

ROAD SAFETY IMPACT OF MOTORCYCLE TRAINING AND LICENSING SCHEMES

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1. A BRIEF STATEMENT OF THE ISSUE

Riding a motorcycle is hazardous.¹ The long-recognised need to improve motorcycle safety has recently been strengthened by a new factor: the increased prominence of motorcyclists aged forty years or more in the crash data.

As has been the case with novice and older car drivers, there has been a sustained call for improved training and licensing options to reduce motorcyclist casualties.

2. AN ASSESSMENT OF THE ROAD SAFETY ISSUE

In Australia, motorcyclists are over 20 times more likely than other vehicle operators to be killed or seriously injured over the same travel distance.² In addition, during the last decade in Australia, fatalities among riders aged 40 years and more have doubled from 14 per cent of all motorcyclist fatalities in 1991 to 27 per cent in 2001.³ (It remains, however, that older motorcyclists have the lowest fatality rates per distance driven, compared to younger age groups.³)

Motorcyclists in New Zealand are also over-represented in the crash statistics. They account for nine per cent of all reported road injuries and 13 per cent of fatalities, despite accounting for less than two per cent of kilometres driven.⁴

High crash involvement cannot be totally attributed to the intrinsic risks of riding a motorcycle. An analysis of Australian fatalities for 1992 and 1994 showed that 'responsible' riders (those who were both licensed and sober at the time of the crash) had a fatality rate 53 per cent lower than the rate for the whole group (5.25 and 11.24 fatalities per 100 million kilometres travelled, respectively).⁵

Regardless of the specific source of the elevated crash risk, Australia has been relatively ineffective in reducing crash rates. For example:

- Motorcyclist fatalities decreased by six per cent between 1991 and 2001, whereas all road fatalities fell by 18 per cent.³
- In 2000, Australia had 5.7 motorcyclist fatalities per 10,000 registered motorcycles, compared to a median 5.1 fatalities for the OECD as a whole. In contrast, Australia ranks among the better-performed OECD nations when compared in terms of overall safety performance.³

And the situation in Australia threatens to worsen.³ There is evidence that the fatality rates for some younger motorcyclist age groups are actually increasing per kilometre travelled, rather than decreasing. There is stronger evidence that motorcycling exposure for riders aged 40 years and over is also increasing, due to both the increasing popularity of motorcycling and an increase in the number of people of this age – while risk per kilometre ridden is also increasing beyond both these factors.

Improved training and licensing strategies are frequently seen as possible ways to improve the safety situation.

Despite the disappointing history of training in regard to novice car drivers, motorcycle training is now encouraged (and often subsidised) by authorities in most Australasian jurisdictions and overseas.⁶ 'Many believe that the unique handling characteristics of the motorcycle, and the rider's vulnerability to perceptual, aerodynamic and roadway disturbances require the acquisition of a high level of skill – most effectively obtained in a formal training situation'.⁷

Transport authorities have also looked to graduated licensing of motorcyclists as a solution. For example, many jurisdictions in both the US and Canada have implemented – or are about to implement – graduated licensing conditions for novice motorcyclists which closely parallel the systems for novice car drivers.⁸

3. CURRENT POLICIES AND PRACTICES IN AUSTRALASIAN JURISDICTIONS

Pre-licence motorcycle training programs are compulsory in New South Wales, South Australia, Tasmania and the Australian Capital Territory, with voluntary programs offered in Victoria, Queensland and the Northern Territory. For details, see Attachment 1.

Licensing procedures vary across jurisdictions and are also detailed in Attachment 1.

4. A REVIEW OF THE RESEARCH

4.1. The safety benefits of motorcycle training courses

Kloeden et al.⁹ conducted a review of motorcycle training for the South Australian Office of Road Safety in 1993. They identified only twenty evaluation reports on rider training programs from around the world, notwithstanding the proliferation of these programs from the 1960s onwards. Twelve programs met minimum research standards and were included in the review:

- six of the studies found no evidence of any effect of training
- two showed that training was associated with an increase in crashes
- four showed that training was associated with a decrease in crashes – with the likelihood that this decrease arose from reduced licensing rates.

Using more stringent quality-of-research criteria, the reviewers expressed confidence in only three reports – two of which showed no effect, one a positive effect.

Kloeden and his colleagues also identified a series of obstacles to conducting definitive evaluations of rider training programs. Two key issues were:

- Sample sizes were often too small to allow a realistic chance of showing statistically-significant results. Because motorcyclists are a relatively small group, and because crashes are relatively rare events, an effective training scheme could require experimental and control groups each needing to contain up to 13,500 motorcyclists.
- It was often impossible to establish comparable training and control groups, especially if training was undertaken on a voluntary basis. Volunteers are likely to differ, at least in terms of age, gender, riding experience, road safety attitudes and risk taking –all of which could influence crash rates, regardless of the possible impact of training.

In a later review conducted for VicRoads, Haworth and Schulze⁶ concluded that:

- Differences between trained and untrained riders were insignificant, after adjusting for differences in age, gender, riding history, exposure and education.¹⁰
- The amount and type of exposure were the most important determinants of crash risk, and there was no evidence that formal training altered the risk levels.¹¹
- “Formal motorcycle training or enhanced skills testing programmes ... are unlikely to lead to substantial or sustainable reductions in accidents or traffic violations arising through improvements in safe riding practices”.¹²

As well as confirming the evaluation difficulties previously described, Haworth and Schulze added a further consideration. There are invariably substantial differences in training programs from jurisdiction to jurisdiction, from site to site and from presenter to presenter. These differences – which may be reflected in different objectives, agenda and training techniques – are rarely allowed for in overall summaries of training effectiveness.

In conclusion, the weight of current evidence fails to support motorcycle rider training as an effective road safety countermeasure. This is consistent with most of the evidence on the effectiveness of formal driver education at a broader level.⁷

However, promising alternatives to conventional training programs for young drivers and riders (for example, insight training which targets young car drivers' over-confidence) need to continue to be monitored. While providing behind-the-wheel training to develop basic vehicle control skills, the approach aims mainly to produce awareness of the individual's limitations in crash-threatening circumstances. The intended result is a driver (or rider) with greater safety margins than those produced by conventional training. Early evaluations have been both promising and less than enthusiastic.

4.2. The safety benefits of graduated licensing for motorcyclists

Graduated licensing schemes for novice car drivers have a proven history of effectiveness. The limited evidence available to date suggests that an equivalent strategy for novice motorcyclists will also prove effective.

The most recent and comprehensive review of graduated licensing for motorcyclists has been prepared by Mayhew and Simpson⁸ and this section, unless otherwise indicated, has been based upon their report.

Graduated licensing for motorcyclists aims at a phased introduction to riding, whereby beginners gain their earliest controlled experience under conditions of low risk, with the restrictions to riding being increasingly removed as experience is accumulated. Graduated licensing for motorcyclists has mainly been implemented in North America, especially Canada.

In Canada six jurisdictions have implemented schemes and three have proposed them. As an overview:

- All jurisdictions require a test to be passed before a learner's permit is granted. This is generally a knowledge test, although a few jurisdictions include an off-road test of motorcycle handling and manoeuvring skills.
- The duration of the learner permit varies, from a minimum of 60 days to one year (with some jurisdictions allowing for a shortened period for graduates of approved training courses).

- Six of the nine jurisdictions require supervision at all times during the learner period by a supervised rider, who is usually required to follow closely behind on another motorcycle. Other options are permissible in some jurisdictions.
- In all jurisdictions, learners are not allowed to carry passengers and have a zero blood-alcohol limit.
- In all jurisdictions but one, learners are allowed to drive only during daylight hours.
- Several jurisdictions restrict learners from riding on freeways where the speed limit is above 80 km/h, with one jurisdiction restricting speed to under 60 km/h
- The duration of the next, intermediate, licensing phase varies from 12 to 24 months
- In all jurisdictions, entry to the intermediate phase requires passing an on-road test
- During the intermediate phase, most of the restrictions (including the prohibition against carrying passengers) are dropped. However:
 - all jurisdictions maintain a zero blood-alcohol limit
 - four jurisdictions maintain a night-time ban
- In addition, both learners and intermediate licence-holders are usually subject to a more stringent penalty point system, whereby fewer points are required for a loss of permit or licence.
- The requirement for graduation to full licensing varies. In some jurisdictions, it is simply a matter of serving time, in others it means completion of an approved training course, in others it means passing an advanced on-road test.

In evaluating the effectiveness of the North American graduated licensing schemes for motorcyclists, Mayhew and Simpson⁸ recognised the absence of any formal evaluations. As a default, they were forced to examine 'before' and 'after' motorcycle crash levels in the three jurisdictions with long-standing schemes (Ontario, Nova Scotia and Quebec).

All three jurisdictions introduced the new licensing schemes during a period when the number of motorcycle crashes, and particularly those involving young riders, were falling dramatically. The authors failed to find evidence of any benefits of the licensing schemes in Ontario and Nova Scotia, and postulated that the strong pre-existent downwards crash trends may have had a masking role. In the case of Quebec, however, the decline in motorcycle crash rates was significantly greater for the youngest riders following the introduction of the scheme, thereby providing some indicative support for graduated licensing.

Mayhew and Simpson noted that the Quebec, Ontario and Nova Scotia schemes differed in two main regards:

- Only Quebec required supervision during the learner period.
- The minimum learner period in Quebec was considerably longer (12 months as compared to either 60 days or six months).

Mayhew and Simpson were forced to rely largely upon findings from evaluations involving novice car drivers, to assess the road safety benefits of the various restrictions associated with the motorcyclist graduated licensing schemes (see Attachment 2). While it makes intuitive sense that these findings should be applicable to novice motorcyclists, the extension of the benefits remains problematic.

Reeder et al.⁴ investigated New Zealand's graduated licensing scheme for motorcyclists, and in so doing have provided the only formal evaluation in this area currently available.⁸ Time-series analyses were used to show that the introduction of the new licensing scheme in 1987 was associated with a statistically-significant 22 per cent reduction in hospitalisations amongst 15-19 year-old motorcyclists. In explaining the reduction, the authors postulated two possible factors:

- reduced exposure to high-risk situations
- reduced exposure to motorcycling generally.

Given the observed decline in the uptake of motorcycling amongst young people at the time (as reflected in decreased numbers of licences issued and vehicles registered), the authors considered the latter factor as primarily responsible for the crash savings. The extent to which this decline was due directly to the new licensing scheme, or to other factors (for example, the increased importation of second-hand Japanese cars from early 1988 onwards), was not resolved.

4.3. Age vs. experience

The association between age and safety has long been recognised for motorcyclists, as it has for car drivers: the older the licence-holder, the less likely the chance of crash involvement (at least up to 60 years of age or thereabouts). Traditionally, this association has been partly attributed to the role of experience: while age is, in itself, a protective factor against crash involvement, so too is the accumulated driving/riding experience that usually comes with age.

A major case-control study from New Zealand⁴ has largely dismissed the role of experience as a protective factor for motorcyclists. The study confirmed the role of age – riders aged 25 years or over had less than half the risk of those under 20 years – but found little evidence to support the benefits of experience, once age had been taken into account. The other major protective factor found related to familiarity with the specific motorcycle: riders who had used their current motorcycle for 10,000 km or more had 48 per cent less risk of crash involvement, after adjusting for other factors.

5. POLITICAL, SOCIAL AND OTHER FACTORS

It is likely that the high risk of motorcycle riding will continue to lead to a call for improved training of novice (and perhaps older) motorcyclists, despite research evidence indicating the lack of effectiveness of such training. The position faced by the 1998 Road Safety Committee of the Victorian Parliament can be readily understood:

- On the one hand, the Committee recognised that there was no evidence linking motorcycle training to any reduction in fatalities and injuries.
- On the other hand, it recommended that “the Minister for Roads and Ports strongly encourage motorcycle rider training for learner and probationary riders aged under 25 years”.¹³

At the very least, jurisdictions already having training schemes are unlikely to dismantle them, however dubious the road safety benefits. Given this scenario, it is a matter of importance that any continued implementation of motorcycle training be accompanied by evaluation which is as rigorous as the circumstances permit.

In the meantime, it appears that graduated licensing schemes for motorcyclists represent a promising way forward. The available evidence suggests that, as a general rule, the more stringent the early restrictions, the greater the eventual benefits. The extent to which this strategy generally, and the restrictions on mobility specifically, will be acceptable to riders themselves, remains unclear: motorcyclist lobby groups have a history of viewing improvements in motorcycle safety as needing to target motorists rather than motorcyclists.

6. CONCLUSIONS

Motorcyclists' high crash risk will ensure that there will always be a call for improved training and licensing options. The research evidence suggests that greater benefits are likely to result from new graduated licensing procedures, as distinct from training programs.

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