondents reported being more likely to speed, gave a greater estimate of the number of km/hr over a 60km/hr speed limit required to double the chance of crashing, agreed more strongly with the statements “speeding can be safe for a skilful driver” and “speeding can be safe in some circumstances”, and agreed less strongly with the attitude: “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety”, perhaps reflecting a greater scepticism regarding authorities. However, education was significantly negatively associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed irresponsible or criminal. Thus, whilst people with higher education appear to speed more themselves, and are more likely to view speeding as safe, they also appear to be less tolerant of other speeding drivers (than less educated people).

Occupation was significantly associated with self-reported likelihood of speeding (across a range of circumstances, and in typical conditions in particular). The modal response for respondents working in sales was “likely”, for respondents in professional or managerial positions was “even chance”, and for respondents in the remaining occupations was “unlikely”. Occupation was also significantly associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed stupid or irresponsible. This was also substantially higher for respondents in sales (reflecting a higher tolerance for speeding) than for respondents in other occupations.

Speeding appeared to be most likely amongst single respondents and least likely amongst separated/divorces respondents. Tolerance for speeding drivers was uniformly greater amongst widowed respondents.

Respondents who drove company cars were consistently more likely to be more tolerant of speeding.

Respondents who had held their licences for a longer period reported being less likely to speed than those who had held them for a shorter period. Clearly, this variable is confounded with age, and it is not clear whether experience, age per se, or both, influence speed likelihood. Length of licensure was significantly associated with agreement with “passenger safety is an important factor in my decision to speed”, and “demerit points for speeding should be doubled during holiday periods.”

Respondents who reported a greater number of driving hours per week estimated a greater number of km/hr over a 60km/hr speed limit to roughly double the chance of crashing, perhaps due to having greater exposure to crash-free speeding. Consistent with this view (and experience-based theories of self-enhancing biases), they were also more biased in terms of their relative likelihood of being booked for speeding, and their relative driving skill.

Self-enhancing bias in relation to driving skill appeared to be greatest amongst holders of P2 (GLS) licences, and disqualified drivers, and lowest amongst holders of old style P licences.

RECOMMENDATIONS

- 1) In campaigns, continue to identify speeding as a major factor in road crashes, but do not publicise actual figures.
- 2) In campaigns, make the message that 5km/hr above the speed limit doubles the chance of a casualty crash the basis of social disapproval of drivers who exceed the limit by greater amounts.
- 3) Consider the issue of zero tolerance.
- 4) Conduct further research regarding perceived likelihood of detection for speeding. In particular:
 - a. Peoples’ beliefs about when and how detection for speeding may be avoided;
 - b. Peoples’ attitudes toward covert enforcement.

- 5) Target campaigns to address the perception that speeding can be safe under some circumstances (especially for younger drivers), and the consequent lack of credibility for some speed zones.
 - a. Variable speed limit signage should be trialed;
 - b. Send the message that skill is not a reason for speeding.
- 6) Target campaigns toward increasing the social disapproval of speeding.
- 7) There is no need to reduce fines, which are not generally perceived as excessive (despite media coverage to the contrary).
- 8) Consider the potential benefits of court appearances, and compulsory fitting of speed governors, for serious speeding offenders (caught exceeding the speed limit by more than 45km/hr).

BACKGROUND

Speeding represents a significant factor in road trauma. For example, in NSW in 1999 speeding was implicated in 1/6 of all crashes, and in 1/3 of crashes involving fatality (NSW RTA, 1999). Speeding not only causes crashes directly, but also increases the likelihood of a crash occurring due to another proximal cause (e.g. because of failure to stop in time when another vehicle illegally crosses the path of a speeding vehicle), as well as the likelihood of serious injury or death in the event of a crash. Research indicates that reductions in average or median driving speed of 2 to 5 km/hr can result in reductions in injury and fatal accidents of up to 30% (e.g. Christensen, 1981; Kloeden, McLean, Moore, & Ponte, 1997; Nilsson, 1981; Salusjarvi, 1981, 1988).

Despite efforts to reduce speeding, it remains the norm, with extremely high detection rates, crash involvement attribution rates, and self-reported rates (Lee, Prabhakar & Job, 1993). For example, in a survey conducted in 2002, 29% respondents report exceeding the speed limit by at least 10kmph at least sometimes (Mitchell-Taverner, Zipparo, and Goldsworthy, 2003).

Thus, it is important to road safety that countermeasures for speeding be effective. The present research aims to fill critical gaps in the information required for the development and implementation of effective countermeasures.

A schema of the requirements for an effective countermeasure may be gleaned from the history of several other behaviours that have been regarded as major problems for road safety: drink driving, non-restraint, and fatigue. The most effective countermeasures for these behaviours have been based on systematic research of beliefs and attitudes about the behaviour and possible countermeasures, rather than on forceful campaigns in the absence of such research. For example, RBT was introduced in NSW partly on the basis of the finding that drivers thought they could avoid detection by being “good” drink-drivers. Constant research-based refinements of RBT, such as campaigns designed to counter observed views that RBT could be avoided by using back streets, or that RBT is rare, maintained its effectiveness in NSW and elsewhere. In addition, RBT has been an extremely effective countermeasure for drink driving, partly because it has changed social attitudes (Prabhakar, Lee & Job, 1994). Whereas drink driving was previously regarded as acceptable, it is now regarded by many as a negligent or criminal behaviour.

These lessons have still not been adequately applied to countermeasures for speeding. We continue to rely on increasing fines and demerit points to deter motorists from speeding. However, we have not yet implemented the type of deterrents involving extreme inconvenience and embarrassment that may be an effective component of RBT: immediate loss of driving privileges, and having the matter dealt with publicly in court. Normative and attitudinal factors are barely employed to counter speeding. Indeed, our understanding of beliefs and attitudes about speeding and its countermeasures in the Australian setting is incomplete.

The *Community Attitudes to Road Safety* telephone survey series (1986-) has provided much of the information we have about speeding in Australia. This survey suggests a growing awareness of the dangers of speeding, in terms of the extent to which it is perceived to contribute to road crashes (Mitchell-Taverner, 2002). The survey also assesses self-reported speeding behaviour, and various attitudes toward speeding, including “it is okay to speed if you are speeding safely”. Beliefs about speed enforcement tolerances, the perceived need for speed enforcement, and opinions about penalties (e.g. “fines for speeding are mainly intended to raise revenue”) are also assessed. Recently, Taverner, Zipparo, and Goldsworthy (2003) also conducted a study focusing on perceived enforcement tolerances, acceptability of penalties, as well as frequency of speeding and some speeding-related attitudes.

The present study aimed to further the understanding of speeding in Australia established by these studies, in order to establish social feasibility of penalties, and barriers to behaviour change, to aid development of appropriate countermeasures.

REASONS FOR SPEEDING

Research in other countries suggests a range of attitudes and beliefs that may be important to speeding (e.g. Aberg, Larsen, Glad, & Beilinson, 1997; Parker, Manstead, Stradling, & Reason, 1992), which, along with earlier Australian data (Lee et al., 1993), provide a basis for our survey. However, relevant research is often methodologically flawed and may not apply to the Australian situation. For example, Parker et al. (1992) investigated attitudes toward speeding under particular conditions. However, subjects were asked to assume that they were in fact speeding before responding to questions about the behaviour, and the possible effects of this assumption on their responses (e.g. via cognitive dissonance) were not considered. Further, these British data may not apply in the Australian setting. Relevant Australian studies have not examined the full range of factors that may affect speeding.

Risk utility

Many reasons for speeding may be captured under the rubric of “risk utility” (see Jonah, 1986). Indeed, speeding is characterised as “difficult to resist” (Parker et al., 1992), because it often has a value. Sometimes, this value may be indirect, as in the case of speeding because of being in a hurry (e.g. Kanellaidis, Golias, & Zarifopoulos, 1995; Lee et al., 1993), or to get to one’s destination more quickly (Parker et al., 1992), or to keep up with the traffic (Kanellaidis et al., 1995; Parker et al., 1992). Alternatively, speeding may be valued for its own sake. For example, certain drivers may speed for the thrill of it, to “let off steam”, or to impress passengers (Kanellaidis et al., 1995; Lee et al., 1993). In such cases speeding may characterise a more general “risky behaviour syndrome” (Jonah, 1990), and Wasielewski (1984) demonstrated that speeding has similar correlates to other risky driving behaviors such as close following.

Underestimation of risk

In some cases, however, motorists may speed because they do not realise the risk they are taking by doing so. That is, motorists often underestimate the negative consequences of speeding for themselves and others, and this may promote speeding (Aberg et al., 1997; Kanellaidis et al., 1995; Lawton, Parker, Stradling, & Manstead, 1997; Parker et al., 1992). For example, drivers typically underestimate the stopping distance that is possible at a range of speeds and, in NSW, recent campaigns are targeting this misperception. Further, drivers think that they can speed safely (Kanellaidis et al., 1995).

Drivers may underestimate the risk that speeding poses in comparison to other risky driving practices. Parker et al. (1992) found that speeding is perceived to put lives in danger to a lesser extent than drink-driving, close following or dangerous overtaking. Following various campaigns in Australia, speeding is likely to be perceived as one of the riskier driving practices.

Drivers may underestimate the risk that speeding poses to themselves in comparison to drivers otherwise like themselves. Illusory invulnerability refers to the typical finding that people estimate their chance of experiencing a range of negative events to be lower than that of their average peer (Weinstein, 1980, 1989). For example, people estimate that they are less likely to have a car crash as a driver than is their average peer (Finn and Bragg, 1986). They also judge that they are less likely to be booked for speeding (Job, Hamer, & Walker, 1995). Perhaps they also think that they are less likely to crash due to speeding. A similar superiority bias is evident in the findings that

young male drivers believe themselves to be more skilled drivers than average (Job et al., 1995; see also Matthews and Moran, 1986), whereas young female drivers perceive themselves to be safer drivers than average (Job et al., 1995).

Several models of health-relevant behaviour (e.g. the Health Beliefs Model, Janz & Becker, 1984; The Theory of Planned Behaviour: Ajzen & Fishbein, 1980) include perceived risk as a determinant, and experimental findings suggest that perceived relative risk (and thus illusory invulnerability) is at least as important as perceived personal risk in determining health relevant behaviours (Klein, 1997). Illusory invulnerability regarding aspects of road use has been found to be negatively associated with self-reported adoption of precautionary behaviours (e.g. seat-belt use: Job et al., 1995).

We investigated the extent to which these reasons for speeding apply in the Australian context, and to whom, so that interventions may be designed and targeted appropriately.

PERCEPTION OF ENFORCEMENT

Typically, enforcement influences speeding (e.g. Aberg et al., 1997; Armour, 1984; Shinar & McKnight, 1985).

However, the value of fines or demerit as deterrents is likely to be undermined by motorists judging themselves as unlikely to be detected speeding (see Kanellaidis et al., 1995; Parker et al., 1992), and as less likely than their peers to be booked for speeding (Job et al., 1995; see also DeJoy, 1989). Indeed, drivers believe in and use a range of techniques to avoid being booked for speeding.

Various features of enforcement may influence its efficacy. For example, different levels of fine and demerit are likely to have different levels of deterrent effect. Overseas, de Waard and Rooijers (1994) found that higher levels of driver apprehension, and on-view stopping and ticketing, achieved greater reductions in speeding than lower levels of apprehension and mailing of fines on the basis of the car's licence plate. Recent analyses suggest the same may apply in Australia (Job, 2000). However, the intensities and methods of enforcement varied systematically with speed limit and traffic flow, making these results difficult to interpret.

Compliance with regulations is directly related to their perceived appropriateness. Thus, motorists' opinion as to the appropriateness of speed limits is likely to influence their decision to speed (see Parker et al., 1992). Road conditions influence motorists' judgments of the degree to which speeding is acceptable (Lawton et al., 1997), and so presumably also their judgment of the appropriateness of speed limits. The perceived appropriateness of the speed limit is also likely to relate to the acceptability of penalties, and the perception of fines for speeding as mere revenue collection may be associated with lack of compliance.

There has been substantial public debate regarding the likely effectiveness of governing the speed limit of vehicles, and the acceptability of such a measure. At a minimum, it seems sensible to govern the speeds of vehicles to the maximum speed allowed on the country's roads. A more thoroughgoing possibility would be "adaptive" speed governing systems that respond to local limits. It might be possible to tamper with speed governing devices. However, especially in the case of adaptive speed governing systems, speeding would become a behaviour that a driver needs to anticipate and unintentional or spontaneous speeding would be eliminated. Nonetheless, several arguments have been mounted against the proposal to introduce speed governing (such as the need to accelerate to avoid a crash). A survey of people's opinions on this matter would be

timely and useful.

We investigated the perceived likelihood of detection, perceived appropriateness of various levels of fines/demerit points for speeding (including current levels) and of various methods of enforcement, and the perceived appropriateness of various speed limits under various conditions.

SOCIAL NORMS

Social norms are included in several models of health-relevant behaviour. That is, peoples' behaviour appears to be influenced by their expectations about what other people think about it. Thus, prevailing social attitudes are important determinants of behaviour. Perhaps central to the efficacy of RBT was its influence on peoples' attitudes to drink-drivers. In research examining the efficacy of RBT, respondents were asked how they would classify a habitual drink driver who is involved in a serious crash (unlucky, stupid, irresponsible, criminal, or a potential murderer). Amongst male drivers, there was a significant decrease in the proportion of respondents describing the drink-driver as "unlucky" from pre-RBT (22.4%) to after RBT (8.6% in 1993). Amongst female drivers, there was a significant increase in the proportion of respondents describing the drink-driver as "criminal" or "a potential murderer".

We assessed motorists' perceptions of a speeding driver.

INFLUENCE OF DEMOGRAPHIC VARIABLES ON SPEEDING AND RELEVANT PERCEPTIONS

It is well recognised that young drivers are over-represented in road crash statistics (Williamson, 2000). Whilst this may be in part due to their lack of driving experience, evidence suggests that it relates more to the tendency of young people to take risks (perhaps because of its perceived utility) (Jonah, 1986). Our sample included individuals who do not yet have a full licence, as well as motorists who have been licensed for a broad range of years.

Thus, our survey assessed how speeding behaviour, and related beliefs and attitudes, change with age and driving experience.

There appear to be various differences between drivers from rural and metropolitan areas, in terms of road safety behaviours and attitudes.

Thus, our survey included drivers from Metropolitan Sydney as well as regional and rural NSW.

COMPARISON WITH EARLIER RESEARCH

Our survey included questions based on research from other countries. We also employed questions from a survey conducted in 1993 (Lee et al., 1993), in order to assess how speeding behaviour and attitudes toward speeding and its countermeasures have changed. Other questions were based on the literature relating to RBT, although direct parallels are not always possible due to differences from speeding. For example, speeding differs from RBT in that it is often possible to detect whether other drivers are speeding, and this has been shown to influence whether one chooses to speed (Aberg et al., 1997; Connolly and Aberg, 1993). Further, speeding is a behaviour one can decide on while driving, whereas drink-driving is determined before one gets in the car.

In particular, we aimed to assess:

1. The frequency of speeding under various conditions (e.g. urban vs. rural roads, day vs. night, dry vs. wet).
2. Reasons for speeding (e.g. to get to appointments on time, impressing others, thrill).
3. Perceived benefit, and use, of techniques for avoiding detection while speeding.
4. Experience with detection, and involvement in road crashes due to speeding.
5. Perceived contribution of speeding to the road safety problem.
6. Perceived risk of crash/injury when exceeding the speed limit by 15km/hr.
7. Perceived risk of crash when speeding under various conditions (e.g. urban vs. rural roads, day vs. night, dry vs. wet).
8. Perceived risk of detection when speeding under various conditions by camera vs. police beside the road vs. moving radar.
9. Perceived appropriateness of speed limits (e.g. 40km/hr, 50km/hr, 60km/hr).
10. Perceived appropriateness of fines/demerits for speeding to various extents.
11. Attitudes such as “fines are revenue collection”, “speeding is safe for a skilful driver”.
12. Acceptability of speed governors for various motorist populations.
13. Indicators of exposure: length of licensure, hours of driving per week.
14. Demographic variables: age, gender, socioeconomic status, car ownership, education, ethnicity, marital status.
15. Relationships of
 - 1 with 4, 6, 8, 9, 10, 11, and 12
 - 1, 4, 6, 8, 9, 10, 11, and 12, with 13 and 14.

DESIGN

Participants were sampled from 3 types of location: metropolitan Sydney, regional centres in NSW (Newcastle and Wollongong), and rural NSW (Dubbo and Queanbeyan).

Two sampling techniques were employed: a self-completion survey administered at NSW RTA motor registries, and a telephone survey. However, analysis reported in “Report on Methodology: Beliefs and attitudes about speeding and its countermeasures: Comparison of motor registry and telephone survey samples”, suggested that respondents sampled from registries may be more representative of the general driving population and less subject to social desirability effects. Thus, the present report focuses on the registry sample.

METHODOLOGY

SAMPLING AND PARTICIPANTS

In metropolitan Sydney, RTA motor registries were selected to represent the 5 major metropolitan geographic regions identified by the NSW RTA (North Sydney, South Sydney, Eastern Sydney, Western Sydney and City Central; see www.rta.nsw.gov.au) and to achieve a broad range in socioeconomic status. Motor registries that were likely to have a high rate of business were preferred for the sake of efficient data collection. There is only one motor registry in each of the regional centres and rural areas. Dubbo and Queanbeyan were chosen partly because they were considered likely to have a high rate of business. All people entering the grounds of the motor registry were approached. People who were approached for the survey were told that the survey was being conducted in several areas of Sydney for the University of Sydney, and was about attitudes to driving. It was explained that they had been selected at random and that all of their responses would be confidential. The researcher checked that potential respondents were licensed and at least 17 years before asking them to complete the survey while they waited for service in the registry. They were told that the survey would take about 20 minutes to complete. If a respondent was unable to complete the survey in this time, they were asked to complete the survey in their own time and offered a stamped, addressed envelope in which to return the completed survey. Incomplete surveys were accepted from respondents who seemed unlikely to return and complete the survey.

People who indicated that they did not have a licence were excluded from the sample.

MATERIALS

A self-completion survey was designed on the basis of relevant literature to assess the variables relevant to the aims identified in **Aims Section**.

A draft survey was piloted in a sample of Psychology 1 students, and several refinements were made.

The final self-completion survey [see **Appendix A**] assessed participants' frequency of speeding, frequency of speeding for a particular reason, experience of a speed-related crash and of having been booked for speeding in the last 2 years, perceived crash risk of speeding, risk of being booked for speeding, relative risk of crashing or being booked for speeding, perceived relative safety and skill, and beliefs about, and attitudes toward, speeding and countermeasures for speeding. The questionnaire also assessed personal characteristics and demographics.

Before participants were asked anything explicitly related to speeding they were asked to identify "the three most important causes of serious car crashes" (Q1). This question gives an indication of the extent to which speed is perceived as a risk, with the possibility of demand characteristics minimised.

Next, participants reported how likely they would be to exceed the speed limit in 23 situations (e.g. “typical conditions in the middle of the day”, “you know the road very well”, “you feel like a thrill”) (Q2). Response options were very unlikely, unlikely, even chance, likely, or very likely. An overall *likelihood of speeding index* was computed by averaging scores across all 23 situations. Internal consistency of this scale was high (Chronbach’s alpha= .949, and was not increased by excluding any of the items). Several indices of *speeding for a particular reason* were computed by averaging across subsets of situations with similar characteristics (e.g. speeding for its utility: “you need to overtake”, “you are in a hurry to get to an appointment”, “you feel like a thrill”, “to keep up with traffic”, “you need to blow off steam, to impress others”, “to compete with other drivers and vehicles”, “to get through an amber traffic light”, “to avoid an accident”). These will be further detailed in the **Results Section**. Some of the situations included in the frequency of speeding scale were also included in a perceived crash risk question (e.g. Q5: “at night”), or a beliefs about countermeasures question (e.g. Q11: “driving downhill”).

Later in the questionnaire, participants indicated whether each of several methods for avoiding being booked when speeding [see Table 1] are effective, and which they use.

Table 1: Methods for avoiding being booked when speeding

If you take back streets
At certain times of day
If the traffic around you is speeding
You avoid places where you know there are police or cameras
If you only drive in certain lanes
If you slow down when you see police or a camera

Participants indicated whether they had ever had a crash because they were speeding (henceforth “*speed-related crash*”) and whether they had been *booked for speeding* in the last 2 years.

Perceived crash risk of speeding was assessed with the questions: “Of all fatal crashes last year, what percentage do you think would have been caused by speeding?” (Q3) and “Do you believe that exceeding the speed limit increases the risk of having a car crash on a clear dry day?” (Q5). Participants also indicated whether this risk increased under a number of circumstances (e.g. “at night”, “in heavy traffic”). Participants identified how many km/hr over the speed limit would double the chances of crashing on a clear dry day (compared to driving at the speed limit) for the 50km/hr, 60km/hr, and 100km/hr zones (Q6).

The *perceived risk of being booked for speeding* was assessed with the question: “When you are exceeding the speed limit how likely are you to be detected by a) police on the side of the road with a radar; b) an automatic speed detection camera (not being directly operated by police; c) police in a moving patrol vehicle with a radar?” (Q10). Response options were very unlikely, unlikely, even chance, likely, or very likely. Participants also indicated whether the risk of being booked decreased under a number of circumstances (e.g. “if you take back streets”, “if you avoid places where you know there are police or cameras”, “if you only drive in certain lanes”), and whether they use these circumstances to avoid being booked (Q12).

Perceived relative risk of crashing or being booked and perceived relative safety and skill was assessed by participants comparing themselves to their average driving peer in terms of these variables (Q8).

Response options were: much lower than average, lower than average, about the same as average, higher than average, much higher than average.

Normative values, and attitudes, regarding speeding were assessed in several questions. First, for the 50km/hr, 60km/hr, and 100km/hr zones separately, participants identified how many km/hr over the speed limit a driver would have to drive to be considered a) stupid; b) irresponsible; c) criminal; d) a potential murderer (Q7). This question is similar to that used in the evaluation of the efficacy of RBT in changing social attitudes toward drink driving (see Prabhakar, Lee & Job, 1994). Participants also rated their agreement with a number of statements expressing attitudes toward speeding (Q16) [see Table 2].

Beliefs about, and attitudes toward, countermeasures for speeding were also assessed in a number of ways. First, participants estimated how likely they would be to be booked by various detection methods (very unlikely, unlikely, even chance, likely, or very likely). They then indicated whether they thought they could be booked for speeding in a number of situations which may be ambiguous: “you are exceeding the speed limit by no more than 10%”, “you are exceeding the speed limit in order to overtake”, “it is an emergency”, “you are exceeding the speed limit while driving downhill” (Q11).

Participants rated the appropriateness of the speed limit in 40km/hr, 50km/hr, 60km/hr, and 100km/hr zones they know (Q14; Response options: much too low, too low, just right, too high, much too high), and of the penalties for exceeding the speed limit by no more than 15km/hr, by between 15km/hr and 30km/hr, and by between 30km/hr and 45km/hr (Q15; Response options: too harsh, about right, too lenient). Participants also rated their agreement with a number of statements expressing attitudes toward countermeasures for speeding (Q16) [see Table 2].

Participants identified which age and gender they think are targeted by speed campaigns (Q17).

Remaining questions (Q18-31) assessed personal characteristics and demographics: driving exposure (hours spent driving each week, years licensed), licence class, details of car driven most frequently (make, model, year, ownership), postcode, highest level of education attained, employment status, occupation, language spoken at home, marital status, having children aged under 16 and over 16, age category, gender.

Table 2: Statements expressing attitudes toward speeding and countermeasures for speeding, with which respondents rated their agreement

Speeding can be safe for a skilful driver
I sometimes feel uncomfortable at the speeds I drive
My safety is an important factor in my decision about whether to exceed the speed limit or not
The possibility of losing demerit points is an important factor in my decision about whether to speed or not
The possibility of getting a fine is an important factor in my decision about whether to speed or not
Penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety
People who are caught exceeding the speed limit by more than 45km/hr, should have to appear in court
Speeding can be safe in some circumstances
Modern cars significantly reduce the risk of having a crash and being injured due to speeding
The safety of my passengers is an important factor in my decision about whether to exceed the speed limit or not
The safety of other road users is an important factor in my decision about whether to exceed the speed limit or not
Penalties for speeding are just revenue raising
People who are caught exceeding the speed limit by more than 45 km/h should have to have speed governors fitted to their cars (<i>a speed governor is a device which makes it impossible for a car to go over a certain speed</i>)
Demerit points for speeding should be doubled during holiday periods.

PROCEDURE

Ethics approval was sought from and authorised by The University of Sydney Human Ethics Committee (See **Appendix B**). The field team and interviewers were briefed and trained in the methodology that they would employ. Fieldwork was conducted between May and December 2001. All materials were marked with the location at which they were handed out.

Researchers attended selected registries during peak times (e.g. lunchtimes) to achieve efficient data collection. Researchers worked in pairs, and carried a mobile telephone at all times.

They positioned themselves on the footpath immediately outside registry grounds and approached everyone who was entering the registry. They introduced themselves and the survey and asked the person to help by completing a survey while waiting in the registry. People who

agreed were asked whether they had a licence. Only licensed drivers were given the questionnaire, and asked to see the researcher on the way out of the registry regardless of whether they had finished completing it. Completed questionnaires were collected. People who had not finished completing their questionnaires were given a stamped, return-addressed envelope and encouraged to complete and return the questionnaire. The part-completed questionnaire was taken if the person indicated that they were unlikely to complete and return it.

RESULTS

Data were analysed employing SPSS. A Type 1 error rate of .05 was employed for all analyses, and all tests were conducted 2-tailed, unless otherwise indicated.

SOURCES OF SAMPLE

Table 3 indicates the number of complete or near complete surveys obtained at registries in Metropolitan Sydney, NSW regional centres, and rural NSW. Numbers collected from each registry in Sydney depended on the business of each registry. The response rate using this methodology is reasonable (approximately 39%), and refusal does not appear to be related to individual characteristics.

Table 3: Number of respondents sampled from Motor Registries in each location in Metropolitan Sydney, NSW Regional Centres and Rural NSW

<i>Metropolitan Sydney</i>	<i>NSW Regional Centres</i>	<i>Rural NSW</i>
Bankstown: 17	Newcastle: 53	Dubbo: 35
Bondi Junction: 11	Wollongong: 67	Queanbeyan: 71
Castle Hill: 10		Unidentified: 1
Chatswood: 43		
Manly Vale: 4		
Miranda: 3		
Revesby: 47		
TOTAL: 135	TOTAL: 120	TOTAL: 107

SAMPLE CHARACTERISTICS

The features of the sample in each area are displayed in Tables 4 and 5.

Table 4: Demographic characteristics of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW

		<i>Metropolitan Sydney</i>	<i>NSW Regional Centres</i>	<i>Rural NSW</i>
Gender	% male	56.9	61.8	54.3
	% female	43.1	38.2	45.7
Age	% 16-17	0.0	1.0	2.2
	% 18-19	11.1	1.0	5.5
	% 20-25	29.6	22.5	14.3
	% 26-45	18.5	45.1	51.6
	% 46+	40.7	30.4	25.3
Language	% English	81.5	77.5	86.0
	% Other	18.5	22.5	14.0
Highest education level	% no school certificate	0.0	0.9	0.0
	% School certificate	10.9	15.7	16.5
	% HSC	19.5	11.8	25.3
	% TAFE/college	19.5	20.6	18.7
	% Tertiary +	50.0	51.0	39.6
Occupation	% <i>profession/managerial</i>	51.6	45.8	48.4
	% <i>Trade/clerical/manual</i>	21.9	18.3	30.7
	% <i>home duties</i>	6.3	4.2	6.6
	% <i>student</i>	10.9	8.3	6.6
	% <i>retired</i>	7.8	5.8	4.4
	% <i>unemployed</i>	1.6	0.8	2.2
	% <i>sales</i>	0.0	0.0	1.1
Marital status	% single	33.6	29.4	28.3
	% widowed	1.6	4.9	1.1
	% separated/divorced	4.7	8.8	5.4
	% married/defacto	60.2	56.9	65.2
Mean number of children	Under 16	0.33	0.70	0.63
	Over 16	1.07	0.69	0.68

These correspond roughly to population statistics for NSW as recorded in the 2001 Census (median age 35 years; 75.7% households English-speaking; 31.3% never married, 6.5% widowed, 10.5% separated/divorced, 51.7% married). The sample appears to be above average education; in NSW in 2001 only 10.5% of the population had a tertiary education or greater, whereas 46.9% of the present sample did. This may owe partly to the sample being comprised of car owners. Nonetheless, given that the Census statistics refer to the total population, not those of driving age, the sample described here appears to be biased towards younger people and males.

The areas differed significantly in terms of age ($X_8^2=16.49$, $p=.036$), but not gender, language, marital status, education level, or occupation (highest non-significant $X_8^2=10.12$, $p=.257$), or number of children under or over 16 (highest non-significant $F_{2,216}=1.42$, $p=.245$). The Sydney sample had somewhat more 18-19 year olds, and fewer 26-45 year olds.

Table 5: Licence status, driving exposure and car ownership of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW

		<i>Metropolitan Sydney</i>	<i>NSW Regional Centres</i>	<i>Rural NSW</i>
Licence class	% Learners permit	3.1	2.0	2.2
	% Probationary, old	0.0	1.0	2.2
	% Probationary, 1	6.2	2.0	2.2
	% Probationary, 2	0.0	0.0	1.1
	% Full	89.9	94.1	92.4
	% disqualified	1.0	1.0	0.0
Mean years licensed		19.28	19.49	19.18
Mean hours driving per week		17	13	15
Mean age of car		9	8	10
Car ownership status	% own	84.6	82.8	79.3
	% leasing	4.6	4.0	3.3
	% owned by company	3.8	4.0	7.6
	% owned by other	6.9	9.1	9.8

The areas did not differ significantly in terms of licence class ($\chi_{10}^2=10.06$, $p=.435$), number of years licensed ($F_{2,317}=0.34$, $p=.715$), or number of hours spent driving each week ($F_{2,319}=2.33$, $p=.099$). There was also no significant difference in mean age of car ($F_{2,290}=1.08$, $p=.342$) or car ownership status ($\chi_8^2=6.95$, $p=.542$).

SELF-REPORTED FREQUENCY OF SPEEDING

Self-reported likelihood of speeding (1=“very unlikely” through 5=“very likely”) was averaged over 23 situations [see Table 7] to produce an index of speeding behaviour. The mean score for this index in each sample is presented in Figure 1. On average, respondents reported being moderately likely to speed. The sample areas did not differ significantly in terms of this index ($F_{1,230}=1.08, p=.342$).

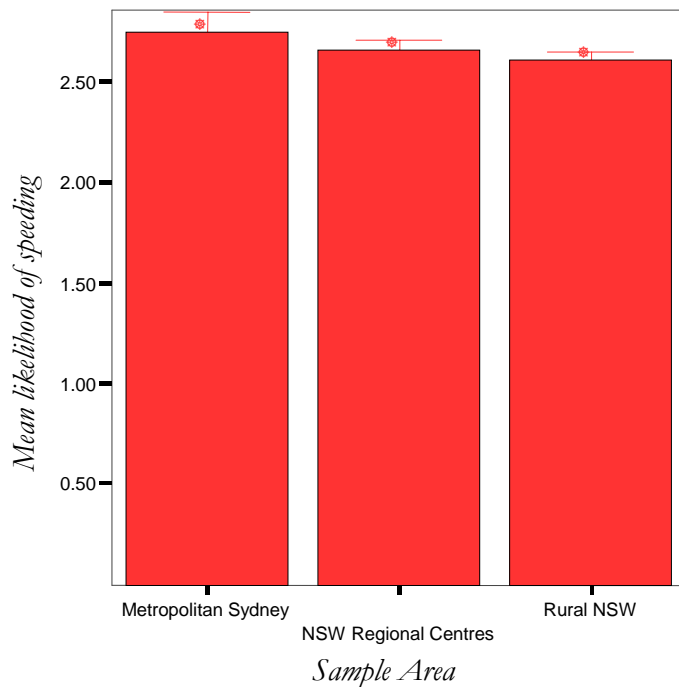


Figure 1: Mean self-reported likelihood of speeding (averaged across 21 situations) for respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW

Self-reported likelihood of speeding was also averaged over relevant situations to produce separate indices for speeding in situations in which conditions are poor ($\alpha=.834$), in which speeding might be perceived as unlikely to result in crashing ($\alpha=.856$), in which speeding might be perceived as unlikely to result in being booked ($\alpha=.824$), in which speeding has an indirect value ($\alpha=.886$), and in which speeding has a value for its own sake ($\alpha=.847$) [see Tables 6 and 7]. The mean score for each index in each sample area is presented in Table 6.

Table 6: Average self-reported likelihood of speeding across situations in which conditions are poor, in which speeding may be perceived as unlikely to result in crashing, in which speeding may be perceived as unlikely to result in being booked, in which speeding has an indirect value, and in which speeding has a value for its own sake, for respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW

<i>Index</i>	<i>Items</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
Poor conditions	b, c, n	2.38	2.30	2.24
Crash-safe speeding	j, l, t	2.91	2.82	2.79
Booked-safe speeding	d, e, h, m, u, w	3.11	3.00	2.98
Speeding has indirect benefit	d, f-i, o-r, u	2.85	2.75	2.71
Speeding has direct benefit	g, i, p, q	2.42	2.34	2.34

Considering only those situations which were expected to promote speeding (i.e. all but “poor conditions”), the mean self-reported likelihood of speeding differed significantly from situation to situation ($F_{3,699}=132.52$, $p<.001$) [see Figure 2]. Compared to the reported likelihood of speeding under typical conditions (Mean=2.7), the reported likelihood of speeding was significantly higher in situations in which crashing may be perceived as unlikely and in situations in which being booked may be perceived as unlikely (lowest $t_{250}=55.03$, $p<.001$). Reported speeding was significantly lower under poor conditions, than under typical conditions ($t_{353}=7.53$, $p<.001$). Reference to situations in which speeding has a value in its own right (e.g. you feel like a thrill), significantly reduced respondents reported likelihood of speeding (compared to typical conditions: $t_{348}=6.10$, $p<.001$).

There was no significant main effect of area ($F_{2,233}=.78$, $p=.460$), or interaction between situation and area ($F_{6,699}=.21$, $p=.973$).

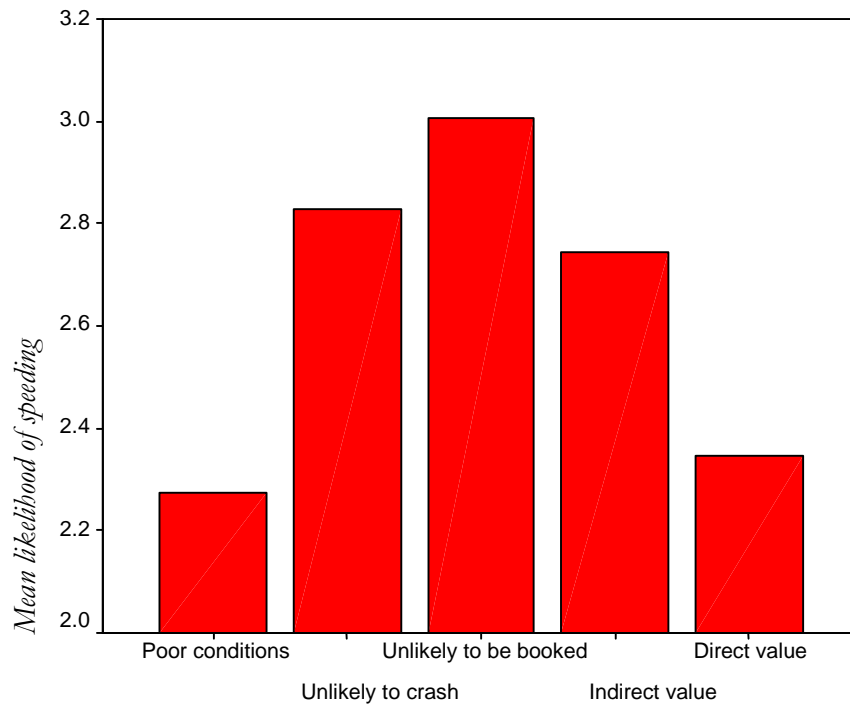


Figure 2: Average self-reported likelihood of speeding across situations in which conditions are poor, in which speeding may be perceived as unlikely to result in crashing, in which speeding may be perceived as unlikely to result in being booked, in which speeding has a value for its own sake, collapsed across respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW.

For each of the 23 situations, responses were collapsed from 5 categories into 3 (unlikely, neutral, and likely). The percentage of each sample providing each of these 3 responses for each situation is depicted in Table 7, along with a mean derived from the original 5-point scale.

Table 7: Self-reported likelihood of speeding in 23 situations for respondents sampled from Metropolitan Sydney, NSW Regional and Rural NSW

Situation	Rating	Metropolitan Sydney	NSW regional centres	Rural NSW
a Typical conditions in the middle of the day	% Unlikely	38.7	44.0	47.2
	% Even chance	32.3	31.0	34.9
	% Likely	29.0	25.0	17.9
	<u>Mean</u>	<u>2.62</u>	<u>2.70</u>	<u>2.54</u>
b The roads are wet	% Unlikely	87.1	88.1	89.6
	% Even chance	9.7	7.6	7.5
	% Likely	3.2	4.2	2.8
	<u>Mean</u>	<u>1.66</u>	<u>1.69</u>	<u>1.54</u>
c It is nighttime	% Unlikely	54.8	60.7	72.6
	% Even chance	32.3	28.2	14.2
	% Likely	12.9	11.1	13.2
	<u>Mean</u>	<u>2.18</u>	<u>2.25</u>	<u>1.98</u>

<i>Situation</i>	<i>Rating</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
d You need to overtake	% Unlikely	12.9	12.0	8.5
	% Even chance	19.4	30.8	27.4
	% Likely	67.7	57.3	64.2
	<u>Mean</u>	<u>3.44</u>	<u>3.65</u>	<u>3.70</u>
e You are driving downhill	% Unlikely	25.8	30.3	25.7
	% Even chance	35.5	32.8	42.9
	% Likely	38.7	37.0	31.4
	<u>Mean</u>	<u>2.94</u>	<u>3.05</u>	<u>2.93</u>
f You are in a hurry to get to an appointment	% Unlikely	20.0	22.2	25.5
	% Even chance	30.0	30.8	33.0
	% Likely	50.0	47.0	41.5
	<u>Mean</u>	<u>3.17</u>	<u>3.35</u>	<u>3.15</u>
g You feel like a thrill	% Unlikely	76.7	69.6	66.0
	% Even chance	3.3	11.3	14.2
	% Likely	20.0	19.1	19.8
	<u>Mean</u>	<u>2.09</u>	<u>2.13</u>	<u>2.13</u>
h To keep up with traffic	% Unlikely	30.0	33.3	37.1
	% Even chance	33.3	39.5	35.2
	% Likely	36.7	27.2	27.6
	<u>Mean</u>	<u>2.85</u>	<u>2.88</u>	<u>2.81</u>
i You need to “blow off steam”	% Unlikely	70.0	67.5	67.9
	% Even chance	6.7	15.4	15.1
	% Likely	23.3	17.1	17.0
	<u>Mean</u>	<u>2.15</u>	<u>2.15</u>	<u>2.66</u>
j You know the road very well	% Unlikely	48.4	43.6	38.1
	% Even chance	19.4	24.8	34.3
	% Likely	32.3	31.6	27.6
	<u>Mean</u>	<u>2.76</u>	<u>2.80</u>	<u>2.79</u>
k You have passengers in the car	% Unlikely	77.4	75.4	77.4
	% Even chance	16.1	19.5	17.9
	% Likely	6.5	5.1	3.8
	<u>Mean</u>	<u>1.67</u>	<u>1.92</u>	<u>1.80</u>
l There are no other cars on the road	% Unlikely	35.5	44.4	43.4
	% Even chance	22.6	27.4	34.9
	% Likely	41.9	28.2	21.7
	<u>Mean</u>	<u>2.82</u>	<u>2.84</u>	<u>2.60</u>
m You think you are very unlikely to get caught	% Unlikely	41.9	55.1	52.8
	% Even chance	29.0	22.9	32.1
	% Likely	29.0	22.0	15.1
	<u>Mean</u>	<u>2.47</u>	<u>2.51</u>	<u>2.38</u>
n You are on a winding road	% Unlikely	80.6	83.9	85.8
	% Even chance	16.1	8.5	10.4
	% Likely	3.2	7.6	3.8
	<u>Mean</u>	<u>1.88</u>	<u>1.79</u>	<u>1.60</u>

<i>Situation</i>	<i>Rating</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
o You do not like to travel behind other vehicles	% Unlikely	67.7	70.1	70.8
	% Even chance	9.7	18.8	18.9
	% Likely	22.6	11.1	10.4
	<u>Mean</u>	<u>2.22</u>	<u>2.14</u>	<u>2.08</u>
p You want to impress others	% Unlikely	87.1	90.6	89.6
	% Even chance	6.5	6.8	8.5
	% Likely	6.5	2.6	1.9
	<u>Mean</u>	<u>1.56</u>	<u>1.47</u>	<u>1.51</u>
q To compete with other drivers and vehicles	% Unlikely	74.2	83.1	84.9
	% Even chance	6.5	12.7	9.4
	% Likely	19.4	4.2	5.7
	<u>Mean</u>	<u>1.69</u>	<u>1.64</u>	<u>1.68</u>
r To get through an amber traffic light	% Unlikely	25.8	39.8	42.9
	% Even chance	38.7	36.4	34.3
	% Likely	35.5	23.7	22.9
	<u>Mean</u>	<u>2.75</u>	<u>2.75</u>	<u>2.63</u>
s You are on a rural road	% Unlikely	41.9	54.7	55.7
	% Even chance	35.5	26.5	30.2
	% Likely	22.6	18.8	14.2
	<u>Mean</u>	<u>2.49</u>	<u>2.43</u>	<u>2.38</u>
t You are confident that you are not putting anyone in danger	% Unlikely	41.9	50.4	50.0
	% Even chance	32.3	25.2	29.2
	% Likely	25.8	24.4	20.8
	<u>Mean</u>	<u>2.45</u>	<u>2.53</u>	<u>2.43</u>
u To avoid an accident	% Unlikely	22.6	29.1	32.7
	% Even chance	25.8	26.5	32.7
	% Likely	51.6	44.4	34.6
	<u>Mean</u>	<u>3.45</u>	<u>3.18</u>	<u>2.95</u>
v You are near a school	% Unlikely	100.0	94.1	97.1
	% Even chance	0.0	5.1	1.9
	% Likely	0.0	0.8	1.0
	<u>Mean</u>	<u>1.29</u>	<u>1.42</u>	<u>1.26</u>
w You are on a multi lane road	% Unlikely	51.6	53.4	48.1
	% Even chance	25.8	26.3	34.6
	% Likely	22.6	20.3	17.3
	<u>Mean</u>	<u>2.25</u>	<u>2.54</u>	<u>2.52</u>

Likelihood of speeding appeared to be affected somewhat by circumstance. For example, compared to “typical conditions in the middle of the day”, the proportion of the sample reporting being likely to speed was substantially lower when the roads are wet and when it is night-time, as well as with passengers in the car. Conditions that appeared to increase the likelihood of speeding were the need to overtake, and being in a hurry to get to an appointment. The need for a thrill or to blow off steam did not seem to substantially increase the likelihood of speeding.

Employing the 3 category scale, the sample areas differed significantly for only one of the 23

events (“you are on a winding road”; $X_4^2=11.07$, $p=.026$; highest non-significant $X_4^2=8.26$, $p=.082$), which is no more than could be expected by chance. Similarly, analysis employing the 5-point scale revealed no significant difference between the sample areas for any of the events (highest non-significant $F_{2,250}=2.07$, $p=.129$).

PERCEPTION AND PERFORMANCE OF BEHAVIOURS TO AVOID BEING BOOKED FOR SPEEDING

Table 8 presents the percentage of respondents in each area who believe that each of 6 practices reduced their chances of being booked when speeding.

Table 8: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who believe that each of 6 practices reduced their chances of being booked when speeding.

Practice	Metropolitan Sydney	NSW regional centres	Rural NSW
If you take back streets	48.5	49.5	51.0
If you drive at certain times of day	49.2	49.1	54.6
If the traffic around you is speeding	48.8	54.7	57.3
If you avoid places where you know there are police or cameras	50.4	54.8	36.4
If you only drive in certain lanes	14.3	14.4	14.6
If you slow down when you see police or a camera	52.0	51.0	42.2

Generally, all but one of these practices (driving in certain lanes) was perceived to be effective in reducing the chances of being booked by a substantial proportion of each sample. Further, the practices appeared to be viewed as effective by similar proportions of the sample.

Respondents from Sydney, regional centres, and rural areas, differed significantly only in terms of their perceptions of the efficacy of avoiding places where they know there are police or cameras ($X_2^2=11.07$, $p=.026$; highest non-significant $X_2^2=1.69$, $p=.428$) [see Table 8]. Sydney respondents did not differ from regional respondents ($X_1^2=0.45$, $p=.502$), but were significantly more likely than rural respondents to think this practice effective ($X_1^2=4.16$, $p=.041$).

Table 9 presents the percentage of respondents in each area who reported using each of 6 practices to reduce their chances of being booked when speeding.

Table 9: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who reported using each of 6 practices in order to reduce their chances of being booked when speeding.

Practice	Metropolitan Sydney	NSW regional centres	Rural NSW
Taking back streets	12.3	6.3	4.0
Driving at certain times of day	6.9	2.8	5.0
Speeding if the traffic around you is speeding	15.5	2.8	2.1
Avoiding known locations of police or cameras	10.1	2.9	0.0
Only driving in certain lanes	0.0	1.0	1.0
Slowing down when you see police or a camera	19.2	5.0	3.1

Generally, all but one of these practices (driving in certain lanes) was reportedly used by a small, but meaningful proportion of the Sydney sample (and lesser proportions of the others).

People who reported only driving at certain times of day to avoid being booked (n=17) were asked which times of day they thought were safest. The top 3 answers were in the early morning (23.1%), in the middle of the day (12.3%), at night (17.0%), and at peak hours (10.8%). However, the next most common answer was outside peak hours (6.2%).

Too few people reported driving in certain lanes to avoid being booked (n=2) for analysis relating to which lanes were thought safest to be conducted.

Other practices respondents reported using in order to reduce their chances of being booked when speeding included: remaining only moderately over the speed limit (n=3), staying near other cars (n=3), and using a radar detector (n=3).

Respondents from Sydney, regional centres, and rural areas, differed significantly in terms of speeding when the traffic around them is speeding, avoiding places where they know there are police or cameras, and slowing down when they see police or cameras ($X_2^2=19.30$, $p<.001$; $X_2^2=13.37$, $p=.001$; $X_2^2=10.04$, $p=.007$, respectively) [see Table 9]. In each case, Sydney respondents were significantly more likely to report using these practices than respondents from regional or rural areas (lowest significant $X_1^2=4.66$, $p=.031$). There were no other significant area differences (highest non-significant $X_2^2=5.94$, $p=.051$).

There were also significant area differences in reporting trying to find out the locations of police or cameras that detect speeding (35.7% vs. 34.8%, vs. 9.6%; $X_2^2=19.51$, $p<.001$). Sydney respondents were significantly more likely to report using these practices than respondents from rural areas ($X_1^2=11.21$, $p=.001$), but not regional areas ($X_1^2=0.01$, $p=.929$).

INVOLVEMENT IN INCIDENTS PERCEIVED TO BE SPEED-RELATED

The rate of reported speed-related crashes was low in each sample. The areas differed significantly in terms of having had a speed-related crash ($\chi^2=9.43$, $p=.009$; see Figure 3). Sydney respondents were significantly less likely to have had a speed-related crash than respondents from regional centres ($\chi^2=4.90$, $p=.027$) or rural areas ($\chi^2=9.80$, $p=.002$).

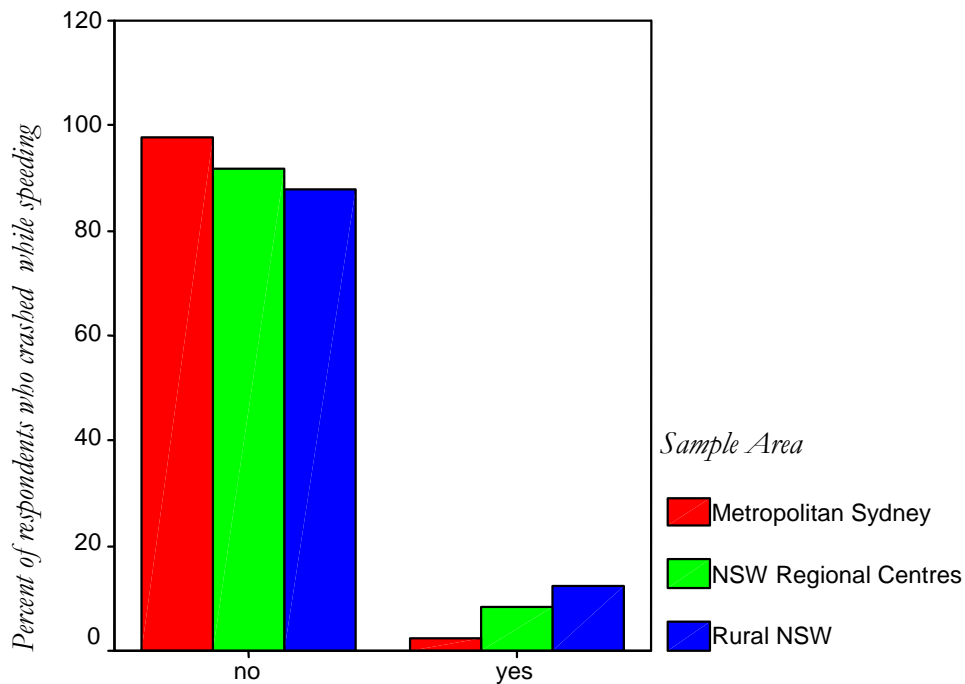


Figure 3: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who report ever having had a speed-related crash

Around one fifth of each sample reported having been booked for speeding at some time in the past two years. There were no significant area differences in terms of having been booked for speeding ($X_2^2=0.64$, $p=.725$; see Figure 4).

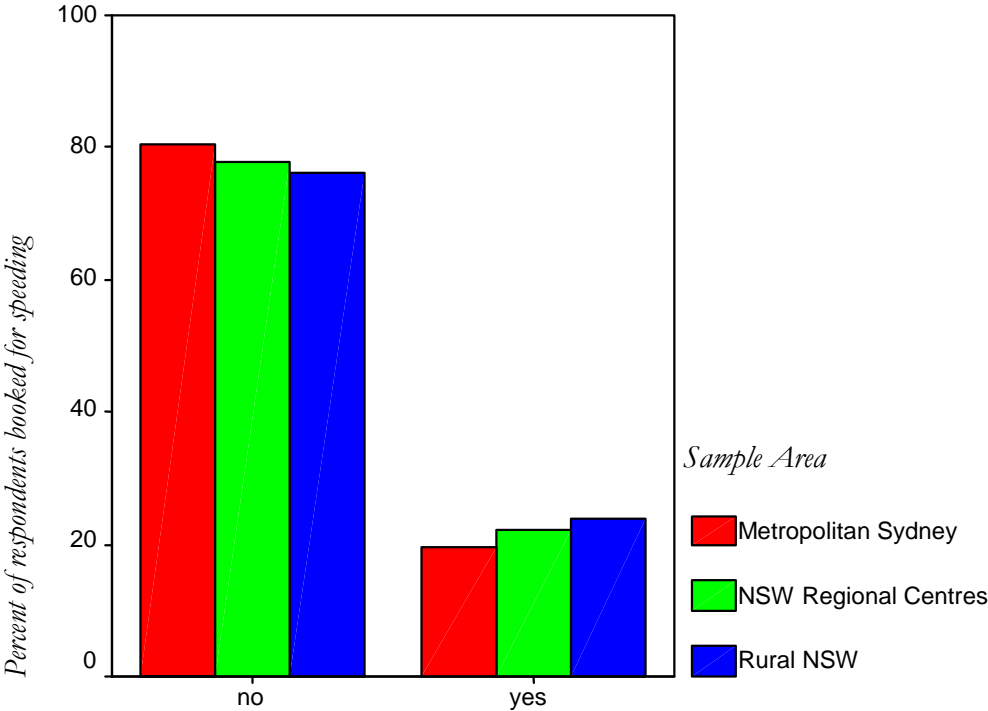


Figure 4: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who report having been booked for speeding in the last two years

PERCEIVED CRASH RISK OF SPEEDING

Speed was identified as the most important cause of serious car crashes, being named by 37.2% of respondents. It was followed by alcohol (23.1%) and fatigue (14.4%). These same three factors were also those most frequently named as the second most important cause (alcohol: 29.3%; fatigue: 20.8%; speed: 20.3%) and third most important cause (alcohol: 18.0%; fatigue: 17.4%; speed: 12.2%). [See Figures 5 to 7]

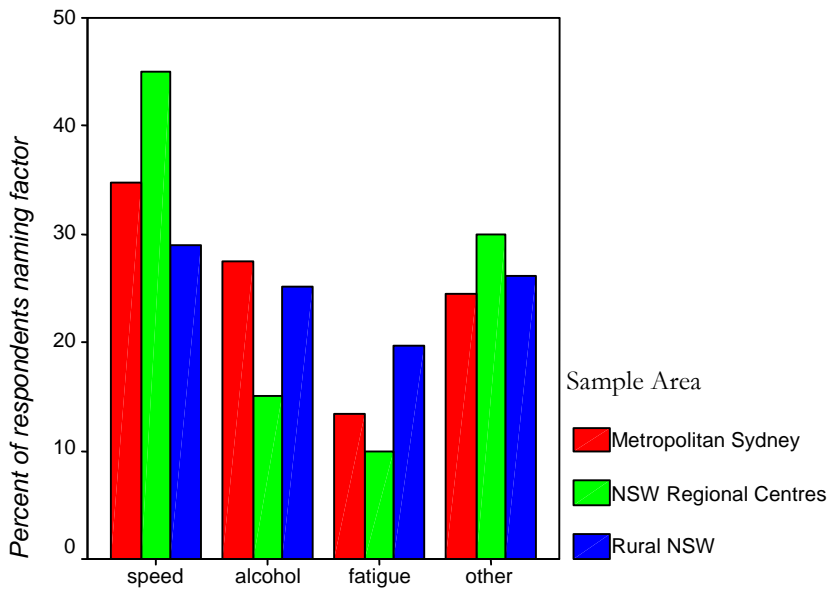


Figure 5: Percentage of respondents reporting each of the 5 most mentioned most important causes of serious crashes, in Metropolitan Sydney, NSW Regional centres and Rural NSW

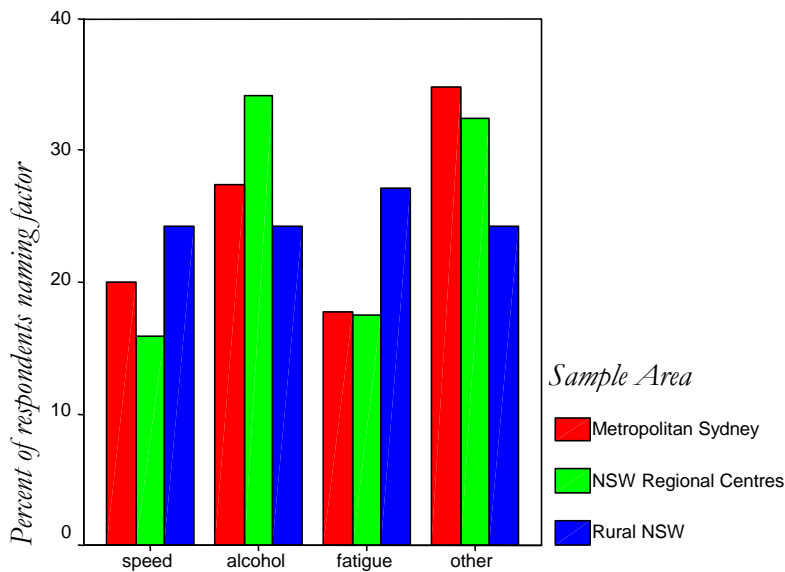


Figure 6: Percentage of respondents reporting each of the 5 most mentioned second most important causes of serious crashes, in Metropolitan Sydney, NSW Regional centres and Rural NSW

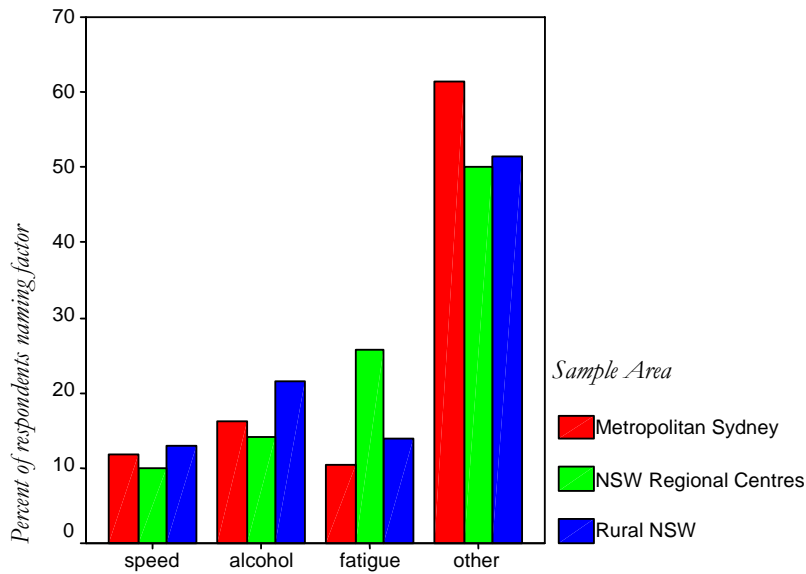


Figure 7: Percentage of respondents reporting each of the 5 most mentioned third most important causes of serious crashes, in Metropolitan Sydney, NSW Regional centres and Rural NSW

The areas differed significantly in terms of the proportion of respondents naming speed as the first most important cause of serious crashes ($X_2^2=6.53$, $p=.038$) [see Figure 5], but not as the second or third most common cause ($X_2^2=2.55$, $p=.280$; $X_2^2=0.54$, $p=.764$, respectively). Sydney residents appeared to be less likely than regional residents, but more likely than rural residents, to identify speeding as the most important cause of serious crashes, although neither of these comparisons were statistically significant (highest non-significant $X_1^2=2.76$, $p=.097$).

A high percentage of fatal crashes (approximately 55-60%) was estimated to have been caused by speeding in each sample. There were no significant area differences ($F_{2,352}=1.68$, $p=.188$) [see Figure 8].

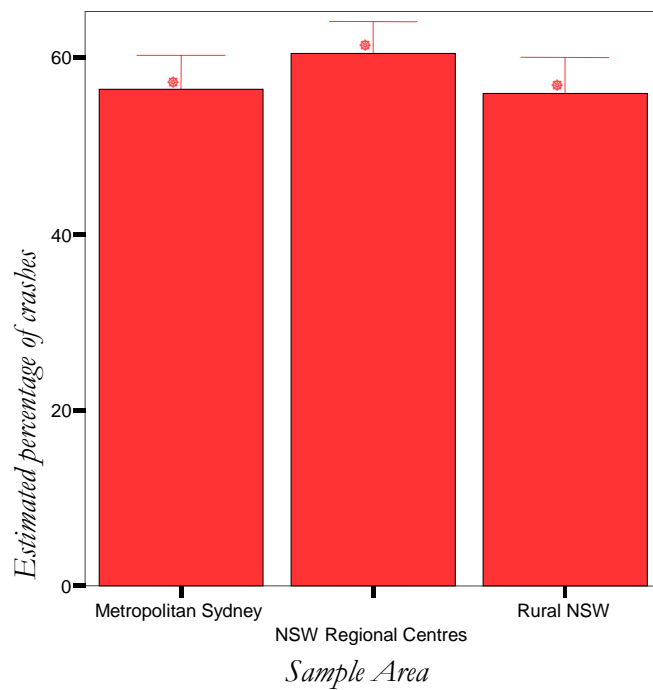


Figure 8: Mean estimated percentage of fatal crashes estimated to be caused by speeding last year, in Metropolitan Sydney, NSW Regional centres and Rural NSW

When asked directly whether speed increases the risk of crashing on a clear, dry day, the vast majority of each sample responded in the affirmative [see Figure 9]. The areas did not differ significantly in terms of their response to this question ($X^2=1.82, p=.402$)

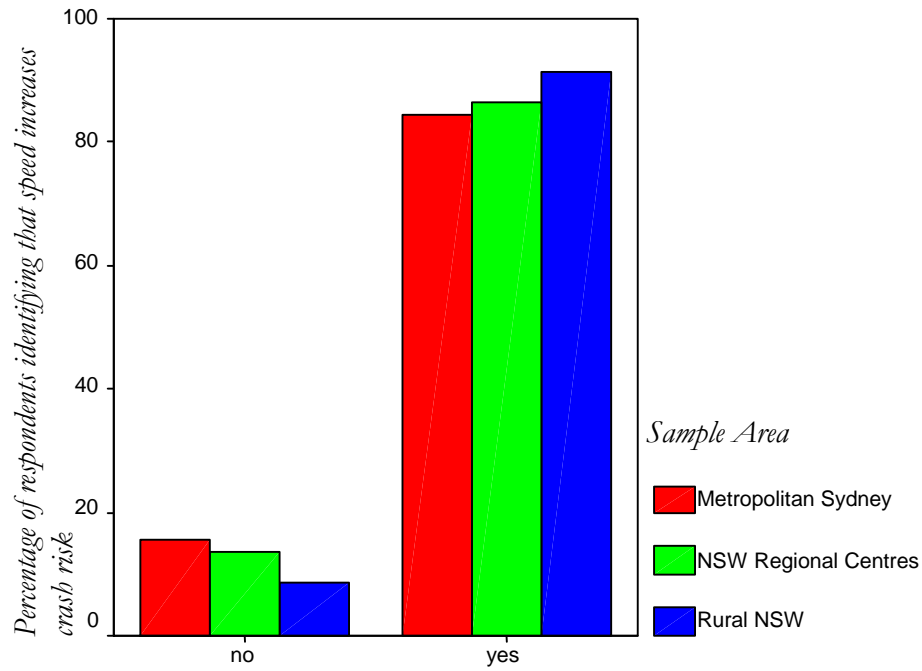


Figure 9: Percentage of respondents indicating that speed increases crash risk on a clear, dry day, in Metropolitan Sydney, NSW Regional centres and Rural NSW

Respondents then indicated whether the crash risk posed by speeding on a clear, dry day would be worsened under several conditions. Table 10 presents the percentage of respondents identifying each condition as worsening the crash risk.

Table 10: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who reported that various conditions worsen the crash risk posed by speeding on a clear, dry day.

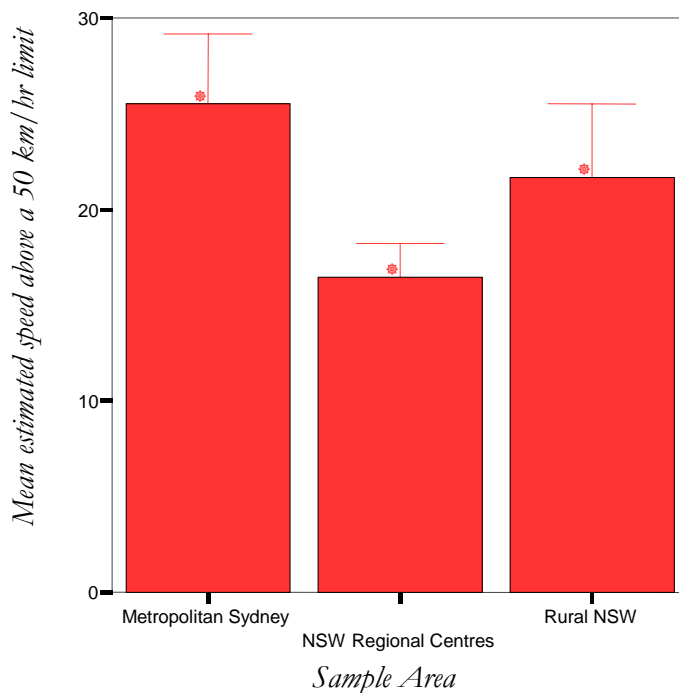
Condition	Metropolitan Sydney	NSW regional centres	Rural NSW
At night	90.3	89.5	95.2
In wet conditions	100.0	100.0	98.1
In heavy traffic	90.0	99.1	86.0
On an empty street	36.7	44.3	44.7

Most of the sample agreed that crash risk is worsened at night, in wet conditions and in heavy traffic. A surprisingly large percentage of the sample also thought the crash risk was worsened on an empty street.

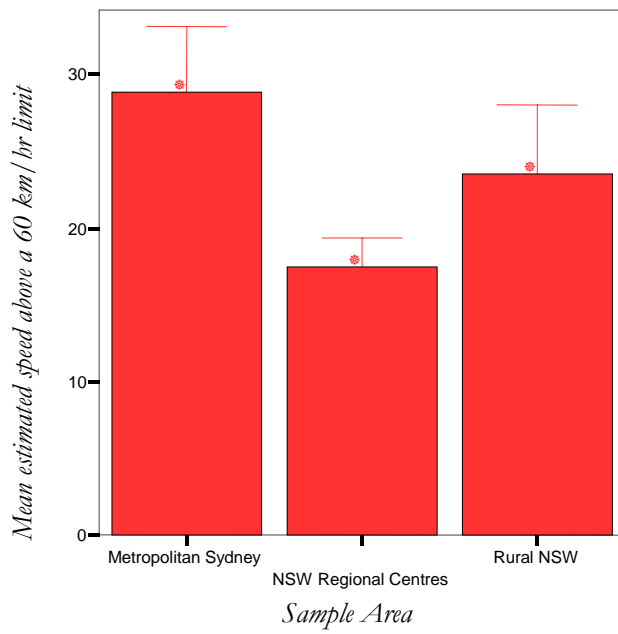
The areas differed significantly only in terms of their perception of the impact of heavy traffic ($X_2^2=6.50$, $p=.039$). Sydney respondents were less likely than regional respondents to view heavy traffic as worsening crash risk ($X_1^2=7.32$, $p=.007$), but did not differ significantly from rural respondents ($X_1^2=0.67$, $p=.425$).

Respondents estimated how many km/hr above each of three speed limits they would have to drive to double their crash risk (compared to driving at the speed limit) [see Figure 10].

a)



b)



c)

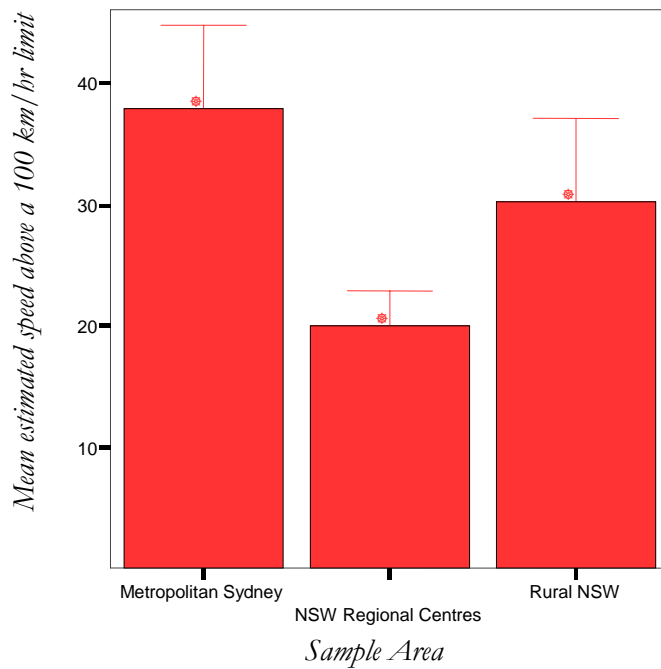


Figure 10: Mean response to the question “On a clear, dry day, how many km/hr over the speed limit do you think you would have to drive to double your chances of having a crash (compared to your chances if you were driving at the speed limit)” in a) 50 km/hr, b) 60 km/hr, and c) 100 km/hr, speed zones, in Metropolitan Sydney, NSW Regional centres and Rural NSW

Speed zone had a significant main effect ($F_{2,642}=55.68, p<.001$). A significant linear increase in the estimated speed over the limit was observed across the 50 km/hr, 60 km/hr, and 100 km/hr speed zone ($F_{2,321}=60.79, p<.001$). For the 50km/hr zone the average response was approximately 21km/hr (s.d.=18), for the 60km/hr zone it was 24km/hr (s.d.=20), and for the 100km/hr zone it was 30km/hr (s.d.=32). Thus, the speed beyond the speed limit required to double the chances of having a crash is not a constant across zones, but nor does it seem to be a constant proportion of the speed limit.

Area had a significant main effect ($F_{2,321}=9.49, p<.001$), and interaction with zone ($F_{64,642}=6.14, p<.001$). Significant area differences were observed for the 50 km/hr, 60 km/hr, and 100km/hr zones ($F_{2,325}=7.19, p<.001, F_{2,321}=9.56, p<.001, F_{2,322}=9.40, p<.001$). Estimates were significantly greater in Sydney than in regional centres (50 km/hr: $F_{1,228}=17.36, p<.001$; 60 km/hr: $F_{1,227}=21.35, p<.001$; and 100km/hr: $F_{1,227}=20.44, p<.001$), but not rural areas, although the Sydney means were consistently non-significantly greater (highest non-significant $F_{1,227}=2.94, p=.088$).

Respondents rated their agreement with several statements of attitudes, including 7 attitudes about speed related to safety considerations. For each of these 7 attitude statements, responses were collapsed from 5 categories into 3 (disagree, neutral, and agree). The percentage of each sample providing each of these 3 responses for each attitude is depicted in Table 11, along with a mean derived from the original 5-point scale.

A sizeable proportion of each sample agreed with each of the statements “speeding can be safe for a skilful driver” and “speeding can be safe under some circumstances”. Similar numbers agreed with the notion that modern cars make speeding safer. Personal safety, as well as the safety of passengers or other road users, appear to be important considerations in the decision to speed for most respondents.

Employing the 3 category scale, the sample areas did not differ significantly for any of the attitudes (highest non-significant $X_4^2=8.06, p=.090$). Similarly, analysis employing the 5-point scale revealed no significant difference between the sample areas for any of the events (highest non-significant $F_{2,326}=1.56, p=.211$).

Table 11: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW disagreeing or agreeing with several statements regarding the safety of speeding.

<i>Statement</i>	<i>Rating</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
Speeding can be safe for a skilful driver	% Disagree	60.5	54.6	56.3
	% Neutral	13.1	23.1	22.9
	% Agree	26.4	22.2	20.8
	<u>Mean</u>	<u>2.47</u>	<u>2.48</u>	<u>2.46</u>
Speeding can be safe in some circumstances	% Disagree	44.4	34.0	34.0
	% Neutral	22.2	26.2	25.5
	% Agree	33.3	39.8	40.4
	<u>Mean</u>	<u>2.81</u>	<u>3.03</u>	<u>3.01</u>
Modern cars significantly reduce risk of having a crash/ being injured due to speeding	% Disagree	51.9	47.1	53.2
	% Neutral	22.2	23.5	18.1
	% Agree	25.9	29.4	28.7
	<u>Mean</u>	<u>2.70</u>	<u>2.66</u>	<u>2.60</u>
I sometimes feel uncomfortable at the speeds I drive	% Disagree	55.9	49.1	61.7
	% Neutral	19.7	27.8	21.3
	% Agree	24.4	23.1	17.0
	<u>Mean</u>	<u>2.54</u>	<u>2.63</u>	<u>2.35</u>
My safety is an important factor in my decision about whether to exceed speed limit or not	% Disagree	11.1	13.0	8.4
	% Neutral	29.6	5.6	8.4
	% Agree	59.3	81.5	83.2
	<u>Mean</u>	<u>4.09</u>	<u>4.07</u>	<u>4.09</u>
Safety of my passengers: important factor in deciding whether to exceed speed limit or not	% Disagree	3.7	2.9	4.3
	% Neutral	7.4	2.9	4.3
	% Agree	88.9	94.2	91.4
	<u>Mean</u>	<u>4.30</u>	<u>4.43</u>	<u>4.39</u>
Safety of other road users: important factor in deciding whether to exceed speed limit or not	% Disagree	3.7	2.9	6.4
	% Neutral	22.2	11.7	5.3
	% Agree	74.1	85.4	88.3
	<u>Mean</u>	<u>4.04</u>	<u>4.24</u>	<u>4.23</u>

PERCEIVED RISK OF BEING BOOKED FOR SPEEDING

Respondents sampled at motor registries rated their likelihood of being detected when speeding by 3 different detection methods (1=“very unlikely” through 5=“very likely”). For each method, responses were collapsed from 5 categories into 3 (unlikely, even chance, and likely). The percentage of each sample providing each of these 3 responses for each attitude is depicted in Table 12, along with a mean derived from the original 5-point scale.

Table 12: Perceived likelihood of being detected in each of three ways when exceeding the speed limit, in Metropolitan Sydney, NSW Regional centres and Rural NSW

<i>Means of detection</i>		<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
Police on the side of the road with a radar	% Unlikely	43.3	26.8	27.3
	% Even chance	40.0	39.3	38.4
	% Likely	16.7	33.9	34.3
	<u>Mean</u>	<u>2.73</u>	<u>3.07</u>	<u>3.16</u>
Automatic speed detection camera (not being directly operated by police)	% Unlikely	33.3	45.0	32.7
	% Even chance	40.0	27.0	30.6
	% Likely	26.7	27.9	36.7
	<u>Mean</u>	<u>2.93</u>	<u>2.83</u>	<u>3.10</u>
Police in a moving patrol vehicle with a radar	% Unlikely	60.0	31.3	24.7
	% Even chance	26.7	31.3	30.9
	% Likely	13.3	37.5	44.3
	<u>Mean</u>	<u>2.53</u>	<u>3.06</u>	<u>3.32</u>

A substantial proportion of each sample rated the likelihood of detection by each method as unlikely. There was no significant main effect of method ($F_{2,472}=.22, p=.800$).

There was a significant main effect of area ($F_{2,236}=3.53, p=.031$), and a significant interaction between area and method ($F_{4,427}=4.29, p=.002$). The areas differed significantly only in terms of their perception of the likelihood of being booked by police in a moving patrol vehicle ($F_{2,236}=3.53, p=.031$). Sydney respondents did not differ significantly from regional respondents ($F_{1,140}=3.24, p=.074$), but thought they were less likely to be booked by police in a moving patrol vehicle than did rural respondents ($F_{1,127}=4.31, p=.040$).

Table 13 presents the percentage of respondents in each area who believe that they could be booked when speeding under 4 different circumstances.

Table 13: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who believe that they could be booked for speeding in each of 4 situations.

<i>Situation</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
You are exceeding the speed limit by no more than 10%	61.4	63.5	61.6
You are exceeding the speed limit in order to overtake	70.5	73.5	76.5
It is an emergency	63.6	74.3	64.9
You are exceeding the speed limit while driving downhill	85.6	95.6	90.7

The large majority of each sample realised that they could be booked for speeding in each of these situations, although a meaningful proportion of the sample did not. Particularly in the situation of exceeding the speed limit by no more than 10%, a large number of drivers think that they cannot be booked.

The areas differed significantly only in terms of their perception of the likelihood of being booked when exceeding the speed limit driving downhill ($X_2^2=6.96$, $p=.031$). Sydney respondents thought they were significantly less likely to be booked in this situation than did regional respondents ($X_1^2=6.85$, $p=.009$), but did not differ significantly from rural respondents ($X_1^2=1.36$, $p=.243$).

PERCEIVED RELATIVE RISK OF CRASHING OR BEING BOOKED AND PERCEIVED RELATIVE SAFETY AND SKILL

Respondents compared themselves to their average peer in terms of chances of crashing or being booked when speeding, as well as driving safety and skill (1=“much lower than average” through 5=“much higher than average”). Responses were collapsed from 5 categories into 3 (lower than average, about the same, and higher than average). The percentage of each sample providing each of these 3 responses for each factor is depicted in Table 14, along with a mean derived from the original 5-point scale.

Table 14: Perceived likelihood of having a speed-related crash, likelihood of being booked for speeding, driving safety, and driving skill compared to the average driver (of the same age and gender), in Metropolitan Sydney, NSW Regional centres and Rural NSW

<i>Chances of having a crash</i>	<i>Rating:</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
Chances of having crash if exceeding speed limit by > 15km/h?	% Lower than average	46.7	25.4	33.0
	% About the same	40.0	51.8	47.0
	% Higher than average	13.3	22.8	20.0
	<u>Mean</u>	<u>2.67</u>	<u>2.97</u>	<u>2.84</u>
Chances of being booked for speeding?	% Lower than average	36.7	15.9	24.0
	% About the same	46.7	54.9	49.0
	% Higher than average	16.7	29.2	27.0
	<u>Mean</u>	<u>2.80</u>	<u>3.13</u>	<u>3.08</u>
Driving safety?	% Lower than average	30.0	13.2	16.0
	% About the same	36.7	47.4	30.0
	% Higher than average	33.3	39.5	54.0
	<u>Mean</u>	<u>3.03</u>	<u>3.26</u>	<u>3.54</u>
Driving skill?	% Lower than average	20.0	10.5	10.0
	% About the same	40.0	51.8	36.0
	% Higher than average	40.0	37.7	54.0
	<u>Mean</u>	<u>3.20</u>	<u>3.27</u>	<u>3.56</u>

Self-enhancing bias was assessed by comparing mean relative estimates to a test value of 3 (about the same as average), employing 1-tailed single sample t-tests. A bias was observed for each factor (lowest significant $t_{243}=2.14$, $p=.011$) except likelihood of being booked for speeding (mean in a direction inconsistent with bias).

The areas differed significantly only in terms of their perception of relative driving safety ($X_4^2=11.80$, $p=.019$). However, with the reduced statistical power of paired area comparisons, Sydney respondents did not differ significantly from regional respondents ($X_2^2=4.88$, $p=.087$), or rural respondents ($X_2^2=4.68$, $p=.096$). Employing the 5-point scale, the groups differed significantly for each factor (lowest significant $F_{2,241}=3.83$, $p=.023$) except driving skill ($F_{2,241}=2.12$, $p=.123$). Sydney respondents showed greater self-enhancing bias than regional respondents in terms of chances of crashing or being booked ($F_{1,143}=7.53$, $p=.007$; $F_{1,142}=8.06$, $p=.005$, respectively), but did not differ in terms of driving safety ($F_{1,143}=3.15$, $p=.078$). Compared to rural respondents, Sydney respondents showed greater self-enhancing bias in terms of chances of being booked ($F_{1,129}=4.59$, $p=.034$), lower self-enhancing bias in terms of driving safety ($F_{1,128}=6.39$, $p=.013$), but did not differ in terms of chances of crashing ($F_{1,129}=3.52$, $p=.063$).

NORMATIVE VALUES REGARDING SPEEDING DRIVERS

Respondents identified how much over the speed limit a driver would have to drive in order to be regarded as stupid, irresponsible, criminal, or a potential murderer, for a 50km/hr, a 60km/hr, and a 100km/hr zone [see Figures 11 to 13].

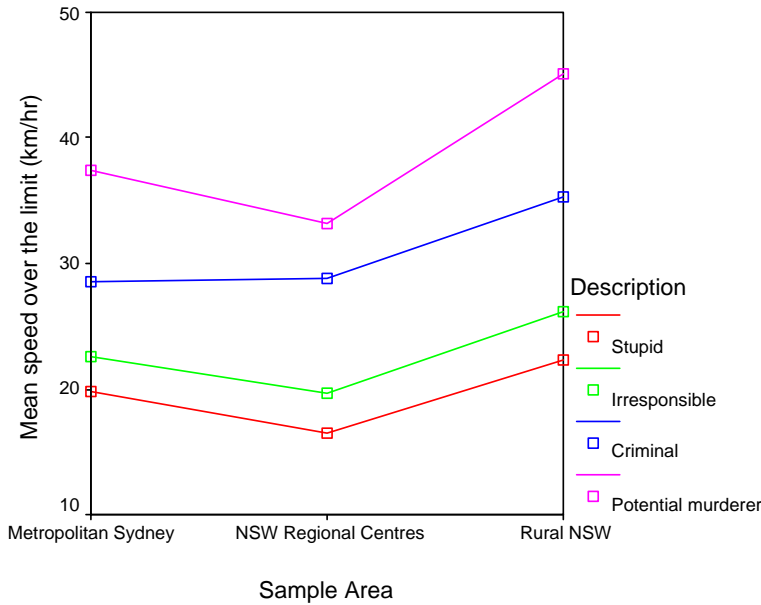


Figure 11: Mean response to the question “How much over the speed limit would a driver have to be going in a 50km/hr zone, for you to consider him/her to be” a) stupid, b) irresponsible, c) criminal, d) a potential murderer, in Metropolitan Sydney, NSW Regional centres, and in Rural NSW

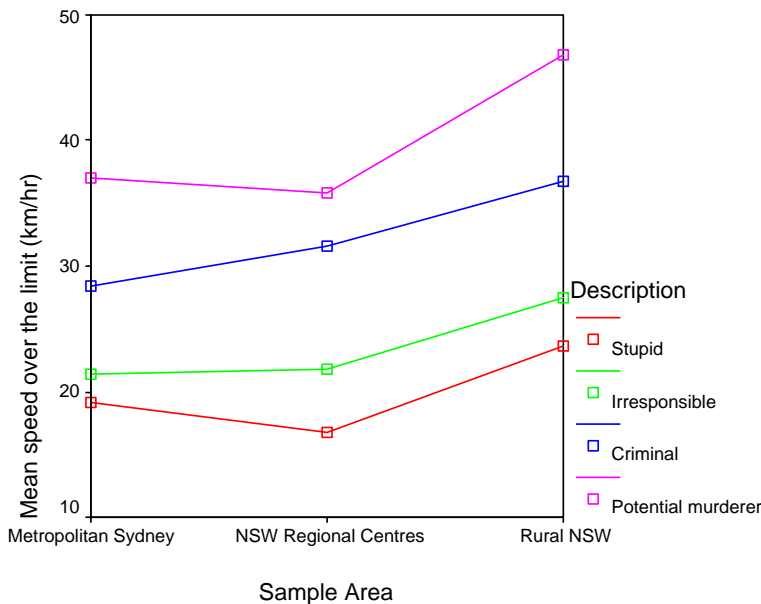


Figure 12: Mean response to the question “How much over the speed limit would a driver have to be going in a 60km/hr zone, for you to consider him/her to be” a) stupid, b) irresponsible, c) criminal, d) a potential murderer, in Metropolitan Sydney, NSW Regional centres, and in Rural NSW

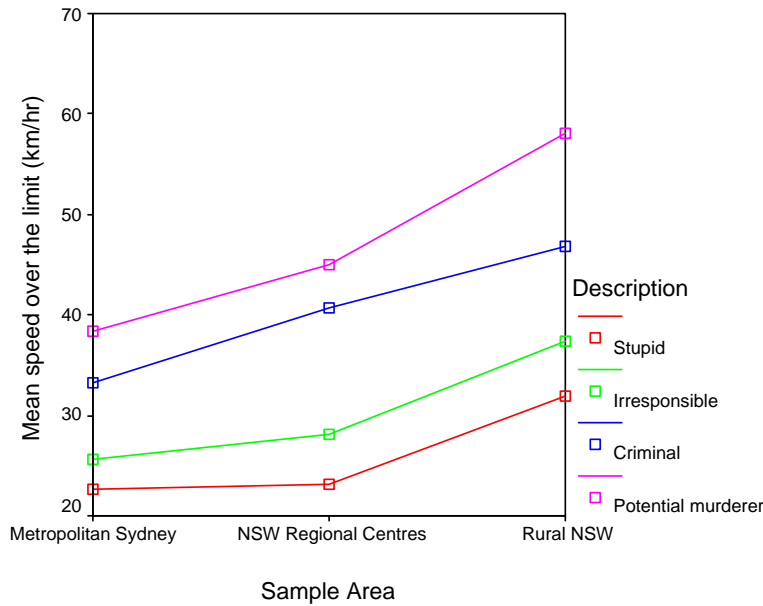


Figure 13: Mean response to the question “How much over the speed limit would a driver have to be going in a 100km/hr zone, for you to consider him/her to be” a) stupid, b) irresponsible, c) criminal, d) a potential murderer, in Metropolitan Sydney, NSW Regional centres, and in Rural NSW

A multivariate ANOVA identified main effects of speed limit zone ($F_{2,537}=32.73$, $p<.001$), description ($F_{2,537}=100.72$, $p<.001$), and area ($F_{2,179}=3.52$, $p=.032$). There were no significant interactions of these variables.

A significant linear increase in the number of km/hr over the speed limit was observed across zones for the descriptors stupid ($F_{1,198}=57.19$, $p<.001$), irresponsible ($F_{1,280}=82.42$, $p<.001$), criminal ($F_{1,275}=58.42$, $p<.001$), and potential murderer ($F_{1,275}=100.72$, $p<.001$).

Unsurprisingly, more derogatory descriptors consistently required a greater speed above the limit. The linear increase was observed across descriptors for the 50km/hr zone ($F_{1,187}=216.01$, $p<.001$), 60km/hr zone ($F_{1,183}=195.95$, $p<.001$), and the 100km/hr zone ($F_{1,184}=136.5$, $p<.001$).

Sydney respondents did not differ significantly from regional respondents for any zone/description combination (highest non-significant $F_{1,200}=3.34$, $p=.069$). Sydney residents offered a significantly lower number of km/hr over the speed limit than rural residents for 5 of 12 zone/description combinations (lowest significant $F_{1,194}=4.99$, $p=.027$).

The proportion of respondents in each sample rating the speed limit in areas they know as too low, just right or too high is presented in Table 15. The mean response is also given.

A majority of each sample regarded the speed limit as appropriate.

A significant main effect of zone was observed ($F_{3,666}=13.03$, $p<.001$). A significant increasing linear trend was observed across the zones ($F_{1,222}=15.51$, $p<.001$).

Area had no significant main effect ($F_{2,222}=1.24$, $p=.229$), but interacted significantly with speed zone ($F_{6,666}=5.72$, $p<.001$). The areas differed significantly only in terms of the perceived appropriateness of a 40km/hr limit ($X_4^2=19.88$, $p=.001$). Sydney respondents were significantly more likely than both regional respondents and rural respondents to rate the limit as too low ($X_2^2=6.30$, $p=.043$; $X_2^2=19.33$, $p<.001$, respectively). Using the mean scores, the groups differed significantly for the same zone ($F_{2,225}=11.10$, $p<.001$). Again, Sydney respondents gave significantly lower ratings than both regional and rural respondents ($F_{1,133}=9.02$, $p=.003$; $F_{1,118}=21.33$, $p<.001$).

The proportion of respondents in each sample rating the penalty for speeding (to different degrees) as too lenient, just right or too harsh is presented in Table 16. The mean response is also given.

A significant main effect of penalty was observed ($F_{2,658}=58.52$, $p<.001$). A significant decreasing linear trend was observed across the penalties ($F_{1,329}=82.88$, $p<.001$). A majority of each sample regarded the penalty for exceeding the speed limit by up to 30km/hr as appropriate. The penalty for greater exceedance was viewed less favourably.

Area had no significant main effect ($F_{2,329}=.15$, $p=.861$), but interacted significantly with speed zone ($F_{2,658}=3.22$, $p=.021$). Nonetheless, area had no significant effect for any penalty (highest non-significant $F_{2,333}=2.32$, $p=.100$).

Table 15: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who rated the speed limit in each of 4 familiar speed zones as too low, just right, or too high.

Zones	Rating	Metropolitan Sydney	NSW regional centres	Rural NSW
40 km/hr zones	% Too low	53.8	28.7	13.8
	% Just right	46.2	68.5	79.8
	% Too high	0.0	2.8	6.4
	<u>Mean</u>	<u>2.46</u>	<u>2.74</u>	<u>2.88</u>
50 km/hr zones	% Too low	46.2	43.1	48.9
	% Just right	53.8	54.1	45.7
	% Too high	0.0	2.8	5.3
	<u>Mean</u>	<u>2.54</u>	<u>2.60</u>	<u>2.51</u>
60 km/hr zones	% Too low	15.4	19.6	11.7
	% Just right	80.8	76.6	83.0
	% Too high	3.8	3.7	5.3
	<u>Mean</u>	<u>2.88</u>	<u>2.84</u>	<u>2.94</u>
100 km/hr zones	% Too low	19.2	24.8	36.2
	% Just right	73.1	71.6	59.6
	% Too high	7.7	3.7	4.3
	<u>Mean</u>	<u>2.88</u>	<u>2.79</u>	<u>2.68</u>

Table 16: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW who rated three penalties for speeding as too lenient, about right, or too harsh.

Penalty	Rating	Metropolitan Sydney	NSW regional centres	Rural NSW
\$115 fine & 1 demerit point for exceeding speed limit by no more than 15km/hr	% Too lenient	37.0	23.6	14.9
	% About right	59.3	70.9	77.7
	% Too harsh	3.7	5.5	7.4
	<u>Mean</u>	<u>1.67</u>	<u>1.82</u>	<u>1.93</u>
\$184 fine & 3 demerit points for exceeding speed limit between 15 & 30 km/hr	% Too lenient	23.1	17.3	12.8
	% About right	69.2	71.8	71.3
	% Too harsh	7.7	10.9	16.0
	<u>Mean</u>	<u>1.87</u>	<u>1.94</u>	<u>2.03</u>
\$514 fine & 4 demerit points for exceeding speed limit between 30 & 45 km/hr	% Too lenient	14.8	14.5	16.0
	% About right	51.9	46.4	54.3
	% Too harsh	33.3	39.1	29.8
	<u>Mean</u>	<u>2.19</u>	<u>2.25</u>	<u>2.14</u>

Respondents rated their agreement with several statements of attitudes, including 7 attitudes to penalties for speeding. For each of these 7 attitude statements, responses were collapsed from 5 categories into 3 (disagree, neutral, and agree). The percentage of each sample providing each of these 3 responses for each attitude is depicted in Table 17, along with a mean derived from the original 5-point scale.

Whilst a large proportion of each sample agreed that penalties for speeding are genuinely intended to deter speeding and promote road safety, between 12 and 21% of the sample disagreed with this statement. Similarly, around 35% of the sample felt that penalties are just revenue raising. A majority of the sample agreed with serious countermeasures for serious speeding offenders (caught exceeding the speed limit by more than 45km/hr). A court appearance was supported by around 77% of the sample, whereas the compulsory fitting of devices to govern cars to “a certain speed” was supported by around 55%. The majority of respondents agreed with the practice of doubling demerit points for speeding during holiday periods. Both the possibility of losing demerit points, and the possibility of being fined, appear to be important considerations in the decision to speed for most respondents.

Employing the 3 category scale, the sample areas did not differ significantly for any of the attitudes (highest non-significant $\chi^2=5.82$, $p=.210$). Similarly, analysis employing the 5-point scale revealed no significant difference between the sample areas for any of the events (highest non-significant $F_{2,325}=1.95$, $p=.144$).

Table 17: Percentage of respondents sampled from Metropolitan Sydney, NSW Regional centres and Rural NSW disagreeing or agreeing with several statements regarding countermeasures for speeding.

<i>Statement</i>	<i>Rating</i>	<i>Metropolitan Sydney</i>	<i>NSW regional centres</i>	<i>Rural NSW</i>
Penalties for speeding genuinely intended to deter speeding, to promote road safety	% Disagree	12.4	20.8	16.1
	% Neutral	10.9	17.0	14.0
	% Agree	76.7	62.3	69.6
	<u>Mean</u>	<u>3.90</u>	<u>3.42</u>	<u>3.74</u>
Penalties for speeding are just revenue raising	% Disagree	29.6	37.3	41.3
	% Neutral	29.6	24.5	32.6
	% Agree	40.7	38.2	26.1
	<u>Mean</u>	<u>3.30</u>	<u>3.01</u>	<u>2.85</u>
People caught exceeding speed limit by > 45km/hr, should have to appear in court	% Disagree	10.9	9.5	9.6
	% Neutral	13.3	10.5	13.8
	% Agree	75.8	80.0	76.6
	<u>Mean</u>	<u>4.15</u>	<u>3.70</u>	<u>4.07</u>
People caught exceeding speed limit by > 45 km/h should have speed governors fitted to cars	% Disagree	14.8	30.8	26.1
	% Neutral	25.9	16.3	20.7
	% Agree	59.3	52.9	53.3
	<u>Mean</u>	<u>3.70</u>	<u>3.22</u>	<u>3.43</u>
Demerit points for speeding should be doubled during holiday periods.	% Disagree	20.9	21.2	19.1
	% Neutral	24.8	13.1	22.3
	% Agree	54.3	65.7	58.5
	<u>Mean</u>	<u>3.50</u>	<u>3.44</u>	<u>3.55</u>
The possibility of losing demerit points: important factor in deciding whether to speed or not	% Disagree	20.9	27.1	10.6
	% Neutral	14.7	17.8	18.1
	% Agree	64.3	55.1	71.3
	<u>Mean</u>	<u>3.61</u>	<u>3.28</u>	<u>3.80</u>
The possibility of being fined: important factor in deciding whether to speed or not	% Disagree	20.9	18.9	10.6
	% Neutral	14.7	13.2	18.1
	% Agree	64.3	67.9	71.3
	<u>Mean</u>	<u>3.62</u>	<u>3.49</u>	<u>3.83</u>

RELATIONSHIPS WITH SELF-REPORTED FREQUENCY OF SPEEDING

In the following analysis, variables associated with likelihood of speeding were assessed by computing correlations with the likelihood of speeding index, and the reported likelihood of speeding under typical conditions in the middle of the day (for continuous variables), or t-values (for dichotomous variables), using the entire sample (since there were no area differences in speed likelihood).

Table 18: Summary of relationships of self-reported likelihood of speeding, with involvement in incidents believed to be speed-related, perceived crash risk of speeding, perceived risk of being booked for speeding, perceived relative risk of crashing or being booked while speeding, perceived relative driving safety and skill, normative values regarding speeding, perceived appropriateness of speed limits and penalties, and beliefs about speeding and its countermeasures, for respondents in Metropolitan Sydney, NSW Regional centres and Rural NSW.

	Overall likelihood of speeding	Likelihood of speeding under typical conditions
Involvement in incidents believed to be speed-related		
- Crashing	Ns	Ns
- Being booked	Y>N	Y>N
Perceived crash risk of speeding		
- Speeding increases risk?		
- km/hr over to double chance	Y<N Ns	Ns Ns
- "Speeding can be safe"	(+)ive	(+)ive
Perceived risk of being booked for speeding	Ns	Ns
Relative estimate of		
- likelihood of crashing	Ns	Ns
- likelihood of being booked	Ns	(+)ive
- driving safety	Ns	Ns
- driving skill	Ns	Ns
Km/hr over to be perceived as		
- stupid		
- irresponsible	(+)ive	Ns
- criminal	Ns	Ns
- murderer	Ns	Ns
	(+)ive	Ns
Perceived appropriateness of speed limits and penalties	Ns	Ns
Beliefs about speeding and its countermeasures	Revenue raising: (+)ive Governors fitted: (-)ive	Governors fitted: (-)ive

INVOLVEMENT IN INCIDENTS PERCEIVED TO BE SPEED-RELATED

Respondents who reported having had a crash while speeding did not differ from those who did not in terms of the likelihood of speeding index ($t_{230}=1.33$, $p=.186$), and the reported likelihood of speeding under typical conditions in the middle of the day ($t_{352}=.131$, $p=.896$).

In contrast, respondents who reported having been booked for speeding had significantly higher

scores than those who did not for the likelihood of speeding index ($t_{218}=4.17$, $p<.001$), and the reported likelihood of speeding under typical conditions in the middle of the day ($t_{338}=5.38$, $p<.001$).

PERCEIVED CRASH RISK OF SPEEDING

Respondents who reported that speeding under typical conditions increases the risk of crashing had significantly lower scores for the likelihood of speeding index than did those who did not ($t_{230}=2.63$, $p=.008$), but not for likelihood of speeding under typical conditions although the means were in the same direction and the p-value was low ($t_{249}=1.67$, $p=.098$).

Respondents estimate of the number of kilometres per hour over a 60km/hr speed limit required to double the chances of crashing did not correlate with either likelihood of speeding variable (although the positive relationship with likelihood of speeding under typical conditions approached significance: $r=.109$, $p=.052$).

Agreement with the view that speeding can be safe for a skilful driver correlated positively and significantly with the likelihood of speeding index ($r=.378$, $p<.001$), and the reported likelihood of speeding under typical conditions in the middle of the day ($r=.299$, $p<.001$). Significant positive correlations were observed between both speeding likelihood measures and “speeding can be safe in some circumstances” (lowest significant $r=.299$, $p<.001$). Significant negative correlations were observed for the speeding likelihood index and “the safety of other road users is an important factor in my decision to speed” ($p=-.183$, $p=.008$).

Respondents who thought that speeding under typical conditions increases the risk of crashing reported significantly lower likelihood of speeding under conditions when crashing may be perceived as less likely ($t_{248}=2.82$, $p=.005$). The index of speeding likelihood under conditions when crashing may be perceived as less likely (see Table 6) was significantly positively associated with agreement with the attitude that “speeding can be safe for a skilful driver” ($r=.334$, $p<.001$) but not with the estimate of the number of kilometres per hour over a 60km/hr speed limit required to double the chances of crashing ($r=.082$, $p=.221$).

PERCEIVED RISK OF BEING BOOKED FOR SPEEDING

The estimated likelihood of being detected by an automatic camera when speeding was not significantly associated with either likelihood of speeding index (highest non-significant $r=.070$, $p=.280$).

The index of speeding likelihood under conditions when being booked may be perceived as less likely (see Table 6) was not significantly associated with the estimated likelihood of being detected by an automatic camera when speeding ($r=.043$, $p=.513$).

PERCEIVED RELATIVE RISK OF CRASHING OR BEING BOOKED AND PERCEIVED RELATIVE SAFETY AND SKILL

Perceived relative risk of crashing when speeding by more than 15km/hr did not correlate significantly with either the likelihood of speeding index ($r=-.041$, $p=.544$), or the reported likelihood of speeding under typical conditions in the middle of the day ($r=.070$, $p=.280$). In

contrast, perceived relative risk of being booked for speeding correlated significantly and positively with the reported likelihood of speeding under typical conditions in the middle of the day ($r=.163$, $p=.011$), but not the likelihood of speeding index ($r=.071$, $p=.289$). Perceived relative safety and skill did not correlate significantly with either variable (although the positive correlation between perceived relative skill and the likelihood of speeding index approached significance: $r=.112$, $p=.094$; and the other 3 correlations were in the same direction: next highest non-significant $r=.099$, $p=.125$)

NORMATIVE VALUES REGARDING SPEEDING DRIVERS

The number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed stupid correlated significantly and positively with the likelihood of speeding index ($r=.178$, $p=.015$). A significant positive association was also observed between this index and the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed a potential murder ($r=.151$, $p=.045$). No further correlation was observed between the likelihood of speeding indices and the normative values for the 60 km/hr zone, although all were positive and two of the remaining 6 correlations had low p-values (“stupid” with speed likelihood under typical conditions: $r=.118$, $p=.097$; “criminal” and likelihood of speeding index: $r=.141$, $p=.060$; next highest non-significant $r=.113$, $p=.129$).

PERCEIVED APPROPRIATENESS OF SPEED LIMITS AND PENALTIES

The perceived appropriateness of 60km/hr speed limits was not significantly correlated with either likelihood of speeding measure, although both correlations were negative and p-value associated with the speed likelihood index was low ($r=-.120$, $p=.084$).

BELIEFS ABOUT, AND ATTITUDES TOWARD, SPEEDING AND ITS COUNTERMEASURES

Correlations with agreement with all attitudes were computed. A significant positive correlation was observed between the speeding likelihood index and “penalties for speeding are just revenue raising” ($p=.258$, $p<.001$). Significant negative correlations were observed between both speeding likelihood measures and “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars” (lowest significant $r=-.290$, $p<.001$). No further significant correlation was observed (highest non-significant $r=-.127$, $p=.074$).

Table 19: Summary of relationships of sociodemographic variables with self-reported likelihood of speeding, involvement in incidents believed to be speed-related, perceived crash risk of speeding, perceived risk of being booked for speeding, perceived relative risk of crashing or being booked while speeding, perceived relative driving safety and skill, normative values regarding speeding, perceived appropriateness of speed limits and penalties, and beliefs about speeding and its countermeasures, for respondents in Metropolitan Sydney, NSW Regional centres and Rural NSW.

	<i>Gender</i>	<i>Age</i>	<i>Language at home</i>	<i>Highest education level</i>	<i>Occupation</i>	<i>Marital status</i>	<i>Children under 16</i>	<i>Children over 16</i>
Overall likelihood of speeding	M>F	(-)ive	Ns	Ns	Ns	See Figure 14	Ns	Ns
Likelihood of speeding under typical conditions	M>F	(-)ive	Ns	(+)ive	See Figure 16	See Figure 15	Ns	Ns
Involvement in incidents believed to be speed-related								
- Crashing	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
- Being booked	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
Perceived crash risk of speeding								
- Speeding increases risk?	M>F	Y<N	Ns	Ns	Ns	Ns	Ns	Y, less
- km/hr over to double chance	M>F	Ns	Ns	(+)ive	Ns	Ns	Ns	Ns
- "Speeding can be safe"	M>F	Ns	Ns	(+)ive	Ns	Ns	Ns	Ns
Perceived risk of being booked for speeding	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns

	<i>Gender</i>	<i>Age</i>	<i>Language at home</i>	<i>Highest education level</i>	<i>Occupation</i>	<i>Marital status</i>	<i>Children under 16</i>	<i>Children over 16</i>
Relative estimate of								
- likelihood of crashing	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
- likelihood of being booked	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
- driving safety	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
- driving skill	M>F	Ns	Ns	Ns	Ns	Ns	Ns	Ns
Km/hr over to be perceived as								
- stupid	Ns	(-)ive	Ns	Ns	See Figure 18	Ns	Ns	Ns
- irresponsible	M>F	Ns	Ns	(-)ive	See Figure 19	See Figure 20	Ns	Ns
- criminal	M>F	Ns	Ns	(-)ive	Ns	See Figure 20	Ns	Ns
- murderer	Ns	Ns	Ns	Ns	Ns	See Figure 20	Ns	Ns
Perceived appropriateness of speed limits and penalties	Ns	Ns	Ns	Ns	Ns	Ns	Ns	Ns
Beliefs about speeding and its countermeasures	See details in text	See details in text	See details in text	See details in text	See details in text	Ns	Ns	Ns

Table 20: Summary of relationships of experience/exposure variables with self-reported likelihood of speeding, involvement in incidents believed to be speed-related, perceived crash risk of speeding, perceived risk of being booked for speeding, perceived relative risk of crashing or being booked while speeding, perceived relative driving safety and skill, normative values regarding speeding, perceived appropriateness of speed limits and penalties, and beliefs about speeding and its countermeasures, for respondents in Metropolitan Sydney, NSW Regional centres and Rural NSW.

	<i>Licence class</i>	<i>Years licensed</i>	<i>Hours driving per week</i>	<i>Age of car</i>	<i>Car ownership status</i>
Overall likelihood of speeding	Ns	(-)ive	Ns	Ns	Ns
Likelihood of speeding under typical conditions	Ns	(-)ive	Ns	Ns	Ns
Involvement in incidents believed to be speed-related					
- Crashing	Yes	Ns	Ns	Ns	Ns
- Being booked	Ns	Ns	Ns	Ns	Ns
Perceived crash risk of speeding					
- Speeding increases risk?	Ns	Ns	Ns	Ns	Ns
- km/hr over to double chance	Ns	Ns	(+)ive	Ns	Ns
- “Speeding can be safe for a skilful driver”	Ns	Ns	Ns	Ns	Ns
- “Speeding can be safe under some circumstances”	Ns	Ns	Ns	Ns	Ns
Perceived risk of being booked for speeding	Ns	Ns	Ns	Ns	Ns
Relative estimate of					
- likelihood of crashing	Ns	Ns	Ns	Ns	Ns
- likelihood of being booked	Ns	Ns	(+)ive	Ns	Ns
- driving safety	Ns	Ns	Ns	Ns	Ns
- driving skill	See Figure 17	Ns	(+)ive	Ns	Ns
Km/hr over to be perceived as					
- stupid	Ns	Ns	(+)ive	Ns	See Figure 21
- irresponsible	Ns	Ns	Ns	Ns	See Figure 21
- criminal	Ns	Ns	(+)ive	Ns	See Figure 21
- murderer	Ns	Ns	Ns	Ns	See Figure 21
Perceived appropriateness of speed limits and penalties	Ns	Ns	Ns	Ns	Ns
Beliefs about speeding and its countermeasures	Ns	See details in text	Ns	Ns	See details in text

The association of sociodemographic variables with likelihood of speeding and its potential determinants was also assessed (see Tables 19 and 20).

SELF-REPORTED FREQUENCY OF SPEEDING

Males were significantly more likely than females to speed, overall ($t_{200}=2.07^1$, $p=.039$) and under typical conditions ($t_{318}=2.15$, $p=.033$).

Both likelihood of speeding indices were significantly associated with age (lowest significant² $r=-.134$, $p=.049$), and marital status (lowest significant $F_{3,314}=3.37$, $p=.019$; see Figures 14 and 15).

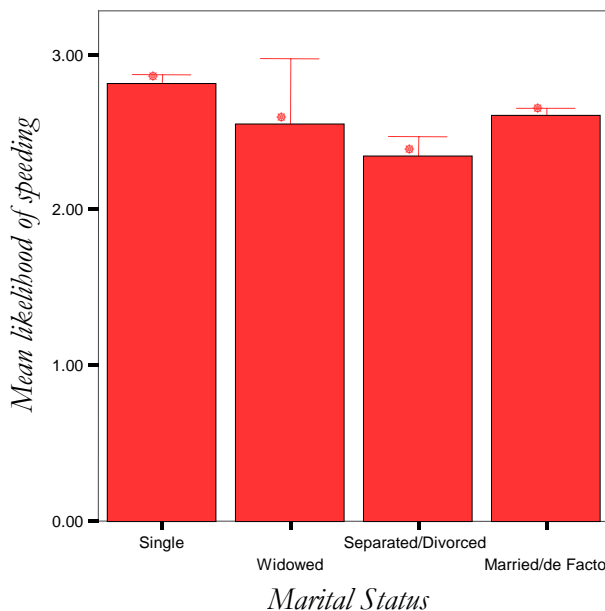


Figure 14: Mean self-reported likelihood of speeding (averaged across 21 situations), by marital status, across Metropolitan Sydney, NSW Regional centres and Rural NSW

¹ In reporting t-values, valence is ignored.

² When relative sizes of r-values are considered, absolute values are employed.

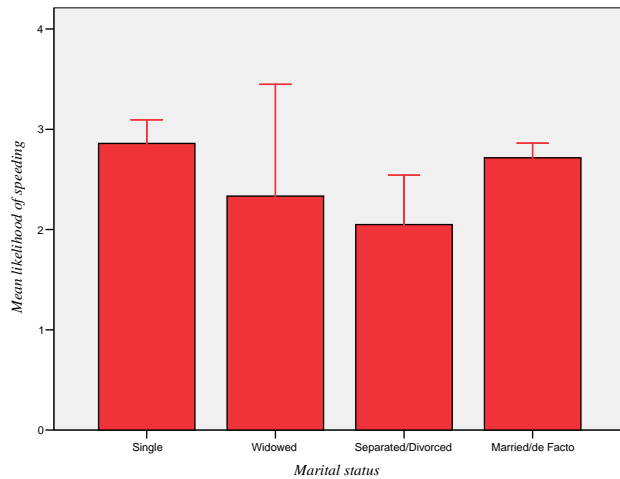


Figure 15: Mean self-reported likelihood of speeding under typical conditions, by marital status, across Metropolitan Sydney, NSW Regional centres and Rural NSW

Neither speed likelihood index was significantly associated with language spoken at home (highest non-significant $t_{231}=.53$, $p=.600$), or with the number of children under 16, or over 16 (highest non-significant $r=-.129$, $p=.069$).

The likelihood of speeding under typical conditions was significantly associated with education level ($r=.17$, $p=.003$) and with occupation ($F_{6,308}=3.34$, $p=.003$) [see Figure 16].

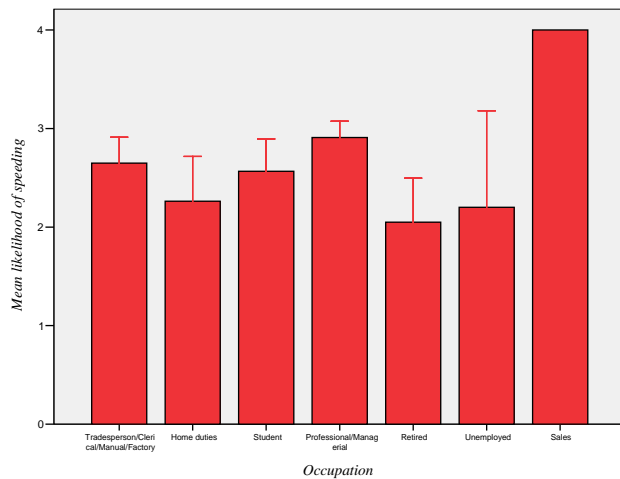


Figure 16: Mean self-reported likelihood of speeding under typical conditions, by occupation, across Metropolitan Sydney, NSW Regional centres and Rural NSW

Neither likelihood of speeding index was significantly associated with licence category (highest non-significant $F_{5,195}=1.43$, $p=.360$), car ownership (highest non-significant $F_{4,194}=.728$, $p=.574$), hours spent driving each week (highest non-significant $r=-.030$, $p=.588$), or age of car (highest non-significant $r=-.050$, $p=.488$).

Both likelihood of speeding indices were significantly negative correlated with length of licensure (lowest significant $r=-.136$, $p=.015$).

INVOLVEMENT IN INCIDENTS PERCEIVED TO BE SPEED-RELATED

Respondents who reported having had a crash while speeding did not differ from those who did not in terms of gender ($X_1^2=.44$, $p=.506$), age ($t_{218}=1.95$, $p=.845$), language spoken at home ($X_1^2=1.38$, $p=.240$), education level ($t_{318}=1.22$, $p=.222$), occupation ($X_6^2=8.38$, $p=.212$), marital status ($X_3^2=4.78$, $p=.188$), number of children under 16 or over 16 (highest non-significant $t_{216}=1.13$, $p=.895$), car ownership ($X_4^2=3.11$, $p=.540$), length of licensure ($t_{317}=.70$, $p=.487$), number of hours spent driving per week ($t_{319}=.47$, $p=.641$), or age of car ($t_{290}=.42$, $p=.672$). This variable was, however, significantly associated with licence class ($X_5^2=47.01$, $p<.001$).

Respondents who reported having been booked for speeding did not differ from those who did not in terms of gender ($X_1^2=2.37$, $p=.124$), age ($t_{214}=.422$, $p=.674$), language spoken at home ($X_1^2=1.55$, $p=.213$), education level ($t_{314}=.97$, $p=.335$), occupation ($X_6^2=11.62$, $p=.071$), marital status ($X_3^2=.35$, $p=.951$), number of children under 16 or over 16 (highest non-significant $t_{213}=1.69$, $p=.092$), licence class ($X_5^2=8.05$, $p=.153$), car ownership ($X_4^2=2.91$, $p=.573$), length of licensure ($t_{313}=1.54$, $p=.124$), hours spent driving per week ($t_{315}=.87$, $p=.388$), or age of car ($t_{286}=.15$, $p=.880$).

PERCEIVED CRASH RISK OF SPEEDING

Respondents who reported that speeding under typical conditions increases the risk of crashing were more likely to be male ($X_1^2=4.86$, $p=.028$), were younger than were those who did not ($t_{218}=2.00$, $p=.047$), and had fewer children over 16 ($t_{216}=2.41$, $p=.017$). This measure was not influenced by language spoken at home ($X_1^2=.07$, $p=.799$), education level ($t_{217}=1.02$, $p=.310$), occupation ($X_6^2=3.10$, $p=.796$), marital status ($X_3^2=2.41$, $p=.492$), number of children under 16 ($t_{216}=1.05$, $p=.294$), licence class ($X_5^2=8.90$, $p=.113$), car ownership ($X_4^2=2.40$, $p=.662$), length of licensure ($t_{217}=1.58$, $p=.115$), hours spent driving per week ($t_{219}=.68$, $p=.497$), or age of car ($t_{212}=.91$, $p=.365$).

Compared to females, males made significantly higher estimates of the number of kilometres per hour over a 60km/hr speed limit required to double the chances of crashing ($t_{294}=3.89$, $p<.001$). This variable was not significantly associated with age ($r=-.069$, $p=.331$), language spoken at home ($t_{322}=1.65$, $p=.101$), occupation ($F_{6,285}=1.78$, $p=.104$), education level ($r=-.031$, $p=.596$), marital status ($F_{3,290}=.93$, $p=.429$), or number of children under 16 or over 16 (highest non-significant $r=.137$, $p=.053$), or licence category ($F_{5,288}=.23$, $p=.947$), car ownership ($F_{4,288}=1.68$, $p=.154$), length of licensure ($r=-.078$, $p=.182$). Estimated number of kilometres per hour over a 60km/hr speed limit required to double the chances of crashing was significantly positively correlated with number of hours spent driving per week ($r=.255$, $p<.001$), and age of car ($r=.122$, $p=.046$).

Males reported stronger agreement than females with the view that speeding can be safe for a skilful driver ($t_{321}=5.91$, $p<.001$). Agreement with this statement was significantly and positively associated with education level ($r=.154$, $p=.006$). This variable did not correlate significantly with age ($r=-.027$, $p=.689$), language spoken at home ($t_{331}=1.03$, $p=.306$), occupation ($F_{6,311}=1.12$, $p=.348$), marital status ($F_{3,317}=2.45$, $p=.063$), number of children under 16 or over 16 (highest non-significant $r=-.059$, $p=.383$), licence category ($F_{5,315}=.62$, $p=.685$), car ownership ($F_{4,315}=1.58$,

$p=.180$), length of licensure ($r=-.064$, $p=.251$), hours spent driving each week ($r=.006$, $p=.920$), or age of car ($r=.020$, $p=.728$).

Males agreed more strongly than females with the attitudes: “speeding can be safe in some circumstances” ($t_{218}=4.48$, $p<.001$). Education level was associated with agreement with the attitude: “speeding can be safe in some circumstances” ($r=.151$, $p=.026$).

Males agreed more strongly than females with the attitudes: “modern cars significantly reduce the risk of having a crash and being injured due to speeding” ($t_{217}=4.08$, $p<.001$).

PERCEIVED RISK OF BEING BOOKED FOR SPEEDING

The estimated likelihood of being detected by an automatic camera when speeding was not significantly associated with gender ($t_{214}=1.18$, $p=.238$), age ($r=-.035$, $p=.608$), language spoken at home ($t_{238}=.439$, $p=.661$), education level ($r=.000$, $p=.996$), occupation ($F_{6,207}=.559$, $p=.763$), marital status ($F_{3,212}=.38$, $p=.767$), or number of children under 16 or over 16 (highest non-significant $r=-.014$, $p=.840$), licence category ($F_{5,209}=1.03$, $p=.947$), car ownership ($F_{4,210}=1.57$, $p=.183$), length of licensure ($r=.060$, $p=.380$), hours spent driving each week ($r=-.052$, $p=.449$), or age of car ($r=-.013$, $p=.849$).

PERCEIVED RELATIVE RISK OF CRASHING OR BEING BOOKED AND PERCEIVED RELATIVE SAFETY AND SKILL

Males made significantly higher estimates of their relative driving skill than did females ($t_{218}=2.87$, $p=.004$). However, there was no gender effect for perceived relative likelihood of crashing when speeding or being booked for speeding ($t_{216}=1.69$, $p=.092$, $t_{218}=.056$, $p=.995$, respectively), or perceived relative driving safety ($t_{218}=1.41$, $p=.161$).

None of these perceived relative indices were significantly associated with age (highest non-significant $r=-.097$, $p=.150$), language spoken at home (highest $t_{242}=1.40$, $p=.162$), education level (highest non-significant $r=.090$, $p=.184$), occupation ($F_{6,210}=1.07$, $p=.381$), marital status (highest non-significant $F_{3,214}=.42$, $p=.742$), number of children under 16 or over 16 (highest non-significant $r=-.108$, $p=.113$), car ownership (highest non-significant $F_{4,212}=1.13$, $p=.345$), length of licensure (highest non-significant $r=-.104$, $p=.124$), age of car (highest non-significant $r=.073$, $p=.291$)

Licence category was significantly associated with perceived relative skill ($F_{5,213}=3.67$, $p=.003$), but not with the other perceived relative indices (highest non-significant $F_{5,213}=2.05$, $p=.073$).

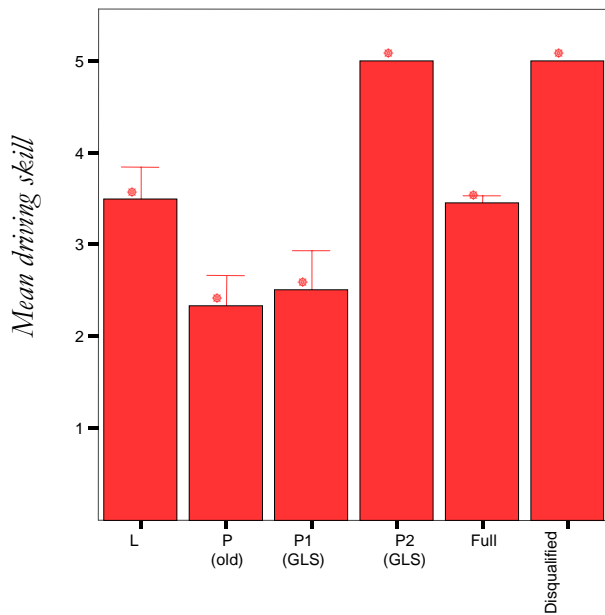


Figure 17: Mean self-reported driving skill, by licence class, across Metropolitan Sydney, NSW Regional centres and Rural NSW

Hours per week spent driving was significantly associated with perceived relative chances of being booked for speeding ($r=.199$, $p=.003$), and perceived relative skill ($r=.165$, $p=.014$), but not with the other perceived relative indices (highest non-significant $r=.077$, $p=.252$).

NORMATIVE VALUES REGARDING SPEEDING DRIVERS

Compared to females, males made significantly higher estimates of the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed irresponsible ($t_{265}=2.99$, $p=.003$), criminal ($t_{257}=2.25$, $p=.025$), or a potential murderer ($t_{255}=2.13$, $p=.034$) (stupid: $t_{180}=.854$, $p=.394$).

Age correlated negatively and significantly with the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed stupid ($r=-.177$, $p=.017$), but not for other descriptors in the same zone (highest non-significant $r=-.107$, $p=.157$).

Education level was significantly negatively correlated with the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed irresponsible ($r=-.121$, $p=.049$), or criminal ($r=-.154$, $p=.014$). Occupation was significantly associated with the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed stupid ($F_{6,173}=2.90$, $p=.010$), or irresponsible ($F_{6,256}=3.10$, $p=.006$).

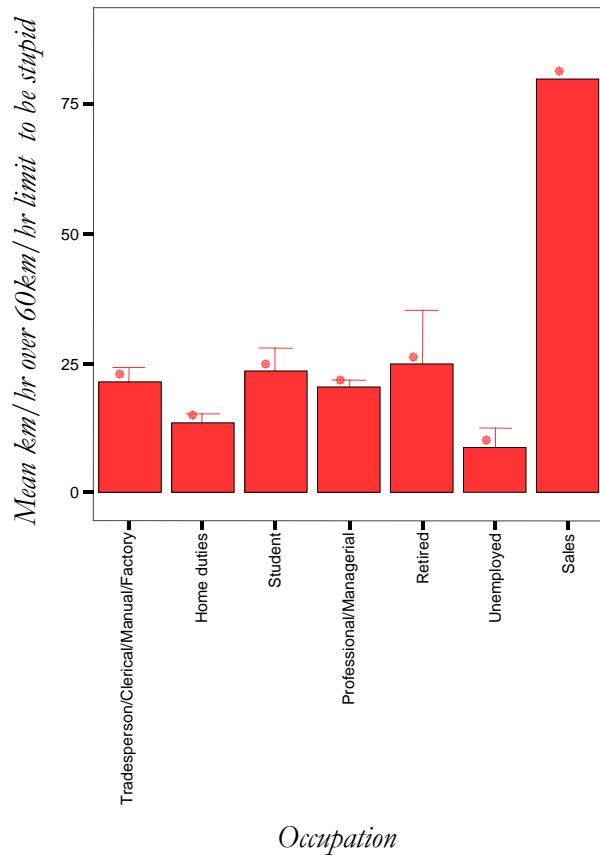


Figure 18: Mean response to the question “How much over the speed limit would a driver have to be going in a 60km/hr zone, for you to consider him/her to be stupid”, by occupation, across Metropolitan Sydney, NSW Regional centres, and in Rural NSW

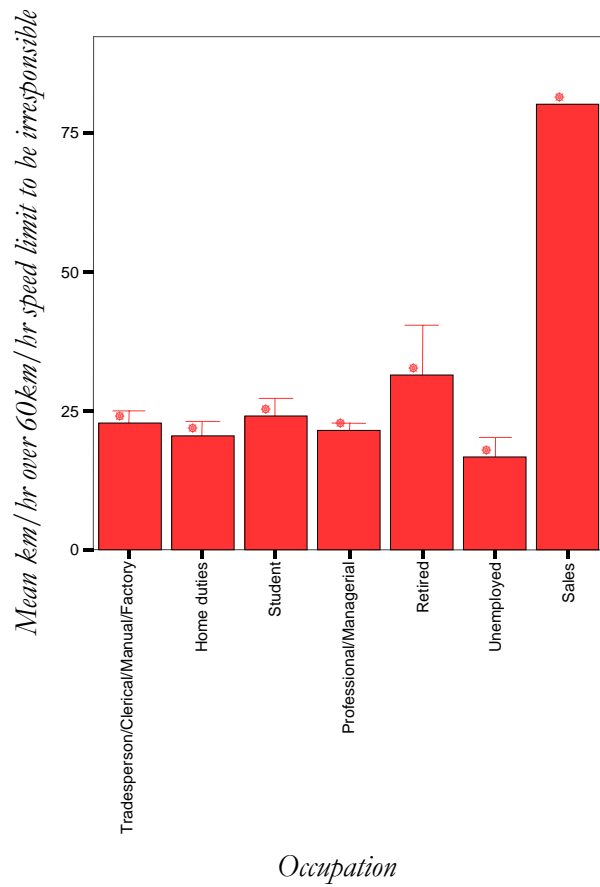


Figure 19: Mean response to the question “How much over the speed limit would a driver have to be going in a 60km/hr zone, for you to consider him/her to be irresponsible”, by occupation, across Metropolitan Sydney, NSW Regional centres, and in Rural NSW

Marital status was significantly associated with the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed irresponsible ($F_{3,261}=8.74$, $p<.001$), criminal ($F_{3,253}=5.20$, $p=.002$), or a potential murderer ($F_{3,251}=4.42$, $p=.005$) (see Figure 20 for “irresponsible”, since the other descriptors showed similar patterns).

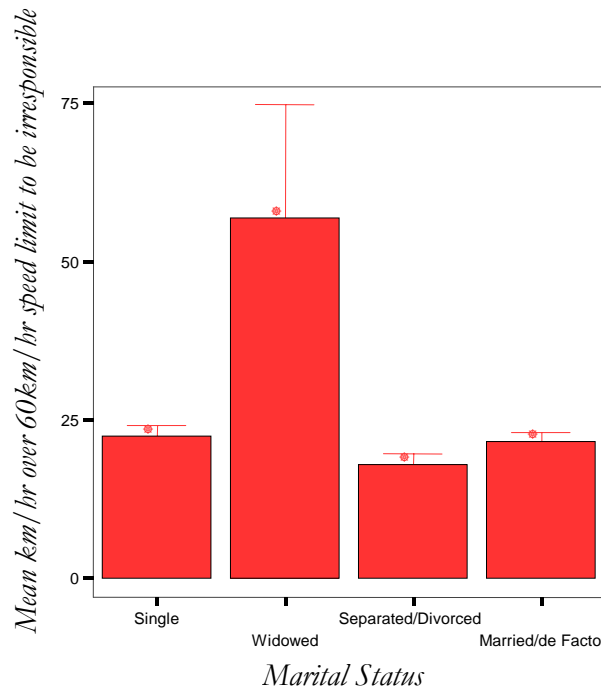


Figure 20: Mean response to the question “How much over the speed limit would a driver have to be going in a 60km/hr zone, for you to consider him/her to be irresponsible”, by marital status, across Metropolitan Sydney, NSW Regional centres, and in Rural NSW

None of the normative value indices (for the 60km/hr zone) were significantly associated with language spoken at home (highest non-significant $t_{274}=1.43$, $p=.154$), number of children under 16 or over 16 (highest non-significant $r=.103$, $p=.177$), licence category (highest non-significant $F_{5,251}=.76$, $p=.580$), length of licensure (highest non-significant $r=-.079$, $p=.291$), or age of car (highest non-significant $r=.088$, $p=.182$).

All of the normative value indices (for the 60km/hr zone) were significantly associated with car ownership (lowest significant $F_{4,176}=2.75$, $p=.030$; see Figure 21 for “stupid” only, since the other descriptors showed similar patterns).

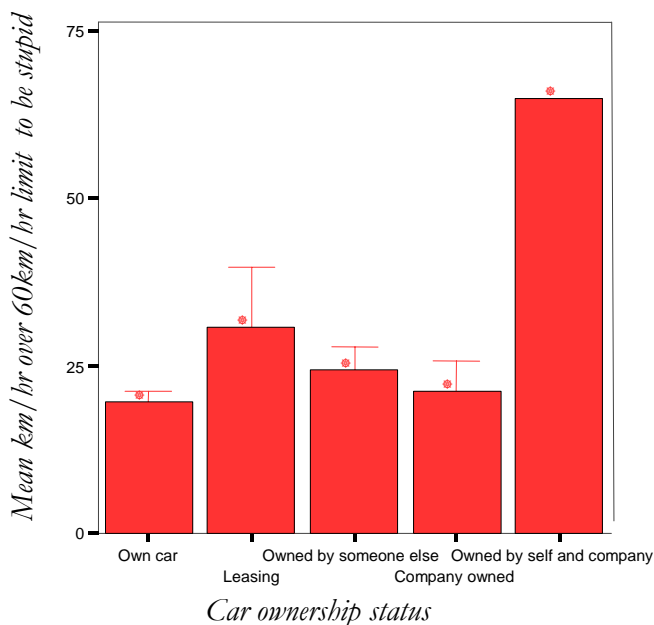


Figure 21: Mean response to the question “How much over the speed limit would a driver have to be going in a 60km/hr zone, for you to consider him/her to be stupid”, by car ownership status, across Metropolitan Sydney, NSW Regional centres, and in Rural NSW

Hours spent driving per week correlated positively and significantly with the number of kilometres per hour over a 60km/hr speed limit required for a driver to be termed stupid ($r=.191$, $p=.009$) or criminal ($r=.155$, $p=.102$), but not for other descriptors in the same zone (highest non-significant $r=.117$, $p=.063$).

PERCEIVED APPROPRIATENESS OF SPEED LIMITS AND PENALTIES

The rated appropriateness of the limit in known 60km/hr zones was not significantly associated with gender ($t_{213}=1.32$, $p=.188$), age ($r=.079$, $p=.250$), language spoken at home ($t_{225}=.360$, $p=.719$), education level ($r=-.102$, $p=.137$), occupation ($F_{6,205}=.883$, $p=.508$), marital status ($F_{3,211}=.91$, $p=.438$), or number of children under 16 or over 16 (highest non-significant $r=.051$, $p=.456$), licence class ($F_{4,209}=.88$, $p=.479$), car ownership ($F_{4,207}=.20$, $p=.940$), length of licensure ($r=.060$, $p=.380$), hours spent driving per week ($r=-.033$, $p=.634$), or age of car ($r=-.018$, $p=.793$).

BELIEFS ABOUT, AND ATTITUDES TOWARD, SPEEDING AND ITS COUNTERMEASURES

Males agreed more strongly than females with the attitude “penalties for speeding are just revenue raising” ($t_{215}=2.49$, $p=.014$). Females agreed more strongly than males with the attitudes: “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety” ($t_{320}=3.37$, $p=.001$), and “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars” ($t_{217}=2.13$, $p=.034$).

Age correlated significantly and negatively with agreement with “the possibility of getting a fine is an important factor in my decision to speed” ($r=-.136$, $p=.043$) and “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety” ($r=-.147$, $p=.029$). No further correlations with attitude statements were significant (highest non-significant $r=-.118$, $p=.081$).

Compared to non-English speakers, English speakers were less likely to agree with the attitude: “penalties for speeding are just revenue raising” ($t_{219}=2.08$, $p=.039$), and more likely to agree with the attitude: “Demerit points for speeding should be doubled during holiday periods” ($t_{216}=2.11$, $p=.036$).

Education level was associated with agreement with the attitude: “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety” ($r=-.111$, $p=.047$). Occupation was associated with agreement with the attitude: “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars” ($F_{6,210}=2.27$, $p=.038$).

None of the attitude statements was associated with marital status (highest non-significant $F_{3,215}=2.28$, $p=.080$), number of children under 16 or over 16 (highest non-significant $r=-.177$, $p=.090$), licence class (highest non-significant $F_{5,314}=1.67$, $p=.142$), number of hours spent driving per week (highest non-significant $r=.103$, $p=.065$), age of car (highest non-significant $r=.085$, $p=0.218$). Car ownership was associated with the attitudes: “modern cars significantly reduce the risk of having a crash and being injured due to speeding” ($F_{4,211}=2.77$, $p=.028$), or “the safety of other road users is an important factor in my decision to speed” ($F_{4,211}=4.20$, $p=.003$). Length of licensure was significantly associated with agreement with “passenger safety is an important factor in my decision to speed” ($r=-.150$, $p=.027$), and “demerit points for speeding should be doubled during holiday periods” ($r=-.137$, $p=.046$).

DISCUSSION AND CONCLUSIONS

CONSIDERATION OF STUDY AIMS

THE FREQUENCY OF SPEEDING UNDER VARIOUS CONDITIONS

On average, across 21 different situations respondents reported being moderately likely to speed. A similar self-reported likelihood of speeding was observed for the situation “under typical conditions in the middle of the day”. In this situation, approximately 24.0% of respondents reported being likely to speed. Mitchell-Taverner et al. (2003) reported that 14% of their respondents reported normally traveling at 5km or more above a 60km/hr speed limit in urban zones. For 100km/hr rural zones the corresponding figure was 26% of their respondents reported that they normally exceed the 100km/hr speed limit in rural zones. These findings are difficult to compare, because of the slightly different question wording and response scales, but do seem fairly consistent.

Compared to “under typical conditions in the middle of the day”, self-reported likelihood of speeding was significantly reduced under poor conditions (wet, night, winding road). Respondents also reported being moderately likely to speed on a rural road. Also of interest, respondents reported being unlikely to speed near a school.

Sydney, regional and rural respondents did not differ in terms of self-reported likelihood of speeding, either overall, or beyond a chance rate for individual situations. This contrasts with Mitchell-Taverner et al.’s (2003) finding that respondents from major urban centres were more likely to speed than other drivers (though not in 100 km/hr zones).

REASONS FOR SPEEDING

Results suggest that risk utility plays a role in speeding (see Jonah, 1986). Compared to the situation “under typical conditions in the middle of the day”, self-reported speeding was significantly more likely in situations in which it has some benefit. The index which formed the basis of this analysis included situations in which speeding has a benefit in its own right (e.g. you need to blow off steam), which on their own reduced the self-reported likelihood of speeding. Thus, indirect benefits of speeding (e.g. you are in a hurry to get to an appointment) appear to be particularly potent reasons for speeding. Relatively high self-reported likelihood of speeding was observed for the situations: “you need to overtake”, “you are in a hurry to get to an appointment” (consistent with Kanellaidis et al, 1995, and Lee et al., 1993), “to avoid an accident”. Keeping up with traffic did not appear to add substantially to the motivation to speed, although it has been identified as a factor for speeding in previous research (Kanellaidis et al., 1995; Parker et al., 1992).

Direct benefits do not seem to be a prominent reason for speeding. Low self-reported likelihood of speeding was observed for the situations “you want to impress others” and “to compete with other drivers”, in contrast with earlier research (Kanellaidis et al, 1995; Lee et al., 1993). Concerns about socially desirable responding limit confidence in these findings. For example, people may

be more likely to speed when they need to blow off steam, or feel like a thrill, but may be unwilling to admit it.

Respondents also reported being relatively unlikely to speed when they have passengers in the car, however this may relate more to safety concerns than to impressing others.

The oddities of people's responses to such questionnaires are highlighted by people's low responses on some of these items. That is, responses suggest that people are less likely to speed when they feel like a thrill (for example) than under typical conditions, rather than simply no more likely.

Results also suggest a role of risk perception. That is, compared to the situation "under typical conditions in the middle of the day", self-reported speeding was significantly more likely in situations in which it may be perceived as less likely to result in a crash (e.g. you know the road very well) or to result in being booked (e.g. you need to overtake). The latter finding is particularly unlikely to be the result of socially desirable responding. That is, respondents are unlikely to think that it creates a good impression to admit to speeding in situations when they can "get away with it".

PERCEIVED BENEFIT, AND USE, OF TECHNIQUES FOR AVOIDING DETECTION WHILE SPEEDING.

In the Sydney sample, a small but meaningful number of respondents (>5.0%) reported engaging in practices to reduce their chances of being booked while speeding. In order of frequency, these were, "slowing down when you see police or a camera" (19.2%), "speeding if the traffic around you is speeding" (15.5%), "taking back streets" (12.3%), and "avoiding known locations of police or cameras" (10.1%). In regional centres, "taking back streets" and "slowing down when you see police or a camera" were the most commonly reported practices (reported by 6.3% and 5.0% of the regional sample, respectively). "Driving at certain times of the day" was also practiced by 6.9% of the Sydney sample and 5.0% of the rural sample, with the most common and consistent times being early morning (23.1%), at night (17.0%), and in the middle of the day (12.3%). Very few respondents reported "driving in certain lanes" to avoid being booked.

Sydney respondents were significantly more likely than regional and rural respondents to report "slowing down when you see police or a camera", "speeding if the traffic around you is speeding", and "avoiding known locations of police or cameras".

All practices, except "driving in certain lanes", were perceived to be effective by 45-50% of the sample. Generally there were no area differences in the perceived effectiveness of the practices, except that Sydney respondents were more likely to perceive "avoiding known locations of police or cameras" as effective. Thus, area differences in use of these practices are likely to arise from something other than their perceived effectiveness (e.g. tendency to adhere to the law, social norms etc.).

Further, campaigns which have stressed that several of these practices have no impact on the likelihood of being booked (e.g. road position, speeding with a column of cars) have been minimally effective (since around 50% of people sampled still believe that these practices reduce the chances of being booked while speeding).

EXPERIENCE WITH DETECTION, AND INVOLVEMENT IN ROAD CRASHES DUE TO SPEEDING

Unsurprisingly, the rate of self-reported speed-related crashes was fairly low in each sample (approximately 5% on average). Sydney respondents were less likely to report having had a speed-related crash than both regional and rural respondents. However, these results may be influenced by recall and perception. That is, drivers may not recall all crashes in which they have

been involved, and may not always recognise the role of speed in those crashes that they do remember. Further, as respondents were asked “Have you ever had a crash because you were speeding?”, these results do not include crashes (perceived to be) caused by another driver speeding.

Indeed this question was not included in order to assess rates of speed-related crashes (for which crash database statistics are likely to be a more accurate, though not perfectly accurate, source). Rather, it was included to assess the relationship between involvement in crashes that respondents perceived to be due to their own speeding and (self-reported) likelihood of speeding.

Around 20% of each sample reported having been booked for speeding in the past two years (with no differences between Sydney, regional, and rural respondents). Again, actual rates may be somewhat different, because respondents are unlikely to have perfect recall. Nonetheless the role of speeding in being booked is less ambiguous than its role in crashing. Again, the main reason for including this variable was to check its association with likelihood of speeding.

Respondents who reported having had a crash because they were speeding did not differ from those who did not in terms of self-reported likelihood of speeding. In contrast, respondents who reported having been booked for speeding had higher self-reported likelihood of speeding than those who did not. Although cross-sectional data are generally ambiguous with regard to causal direction, these results are consistent with the possibility that people who speed more often are more likely to get booked (and inconsistent with the possibility that people who have been booked for speeding are less likely to speed afterward).

PERCEIVED CRASH RISK OF SPEEDING

Generally, respondents seemed to recognise that speeding poses a threat to safety.

Perceived contribution of speeding to the road safety problem

Speed was identified as the most important cause of serious car crashes, being named by 37.2% of respondents. 20.3% of respondents named it as the second most important cause, and 12.2% as the third most important. This appears consistent with the findings of the Community Attitudes to Road Safety Survey, Wave 15 (Mitchell-Taverner, 2002), in which 37% of people in both surveys nominate speed as the most important factor and 62% of respondents included speeding in the top three crash factors, even though only about 90% of respondents provided 3 factors.

Also consistent with the Community Attitudes Survey, the other factors that were most frequently named amongst the three most important causes of serious car crashes were alcohol and fatigue. The present findings contrast with those of Parker et al. (1992), that drink-driving was a greater threat to life, and again suggest an increased awareness of the dangers of speeding.

Sydney respondents were significantly less likely than regional respondents to name speeding as the first most important cause, apparently mostly reflecting regional respondents' emphasis on this factor. In contrast, Sydney respondents were significantly more likely than rural respondents to name speeding, apparently mostly reflecting rural respondents' greater emphasis on fatigue (significance not tested).

Around 55-60% of crashes in the year prior to the survey were estimated to be caused by speeding (with no significant differences observed between Sydney, regional and rural respondents).

Perception of whether speeding increases the risk of crashing under various conditions

The vast majority of respondents (approximately 80-90%) in each area responded affirmatively to

the question “Do you believe that exceeding the speed limit increases the risk of having a car crash on a clear, dry day?” (with no significant differences observed between Sydney, regional and rural respondents). Nonetheless, this implies that between 10-20% of respondents believe that speeding *does not* increase crash risk under these circumstances.

A large proportion of respondents (90-100%) agreed that the crash risk posed by speeding is worsened at night, in wet conditions, and in heavy traffic. Thus, some of the respondents who believe that speeding does not increase crash risk on a clear, dry day, may recognise the risks posed by speeding under poor conditions. Wet conditions were almost uniformly recognised to worsen the crash risk posed by speeding (by 100% of the Sydney and regional samples, and 98.1% of the rural sample). Thus, imposition of a variable speed limit (lower under wet conditions) may be acceptable to the public. Sydney respondents were less likely than regional respondents to view heavy traffic as worsening crash risk, but did not differ from rural respondents (and no area differences were observed in relation to other conditions), although the reason for this finding is unclear.

It is of some concern that around 40% of respondents answered the question “Compared to the risk posed by exceeding the speed limit on a clear, dry day, is the risk worse on an empty street?” in the affirmative. This item was included to check response biases (e.g. uniformly responding in the affirmative), on the basis that speeding is less likely to result in a crash on an empty street (and so most respondents were expected to answer “No”). However, some respondents may have misunderstood this question and answered “Yes” on the basis that speeding would be relatively more likely on an empty street (and so more likely to result in a crash). Thus, it is unlikely that 40% of respondents were demonstrating a response bias on this question (and the other items do not lend themselves to a similar misunderstanding).

Respondents who reported thinking that speeding increases the chances of having a crash on a clear dry day reported being less likely to speed (overall), than those who did not. This result is consistent with the view that perceived risk inhibits risky behaviour.

Perceived risk of crash for different levels of speed exceedance

Respondents estimated how many km/hr above a 50km/hr, a 60km/hr, and a 100km/hr speed limit they would have to drive to double their crash risk (compared to driving at the speed limit). A significant linear increase in the estimated speed over the limit was observed across the 50 km/hr, 60 km/hr, and 100 km/hr speed zone. For the 50km/hr zone the average response was approximately 25km/hr, for the 60km/hr zone it was 25km/hr, and for the 100km/hr zone it was 30km/hr. Thus, the speed beyond the speed limit required to double the chances of having a crash is not a constant across zones, but nor does it seem to be a constant proportion of the speed limit (dropping from 1/2 to 1/3 across the speed limit zones considered).

Notably, all of these estimates are significantly greater than scientific estimates of the risk of involvement in a casualty crash: 5km/hr in urban (60 km/hr) speed zones (Kloeden et al., 1997) and 10 km/hr in rural (100 km/hr) speed zones (Kloeden et al., 2001).

Estimates were significantly greater in Sydney than in regional centres, with the difference apparently somewhat lower in the 50 km/hr zone. Sydney did not differ significantly from rural areas, although the Sydney means were consistently non-significantly greater.

The estimated number of km/hr above 60km/hr that a driver would have to drive to double crash risk (compared to driving at the speed limit), was not significantly associated with self-reported likelihood of speeding.

Attitudes related to the safety of speeding and its relevance

A sizeable proportion of each sample agreed with each of the statements “speeding can be safe for a skilful driver” (23.1%) and “speeding can be safe under some circumstances” (37.8%). This compares to the Community Attitudes to Road Safety Survey, Wave 15 (Mitchell-Taverner, 2002), in which 32% of respondents agreed that “it is okay to speed if you are driving safely”.

The present results are in keeping with many respondents’ perception that speeding does not pose a significant risk on a clear, dry day, and raises the question of whether speed limits are perceived as appropriate (see Section “Perceived Appropriateness of Speed Limits and Penalties” below).

These results are particularly concerning given the association of these views with higher self-reported likelihood of speeding. One possible interpretation of this finding is that drivers who believe that it can be safe to speed are more likely to do so. However, these results may also indicate that people who speed try to justify their actions by endorsing the view that speeding can be safe (via a process of cognitive dissonance). (Other interpretations are also possible).

42.0% of the sample agreed with the notion that modern cars make speeding safer. This raises concerns in the context of theories of risk propensity and risk homeostasis (see Wilde, 1986). Whilst modern cars almost certainly reduce the chance and severity of injuries resulting from crashes, and may also reduce the likelihood of crashing from the point of view of better braking, drivers’ perception that this is the case may effectively “undo” the benefits. For example, drivers may speed because of thinking that they are safe in a modern car.

Safety considerations appear to play a role in the decision to speed for most respondents. Interestingly, the safety of passengers (a consideration for 91.5% of respondents) and of other road users (82.6% of respondents), were more likely to be identified as an important factor in the decision to speed than was personal safety (74.7% of respondents) (significance not tested). This may reflect some influence of social desirability on responding, or perceived personal invulnerability.

Nonetheless, 21.5% of respondents admitted sometimes feeling uncomfortable at the speeds they drive. This suggests that these respondents sometimes perceive the safety risk of speeding, and yet speed anyway (perhaps for its indirect benefits as identified in “Reasons for Speeding” Section).

PERCEIVED RISK OF DETECTION WHEN SPEEDING

Overall, a substantial proportion of respondents estimated their chances of being booked *when* speeding as unlikely (between 24.7% and 60.0% for all method/area combinations), consistent with earlier research (Kanellaidis et al., 1995; Parker et al., 1992). Further, a substantial proportion of respondents felt they had an even chance of being booked when speeding (between 26.7% and 40.0% for all method/area combinations). Thus, it may be of value to promote the view that detection is more likely (especially given that it may be a more effective deterrent than the possibility of a crash, which people are more likely to deny; see Job, 1988).

A small but meaningful proportion of the sample believed that they *cannot* be booked for speeding in each of 4 situations (in order of frequency): exceeding the speed limit by no more than 10% (37.8%)³, it is an emergency (32.4%), you are overtaking (26.5%), and you are driving

³ Compared to 33% of Mitchell-Taverner et al.’s (2003) respondents who thought that speeds up to

downhill (8.4%). Of course, other respondents may regard it as particularly unlikely that they would be booked in these circumstances (i.e. a police officer may overlook the offence even though it *could* be penalised). Any promotion of a tolerance less 10% tolerance (assuming that it is non-zero) would have to be vague, in order to avoid creating a defacto speed limit above the posted limit, and would thus be unlikely to be persuasive. However, promotion of the irrelevancy of the other situations to the likelihood of being booked may be of value.

The only refinement of this overall picture was that Sydney respondents thought they were less likely to be booked by police in a moving patrol vehicle than did rural respondents, and less likely to be booked while speeding downhill than did regional respondents.

Perceived likelihood of detection was not significantly associated with self-reported likelihood of speeding.

PERCEIVED RELATIVE RISK OF CRASHING OR BEING BOOKED AND PERCEIVED RELATIVE SAFETY AND SKILL

Whilst it may seem logical for perceived personal risk to be a primary determinant of risk-relevant behaviour (as formalised in a number of theories of health behaviour e.g. the Health Behaviour Model, Janz and Becker, 1984), perceived relative risk appears to be at least as important (see Klein, 1997). Indeed this is unsurprising, given that relative judgements are easier to make and relative standing is often critical (e.g. when applying for a job) (Klein, 1997).

Thus, in the present study participants were asked to rate their chances of having a crash if exceeding the speed limit by less than 15km/hr, and of being booked for speeding, *compared to their average peer*. Consistent with a large body of literature on “optimism bias” (also referred to as “illusory invulnerability”), and specific findings that drivers believe that they are less likely to have a crash than their average peer (Finn and Bragg, 1986), respondents judged their chances of having a crash *due to speeding* as being significantly “lower than average”. Judgements were in a direction inconsistent with optimism bias for being booked (in contrast to the findings of Job et al., 1995).

Sydney respondents showed greater optimism bias than regional respondents in terms of both outcomes, and greater optimism bias than rural respondents only in terms of not being booked.

Illusory invulnerability regarding aspects of road use has been found to be negatively associated with self-reported adoption of precautionary behaviours (e.g. seat-belt use: Job et al., 1995).

In the present study, whereas, perceived likelihood of detection was not significantly associated with self-reported likelihood of speeding, perceived *relative* likelihood of detection *was* significantly associated with self-reported likelihood of speeding. The greater the extent to which people thought they were less likely than average to be booked was associated with greater self-reported likelihood of speeding under typical conditions. This result is consistent with earlier findings that perceived relative risk is at least as important in influencing behaviour as perceived absolute risk (Klein, 1997). Perceived relative likelihood of crashing was not associated with self-reported likelihood of speeding.

Respondents also rated their driving safety and skill compared to their average peer, and demonstrated a self-enhancing bias in both cases. This replicates earlier findings in relation to driving skill (Job et al., 1995; Matthews and Moran, 1995), and driving safety (amongst females,

110km/hr are generally allowed in 100km/hr zones.

Job et al., 1995). Sydney respondents demonstrated lower self-enhancing bias regarding driving safety than did rural respondents. Neither self-enhancing bias was significantly associated with self-reported likelihood of speeding.

NORMATIVE VALUES REGARDING SPEEDING DRIVERS

Respondents identified how much over the speed limit a driver would have to drive in order to be regarded as stupid, irresponsible, criminal, or a potential murderer, for a 50km/hr, a 60km/hr, and a 100km/hr zone.

Unsurprisingly, more derogatory descriptors consistently required a greater speed above the limit. The linear increase was observed across descriptors for each of the speed limit zones considered.

A significant linear increase in the number of km/hr over the speed limit was observed across zones for each of the descriptors (stupid, irresponsible, criminal, and potential murderer). Thus, there appears to be a greater tolerance for speeding, as the speed limit increases. The average (across Sydney, regional centres and rural areas) number of kilometres per hour over the speed limit for a driver to be considered stupid, irresponsible, criminal or a potential murderer is depicted in Table 21.

Table 21: The average number of kilometres per hour over a 50km/hr, 60km/hr, and 100km/hr, speed limit for a driver to be considered stupid, irresponsible, criminal or a potential murderer, across respondents in Metropolitan Sydney, NSW Regional centres and Rural NSW. (Standard deviation in parentheses.)

	50km/hr	60km/hr	100km/hr
Stupid	19.80 (14.98)	20.72 (16.75)	27.68 (25.03)
Irresponsible	21.27 (14.57)	22.44 (16.31)	29.41 (24.21)
Criminal	31.53 (19.06)	33.36 (21.36)	40.42 (30.45)
Potential murderer	39.13 (25.67)	40.84 (27.48)	49.34 (38.30)

It is interesting to consider how these ratings compare to estimates of the number of km/hr over each speed limit required to double the chances of crashing. There is a general similarity, in that tolerance increases as the speed exceedance thought to double the chance of crashing increases. In the 50km/hr and 60km/hr zones the estimate of the number of km/hr over each speed limit required to double the chances of crashing was 25km/hr, corresponding to a driver being considered somewhere between irresponsible and criminal. In the 100km/hr zone, the estimate was 30km/hr, corresponding to a driver being considered irresponsible. Thus, although both estimates of the number of km/hr over the speed limit required to double the chances of crashing, and the number of km/hr over the speed limit required for a driver to be described in derogatory terms, decrease as a proportion of the speed limit, the decrease is slower for normative judgement.

Sydney respondents did not differ significantly from regional respondents for any zone/description combination, but offered a significantly lower number of km/hr over the speed limit than rural residents for 5 of 12 zone/description combinations. Thus, Sydney respondents appear to be less tolerant of speeding drivers than rural respondents. This is consistent with Sydney respondents being more likely than rural respondents to identify speeding as the most important cause of serious crashes.

There was some evidence for an association between normative values and self-reported likelihood of speeding. That is the more tolerant of speeding respondents were (in terms of requiring a driver to exceed a 60km/hr speed limit by a larger number of km/hr before considering the driver to be “stupid” or “a potential murderer”, the more likely to speed they reported being. These results are consistent with the view that being tolerant of speeding increases the likelihood of doing it, *as well as* the view that speeding increases tolerance of speeding, amongst other interpretations.

PERCEIVED APPROPRIATENESS OF SPEED LIMITS AND PENALTIES

Respondents indicated whether they thought the speed limit in 40km/hr, 50km/hr, 60km/hr and 100km/hr zones they knew were too low, just right or too high.

A majority of the sample regarded the speed limit as appropriate.

53.8% of Sydney respondents rated the limit in familiar 40km/hr zones as too low, and were significantly more likely than both regional respondents and rural respondents to do so. Only 28.7% of regional and 13.8% of rural respondents rated the limit in familiar 40km/hr zones and too low.

43.1% and 48.9% of regional and rural respondents (respectively) rated the limit in familiar 50km/hr zones as too low. A similar proportion of Sydney respondents (46.2%) rated the limit in familiar 50km/hr zones as too low.

Taken together, these findings suggest that regional and rural respondents are more convinced of the importance of school zones. Regional and rural respondents may be more tolerant of school zones, because on average these drivers are likely to have to drive through fewer of them.

51.2% of respondents felt that the limit in familiar 50km/hr zones was “just right”. The Community Attitudes to Road Safety Survey, Wave 15 (Mitchell-Taverner, 2002) found that 72% of respondents supported a 50km/hr limit in residential areas, and this support for a residential standard appears to be increasing.

“Just right” was clearly the modal response in regard to the 60km/hr and 100km/hr limit in Sydney (accounting for 80.8% and 73.1% of Sydney respondents, respectively), and in regional centres (accounting for 76.6% and 71.6% of regional respondents, respectively). In rural areas, “just right” was also clearly the modal response in regard to the 60km/hr zones (83.0% of rural respondents). Only 59.6% of rural respondents rated the limit in familiar 100km/hr zones as “just right”, while 36.2% felt this limit was “too low”. Thus, again, rural respondents appear to be more tolerant of high speeds.

PERCEIVED APPROPRIATENESS OF PENALTIES FOR SPEEDING

Respondents rated the penalty for speeding (to different degrees) as either too lenient, just right or too harsh.

The modal response was “about right” for each penalty in each zone.

Very few respondents (approximately 5.5%) judged the \$115 and 1 demerit point penalty for exceeding the speed limit by no more than 15km/hr to be “too harsh”, although a sizeable portion of the sample judged it to be “too lenient” (approximately 25.2%). Thus, there may be some scope for increasing this penalty.

Slightly more respondents (approximately 11.5%) judged the \$184 and 3 demerit point penalty for exceeding the speed limit by between 15km/hr and 30km/hr to be “too harsh”.

Approximately 17.7% of the sample judged it to be “too lenient”. Whilst this penalty appears to

strike a suitable balance, respondents' possible motivations in responding to this question should be considered. Thus, increasing this penalty may also not be too problematic.

In contrast, the more severe penalty (\$514 and 4 demerit points) for exceeding the speed limit by between 30km/hr and 45km/hr is viewed less favourably. 34% of respondents viewed this penalty as being "too harsh". Only 50.9% of respondents viewed it as being "just right", compared to 69.3% for the penalty against exceeding the speed limit by no more than 15km/hr (with many remaining respondents rating this penalty as being "too low") and 70.8% for the penalty against exceeding the speed limit by between 15km/hr and 30km/hr. Only 15.1% of respondents regarded the \$514 and 4 demerit point penalty as "too lenient". Thus, an increase in this penalty is unlikely to be well regarded.

The general acceptance of existing penalties is consistent with Mitchell-Taverner et al.'s (2003) findings. 61% of their respondents wanted "no change" in speeding penalties, whereas 23% would support an increase. Only 12% suggested a decrease.

No significant differences between Sydney, regional and rural respondents were observed (consistent with Mitchell-Taverner et al., 2003).

BELIEFS ABOUT, AND ATTITUDES TOWARD, SPEEDING AND ITS COUNTERMEASURES

A number of attitudes relating to speeding and its countermeasures were considered.

Both the possibility of losing demerit points, and the possibility of being fined, appear to be important considerations in the decision to speed for most respondents. Approximately 63.6% of respondents agreed that demerit points were a consideration (compared to around 19.5% reporting that they were not). Approximately 67.8% of respondents agreed that the fine was a consideration (compared to around 16.8% reporting that it was not). Nonetheless, respondents reported that safety considerations were more important (91.5% reported considering the safety of passengers, 82.6% the safety of other road users, and 74.7% personal safety). Further, respondents who had been booked for speeding reported being *more* likely to speed than those who had not, whereas those who reported having had a crash due to speeding did not differ in terms of the likelihood of speeding. Given that approximately 21.8% of the sample reported having been booked for speeding (n=75), whereas only 7.2% reported having had a speed-related crash (n=26), this difference may owe mainly to a difference in statistical power.

These findings are comparable to those of Mitchell-Taverner et al. (2003). 75% of their respondents reported that demerit points were important, 83% of their respondents reported that the possibility of a fine was important.

Whilst a large proportion of each sample agreed that penalties for speeding are genuinely intended to deter speeding and promote road safety, between 12 and 21% of the sample disagreed with this statement. Similarly, around 35% of the sample felt that penalties are just revenue raising. This is concerning, given that stronger endorsement of this view was associated with greater self-reported likelihood of speeding. In the Community Attitudes to Road Safety Survey, Wave 15 (Mitchell-Taverner, 2002) 56% of respondents agreed that "fines for speeding are mainly intended to raise revenue". (It should be noted that our survey used the word "just" whereas the Community Attitude Survey used "mainly").

A majority of the sample agreed with serious countermeasures for serious speeding offenders (caught exceeding the speed limit by more than 45km/hr). A court appearance was supported by approximately 77.5% of the sample (and opposed by approximately 10.0%). Thus, such a countermeasure would probably be acceptable to the public. The compulsory fitting of devices to

govern cars to “a certain speed” was supported by approximately 55.2%, although a sizeable proportion of the sample opposed this countermeasure (approximately 23.9%). Given that these figures are not dissimilar to those observed for the existing practice of doubling demerit points during holiday periods (59.5% in favour, and 20.4% against), this countermeasure may also be acceptable to the public. With a speed governor fitted, in order to speed a driver would have to tamper with the governor, and thus spontaneous or unintentional speeding would be eliminated. This countermeasure would be particularly effective if speed governors are responsive to local limits (since most ‘speeding’ is below the maximum legal limit).

Stronger support for compulsory fitting of speed governors for serious speeding offenders was associated with lower self-reported speeding likelihood. This may indicate that people with negative attitudes toward speeding are both less likely to do it, and more likely to support heavy penalties for those who do it.

Sydney, regional and rural respondents appeared to differ little in attitudes regarding speeding and its countermeasures.

ASSOCIATIONS WITH DEMOGRAPHIC VARIABLES AND INDICATORS OF EXPOSURE

Males were significantly more likely than females to report speeding (across a range of circumstances, and in typical conditions in particular). This is consistent with the findings of Mitchell-Taverner et al. (2003). Although males were more likely to agree that speeding increases the risk of having a crash (on a clear, dry day), they gave a greater estimate of the number of km/hr over a 60km/hr speed limit required to double the chance of crashing, and required that a driver be exceeding a 60km/hr speed limit by a greater number of km/hr to be termed stupid or irresponsible. Males were more likely than females to agree with the statement “speeding can be safe for a skilful driver”. Males’ estimates of their driving skill relative to average, was also greater than that of females. Thus, on the whole, results concurred with previous findings that males have more risky attitudes and behaviours than females when it comes to driving.

Males agreed more strongly than females with the attitude “penalties for speeding are just revenue raising”, whereas females agreed more strongly than males with the attitudes: “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety” and “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars”. Thus, females appear to be more supportive of countermeasures against speeding than are males.

Age was significantly negatively associated with self-reported likelihood of speeding (across a range of circumstances, and in typical conditions in particular), suggesting that younger people are more likely to speed. Again, this is consistent with the findings of Mitchell-Taverner et al. (2003). Younger people were also more likely to deny that speeding increases the risk of a crash on a clear dry day. Younger people also required that a driver be exceeding a 60km/hr speed limit by a significantly greater number of km/hr to be regarded as stupid. Thus, on the whole, results concurred with previous findings that younger drivers have more risky attitudes and behaviours (than older drivers).

Age correlated significantly and negatively with agreement with “the possibility of getting a fine is an important factor in my decision to speed”. Thus, the possibility of getting a fine appears to be a stronger deterrent for younger than older drivers (possibly because of their typically lower financial resources). This is consistent with Mitchell-Taverner et al.’s (2003) finding that drivers who had held their licences for five or less years were more likely to say that the possibility of a

fine was an important factor compared to other drivers (given the probable confound between age and length of licensure). The finding that younger drivers agreed more strongly than older drivers with the statement “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety”, appears somewhat inconsistent with the other findings regarding age, and may reflect a youthful lack of cynicism, or cognitive dissonance with their reported consideration of fines.

Compared to non-English speakers, English speakers were less likely to agree with the attitude “penalties for speeding are just revenue raising”, and more likely to agree with the attitude “demerit points for speeding should be doubled during holiday periods”.

Education level was significantly positively associated with self-reported likelihood of speeding in typical conditions, suggesting that more educated people are more likely to speed. More educated respondents also gave a greater estimate of the number of km/hr over a 60km/hr speed limit required to double the chance of crashing, and agreed more strongly with the statements “speeding can be safe for a skilful driver” and “speeding can be safe in some circumstances”. However, education was significantly negatively associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed irresponsible or criminal. Thus, whilst people with higher education appear to speed more themselves, and to view speeding as more potentially safe, they also appear to be less tolerant of other speeding drivers (than less educated people).

More educated people were also less likely to agree with the attitude: “penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety”, perhaps reflecting a greater scepticism regarding authorities.

Occupation was significantly associated with self-reported likelihood of speeding (across a range of circumstances, and in typical conditions in particular). The modal response for respondents working in sales was “likely”, for respondents in professional or managerial positions was “even chance”, and for respondents in the remaining occupations was “unlikely”. Occupation was also significantly associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed stupid or irresponsible. This was also substantially higher for respondents in sales (reflecting a higher tolerance for speeding) than for respondents in other occupations. Finally, occupation was associated with agreement with the attitude: “people who are caught exceeding the speed limit by more than 45km/hr should have speed governors fitted to their cars” ($F_{6,210}=2.27, p=.038$).

Marital status was significantly associated with self-reported likelihood of speeding (across a range of circumstances, and in typical conditions in particular). Considering the speeding index, speeding appeared to be most likely amongst single respondents and least likely amongst separated/divorced respondents. Marital status was also significantly associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed irresponsible, criminal or a potential murderer. Tolerance for speeding drivers was uniformly greater amongst widowed respondents. Clearly, marital status is likely to be confounded with age (although the analysis of age suggested a lower tolerance of speeding with age).

Number of children under 16 or over 16 was not associated with any variable beyond chance level.

Car ownership was associated with the number of km/hr over a 60km/hr speed limit required for a driver to be termed stupid, irresponsible, criminal or a potential murderer. Respondents drove company-owned cars were consistently more likely to be more tolerant of speeding. Car

ownership status was also associated with the attitudes: “modern cars significantly reduce the risk of having a crash and being injured due to speeding”, or “the safety of other road safety is an important factor in my decision to speed”.

Respondents who had held their licences for a longer period reported being less likely to speed than those who had held them for a shorter period. Clearly, this variable is confounded with age, and it is not clear whether experience, age per se, or both, influence speed likelihood. Length of licensure was significantly associated with agreement with “passenger safety is an important factor in my decision to speed”, and “demerit points for speeding should be doubled during holiday periods” (although neither of these attitudes was associated with age, and age was associated with other attitudes). However, this variable was not associated with reported extent of consideration of losing demerit points in the decision to speed, whereas this association was observed by Mitchell-Taverner et al. (2003).

Respondents who spent a greater number of hours per week driving perceived speeding as safer, in terms of the number of km/hr over a 60km/hr speed limit required to roughly double the chance of crashing (than did respondents with less driving exposure). This may be due to having greater exposure to crash-free speeding. Consistent with this view (and experience-based theories of self-enhancing biases), they were also more biased in terms of their relative likelihood of being booked for speeding, and their relative driving skill. This variable may also be confounded with age (in that younger drivers tend to drive more than do older drivers).

Age of car was not associated with self-reported likelihood of speeding or any associated attitudes and beliefs.

Licence class was significantly associated with relative driving skill. Self-enhancing bias appeared to be greatest amongst holders of P2 (GLS) licences, and disqualified drivers, and lowest amongst holders of old style P licences.

LIMITATIONS OF THE PRESENT STUDY

Because of the cross-sectional design employed in the present study causal relationships are difficult to infer. However, in some cases one causal interpretation is more likely than others. For example, the observed association between having been booked for speeding and self-reported speed likelihood, is consistent with the possibility that people who speed more often are more likely to get booked (and inconsistent with the possibility that people who have been booked for speeding are less likely to speed afterward). In other cases, a possible interpretation is given, but it is noted that other interpretations are possible. Experimental research is often required to resolve questions of causality, but often it is not feasible.

The conclusions of the present study rest on self-report data, which is subject to inaccuracies of recall and reporting. Recall is relevant to only a few variables (e.g. having been booked for speeding), and not relevant to measures of belief and attitude. However, inaccurate reporting may bias many measures. Nonetheless a number of findings suggest that socially desirable responding did not substantially bias results. For example, respondents admitted to being moderately likely to speed, and to use various practices to avoid being booked for speeding. The survey did not include a scale measuring the tendency to behave in a socially desirable manner, because it would have substantially increased the length of the survey, and so reduced response rate. Further, associations with scores on such a scale are difficult to interpret. If the tendency to respond in a desirable manner is associated with any of the self-reported measures of critical variables is it socially desirable responding (and thus inaccurate)? Or is it actually socially desirable behaviour (and thus accurate)?

In the present study, some associations with self-reported speeding were not observed, although they may have been expected on the basis of theory or previous research. This may owe partly to imperfect reliability of the measurement instruments (partly due to their being self-report measures), and to the wide range of influences of speeding behaviour. It is unlikely that all of these have been considered in the present study, and multivariate analysis including all of the variables that *have* been included would have insufficient statistical power to detect relationships. Collection of a greater sample size was beyond the resources of the present study, but may have revealed stronger relationships.

RECOMMENDATIONS

- 1) In campaigns, continue to identify speeding as a major factor in road crashes, but do not publicise actual figures. Respondents overestimated the percentage of fatal crashes that are caused by speeding.
- 2) In campaigns, make the message that 5km/hr above the speed limit doubles the chance of a casualty crash the basis of social disapproval of drivers who exceed the limit by greater amounts. Respondents overestimated the speed exceedance required to double crash risk for all tested speed limit zones.
- 3) Address the issue of tolerances. Appropriate tolerance levels should be determined and publicised.
- 4) Conduct further research regarding perceived likelihood of detection for speeding. The perception that drivers can avoid detection is a major practical issue, reducing deterrence. Perceived likelihood of detection was not associated with self-reported likelihood of speeding. Thus, covert enforcement may be of value. Keall, Povey, and Frith (2001) found a mixture of overt and covert enforcement to be effective. Thus, it is critical to investigate:
 - a. People's beliefs about when and how detection for speeding may be avoided;
 - b. People's attitudes toward covert enforcement.
- 5) Target campaigns to address the perception that speeding can be safe under some circumstances (especially for younger drivers), and the consequent lack of credibility for some speed zones.
 - a. Speed limit signage that varies with time of day (i.e. traffic flow), and weather conditions, may assist in this endeavour. This possibility should be trialed;
 - b. Send the message that skill is not a reason for speeding.
- 6) Target campaigns toward increasing the social disapproval of speeding. A driver needed to be exceeding a 60km/hr limit by about 30km/hr before being judged as criminal. Given the association between normative values and self-reported likelihood of speeding, normative values deserve attention.
- 7) There is no need to reduce fines, which are not generally perceived as excessive (despite media coverage to the contrary). In fact, increases in the penalties for exceeding the speed limit by 15km/hr, or between 15 and 30km/hr, may be tolerated. The view that fines are mere revenue raising was endorsed by only 1/3 of respondents.
- 8) Consider the potential road safety benefits of introducing court appearances, and compulsory fitting of speed governors, for serious speeding offenders (caught exceeding the speed limit by more than 45km/hr) in the context of findings suggesting that these countermeasures would be acceptable to the public. 77.5% of respondents support the

introduction of court appearances. Figures for compulsory fitting of devices to govern cars “to a certain speed” were comparable to those for the existing practice of doubling demerit points during holiday periods (approximately 55% in favour, approximately 24% against).

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Appendix A: Questionnaire

Department of Psychology

The University of Sydney

Thankyou for consenting to participate in this survey. This questionnaire will take approximately 20 mins to complete. The survey is anonymous. Please do not write your name on the Questionnaire.

If you have any concerns or queries you may call **Julie Hatfield at Sydney University on 9351 8930** or the **Human Ethics Officer at Sydney University on 9351 4811**.

Question 1:

People often have different opinions on what causes serious road crashes. What would you say would be the three most important causes of serious car crashes, beginning with the most serious?

Most Serious _____
 Second _____
 Third _____

Question 2:

How likely would you be to exceed the speed limit in the following situations?

Please circle your response, where the numbers mean:

1	2	3	4	5
_____	_____	_____	_____	_____
Very unlikely	Unlikely	Even chance	Likely	Very likely

		<i>Circle Response</i>				
a)	Typical conditions in the middle of the day	1	2	3	4	5
b)	The roads are wet	1	2	3	4	5
c)	It is nighttime	1	2	3	4	5
d)	You need to overtake	1	2	3	4	5
e)	You are driving downhill	1	2	3	4	5
f)	You are in a hurry to get to an appointment	1	2	3	4	5
g)	You feel like a thrill	1	2	3	4	5
h)	To keep up with traffic	1	2	3	4	5
i)	You need to "blow off steam"	1	2	3	4	5
j)	You know the road very well	1	2	3	4	5
k)	You have passengers in the car	1	2	3	4	5
l)	There are no other cars on the road	1	2	3	4	5
m)	You think you are very unlikely to get caught	1	2	3	4	5
n)	You are on a winding road	1	2	3	4	5
o)	You exceed the speed limit because you do not like to travel behind other vehicles	1	2	3	4	5
p)	You want to impress others	1	2	3	4	5
q)	To compete with other drivers and vehicles	1	2	3	4	5

r)	To get through an amber traffic light	1	2	3	4	5
s)	You are on a rural road	1	2	3	4	5
t)	You are confident that you are not putting anyone in danger	1	2	3	4	5
u)	To avoid an accident	1	2	3	4	5
v)	You are near a school	1	2	3	4	5
w)	You are on a multi lane road	1	2	3	4	5

Question 3:

Of all fatal crashes last year, what percentage do you think would have been caused by speeding? _____%

Question 4:

Have you ever had a crash because you were speeding?

Circle Response

YES NO

Question 5:

Do you believe that exceeding the speed limit increases the risk of having a car crash:

	Circle Response	
On a clear, dry day ?	YES	NO

Compared to the risk posed by exceeding the speed limit on a clear, dry day, is the risk worse:

		Circle Response	
a)	At night ?	YES	NO
b)	In wet conditions ?	YES	NO
c)	In heavy traffic ?	YES	NO
d)	On an empty street ?	YES	NO

Question 6:

On a clear, dry day, how many km/hr over the speed limit do you think you would have to drive to double your chances of having a crash (compared to your chances if you were driving at the speed limit)

- a) in a 50km/hr zone _____
- b) in a 60km/hr zone _____

c) in a 100km/hr zone _____

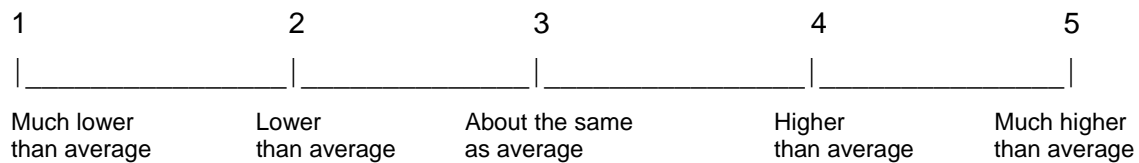
Question 7:

How much **over the speed limit** would a driver have to be going in a 50, 60 and 100km/ hr zones, for you to consider him/ her to be.....

		In a 50 km/hr zone	In a 60km/ hr zone	In a 100km/hr zone
a)	Stupid?			
b)	Irresponsible ?			
c)	Criminal ?			
d)	Potential Murderer ?			

Question 8:

Compared to the average driver of your age and gender, how would you rate: *Please circle your response where the numbers mean:*



		CIRCLE RESPONSE				
a)	Your chances of having a crash if exceeding the speed limit by more than 15km/h?	1	2	3	4	5
b)	Your chances of being booked for speeding?	1	2	3	4	5
c)	Your driving safety?	1	2	3	4	5
d)	Your driving skill?	1	2	3	4	5

Question 9:

How often have you been booked for speeding in the last two years? _____

Question 10:

When you are exceeding the speed limit, how likely are you to be detected by.....

Please circle your response, where the numbers mean:

1	2	3	4	5
_____	_____	_____	_____	_____
Very unlikely	Unlikely	Even chance	Likely	Very likely

		<i>Circle Response</i>				
		1	2	3	4	5
a)	Police on the side of the road with a radar					
b)	An automatic speed detection camera (not being directly operated by police)					
c)	Police in a moving patrol vehicle with a radar					

Question 11:

Do you believe you could be booked for speeding by the police in the following situations?

		<i>Circle Response</i>	
		NO	YES
a)	You are exceeding the speed limit by no more than 10%		
b)	You are exceeding the speed limit in order to overtake		
c)	It is an emergency		
d)	You are exceeding the speed limit while driving downhill		

Question 12:

When you are exceeding the speed limit, do you think you are less likely to get booked in the following situations? Please also tick in the space provided next to any of the techniques you use.

		CIRCLE RESPONSE		TICK IF YOU USE THIS
		YES	NO	
a)	If you take back streets			
b)	At certain times of day			
->If "yes", at which times of day?				
c)	If the traffic around you is speeding			
d)	You avoid places where you know there are police or cameras			

e)	If you only drive in certain lanes	YES	NO	
----	------------------------------------	-----	----	--

->If "yes", which lanes?

f)	If you slow down when you see police or a camera	YES	NO	
----	--	-----	----	--

Is there anything else you do to decrease your chances of getting booked for speeding when you are exceeding the speed limit? *Please list:*

Question 13:

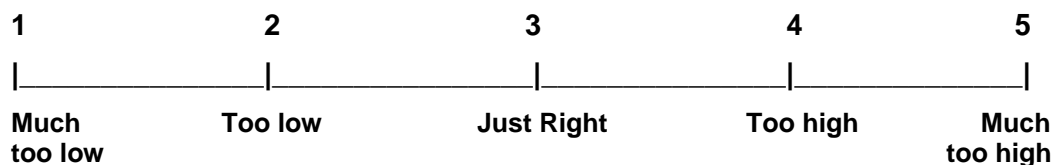
Do you try to find out the location of police or cameras that are detecting speeding?

Circle Response

YES NO

Question 14:

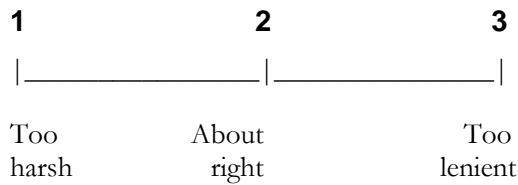
For each of the speed limit zones identified below, please think about the roads you know with this speed limit and rate how appropriate the speed limit is. For example, in the 40km/hr zones you know, how appropriate is the 40km/hr speed limit? *Please circle your response where the numbers mean:*



		<i>Circle Response</i>				
a)	40 km/hr zones you know	1	2	3	4	5
b)	50 km/hr zones you know	1	2	3	4	5
c)	60 km/hr zones you know	1	2	3	4	5
d)	100 km/hr zones you know	1	2	3	4	6

Question 15:

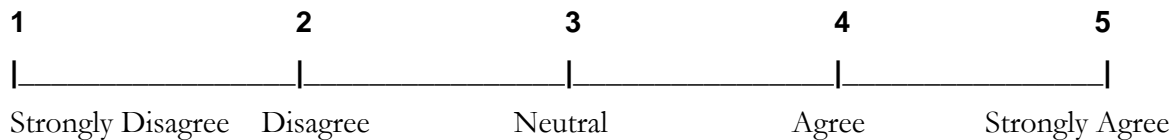
How appropriate do you find the following penalties for exceeding the speed limit by various amounts. *Please circle your response where the numbers mean:*



		<i>Circle response</i>		
a)	\$115 fine and 1 demerit point for exceeding the speed limit by no more than 15km/hr	1	2	3
b)	\$184 fine and 3 demerit points for exceeding the speed limit between 15 and 30 km/hr	1	2	3
c)	\$514 fine and 4 demerit points for exceeding the speed limit between 30 and 45 km/hr	1	2	3

Question 16:

Please rate your agreement with the following statements by circling a number where the numbers mean:



		CIRCLE RESPONSE				
a)	Speeding can be safe for a skilful driver	1	2	3	4	5
b)	I sometimes feel uncomfortable at the speeds I drive	1	2	3	4	5
c)	My safety is an important factor in my decision about whether to exceed the speed limit or not	1	2	3	4	5
d)	The possibility of losing demerit points is an important factor in my decision about whether to speed or not	1	2	3	4	5
e)	The possibility of getting a fine is an important factor in my decision about whether to speed or not	1	2	3	4	5
f)	Penalties for speeding are genuinely intended to deter people from speeding in order to promote road safety	1	2	3	4	5
g)	People who are caught exceeding the speed limit by more than 45km/hr, should have to appear in court	1	2	3	4	5

h)	Speeding can be safe in some circumstances	1	2	3	4	5
i)	Modern cars significantly reduce the risk of having a crash and being injured due to speeding	1	2	3	4	5
j)	The safety of my passengers is an important factor in my decision about whether to exceed the speed limit or not	1	2	3	4	5
k)	The safety of other road users is an important factor in my decision about whether to exceed the speed limit or not	1	2	3	4	5
l)	Penalties for speeding are just revenue raising	1	2	3	4	5
m)	People who are caught exceeding the speed limit by more than 45 km/h should have to have speed governors fitted to their cars (<i>a speed governor is a device which makes it impossible for a car to go over a certain speed</i>)	1	2	3	4	5
n)	Demerit points for speeding should be doubled during holiday periods.	1	2	3	4	5

Question 17:

Who do you think Speed campaigns are mainly targeting? *Please circle one gender and one age category.*

Male Female

16-25 yrs old

26-35 yrs old

36-45 yrs old

46 + yrs old

Question 18:

Approximately how many hours do you spend driving each week?

_____ hrs/per week

Question 19:

What class of licence do you hold?

	<i>Circle response</i>
Learners Permit	1
Probationary licence old style	2
Probationary licence , Level 1, GLS system	3
Probationary licence , Level 2, GLS system	4
Full licence	5
Licence disqualified	6

Question 20:

How long have you held your car licence? _____ years _____ months

Question 21:

What is the make, model and year of manufacture of the car you most frequently drive?

Make: _____

Model: _____

Year: _____

Question 22:

Which of the following best describes the car you most frequently drive?

	<i>Circle response</i>
Your own	1
You are leasing	2
Owned by a friend or someone else	3
Owned by the company you work for	4

Question 23:

What is your postcode? _____

Question 24:

Are you male or female?

Circle Response

Male

Female

Question 25:

Which of the following age categories do you belong to?

Circle response

16-17 yrs old

18-19 yrs old

20-25 yrs old

26-45 yrs old

46 + yrs old

Question 26:

What is the main language spoken at home? _____

Question 27:

What is your current marital status?

Circle response

Single

Widowed

Separated /Divorced

Married/ Defacto

Question 28:

How many children do you have who are under the age of 16? _____

How many children do you have who are over the age of 16? _____

Question 29:

Which is the highest level of education you have reached?

Circle response

School Certificate or equivalent

Higher School Certificate or equivalent

TAFE / College or equivalent

Tertiary or Higher

Question 30:

Which of the following best describes your occupation?

Circle response

Tradesperson

Clerical

Manual/ Factory

House Duties

Student

Professional/Managerial

Retired

Unemployed

Question 31:

Does your current occupation involve you attending the Motor Registry more than twice a year ?

Circle Response

YES

NO