RESEARCH SUMMARY: EFFECTIVE COMMUNITY AND SCHOOL BASED ROAD SAFETY FOR YOUNG PEOPLE

1. INTRODUCTION

Young drivers and young passengers continue to be significantly over-represented in road trauma. The risk of crash involvement among young and novice drivers is due to factors that may include inexperience, especially in complex driving situations; motivational factors; the effect of peers; and broader lifestyle factors across the young driver population.

Many community groups, schools and the general public are very concerned about the level of road trauma among young people, and are motivated to address this. A number of detailed evaluations have been undertaken of a range of injury prevention initiatives and there is now a reasonable body of evidence about what works and what doesn't. Some of the key findings are outlined below.

2. APPROACHES THAT DO WORK

2.1 In schools

Effective school based road safety reflects the following approaches:

A comprehensive approach

Road safety curriculum content needs to be provided on a regular basis over a child's school career to reinforce existing concepts and introduce new skills as children develop. One-off visits or incursions or activities, regardless of their content, will not lead to lasting outcomes if they are not part of an ongoing integrated approach.

The NZ Transport Agency provides school resources that are designed to enable students' ownership as active citizens so that they actively contribute to a safe road network (Chamberlain, 2014). This focus aligns with the New Zealand Curriculum vision for young people who will be actively involved as participants in a range of life contexts and contributors to the well-being of New Zealand.

The NZ Transport Agency's approach to road safety education can build students' knowledge, skills and understanding in curriculum areas and help students learn about and solve problems related to safe travel at the same time.

This approach is relevant because it deliberately engages with young people's everyday concerns and emotions in the context of the larger road use issues. The big idea for students is that all people using our roads are precious so we need to think and act together as citizens to create a system that keeps all road users safe.

Interactive approaches

Interactive approaches that involve a discussion format to explore content have been found to be between two and four times more effective than non-interactive approaches (Tobler and Stratton, 1997). Interactive programmes that generate an exchange of ideas and experiences can provide a catalyst for change and opportunities to practice new skills and obtain feedback on the skills that are practised.

Focus on the social competency of the students

Approaches need to build the competency of students to act in safe ways when presented with opportunities to engage in risky behaviour. This includes resistance-skills training to teach students about social influences and specific skills for effectively resisting these pressures alone or in combination with broader-based life skills training. The aim of this is to help students develop resilience, refusal and coping skills. This is considered to be more effective than providing content or building knowledge in students, which has not been found to lead to positive safety outcomes (Buckley et al, 2012). In a review of alcohol and drug programmes it was noted that programmes that focused on decision making skills, coping skills, practising life skills, challenging social norms and resistance skills were more effective (Cuijpers, 2002).

Training of educators and programme delivery

Trained educators have been found to be the most appropriate providers of health and safety programmes in schools. Evaluations of some school based drug education programmes have shown that programmes operated solely by external providers such as emergency personnel have not been effective (Gottfredson, 1997).

Whole school approach and capacity building

To enhance the safety of young road users, schools need to implement a whole school approach, as well as having specific areas of focus across years 1-13. When teachers adapt road safety education to fit the day-to-day world of their students, it gives young people the opportunity to develop their own ideas and to participate in the process of solving problems. This gives them the skills to participate more actively as citizens who take shared responsibility for the safety of our roading network (Milligan 2014).

Schools need to develop a whole school approach to health behaviours and safety (SDERA, 2009). In the road safety context this can include:

› the school working and problem solving with local road safety organisations, iwi and hapu, community health groups, and the local council

› teachers being informed about road safety and using it as a topic to engage students in a range of curriculum areas

› the school adopting a restorative justice response towards challenging student behaviours (Macfarlane & Margrain, 2011)

› parents being informed about road safety education, being good road safety role models, and solving problems with their children

› having a road safety policy and a policy on senior students driving to school

› having sound traffic management strategies around the school at drop off and pick up times

› having a school policy that considers safe transport options e.g. only using buses with seat belts

School engagement and connectedness

School connectedness, which is the extent to which students feel accepted and included within a school community, is positively associated with school retention and good emotional health and wellbeing and negatively associated with adolescents' involvement in risk-taking behaviours (Goodenow, 1993). Research has shown that students who had high levels of school connectedness were less likely to engage in risky behaviours, such as riding with dangerous drivers or drink drivers and to engage in underage driving.

A good level of school connectedness was found to be a protective factor for risk-taking behaviours extending beyond the school setting to after children had left high school completely (Chapman et al, 2011). Strategies most likely to enhance school connectedness include high expectations from teachers and parents for school performance and completion, consistent enforcement by school staff of collectively agreed upon disciplinary policies, effective classroom management, and having supportive and positive student–adult relationships within the school (Bergin and Bergin 2009; Voisin et al, 2005).

Providing a connected, caring, safe and respectful school climate in which learning can flourish is a key priority for New Zealand educators. This need is reflected in policy through the National Administration Guidelines (NAGs) for schools (Ministry of Education, 2013).

2.2 Working at a community level

While community-based or population-level road safety programmes are common in New Zealand and other countries, there are relatively few evaluations of community-level programmes addressing health behaviours in general (Jepson et al, 2010).

The available research indicates that many characteristics of programmes that are effective at a community level mirror those that are effective in road safety education in schools. In particular, community-based road safety initiatives need to be multi-faceted and be delivered consistently over a sustained period. They also need to be based on sound research and to utilise this in all of their approaches. In many instances, the most effective programmes utilise proven programmes and adapt them to suit their own community needs (Hallfors et al, 2002).

To improve the safety of young road users in local communities, groups should take several steps:

› Research the needs of the community and address these using planned approaches that rely on evidence-based interventions.

› Promote and implement effective multi-faceted community-wide programmes and policies.

› Deliver consistent and sustained approaches that are more likely to change the safety culture of communities and, in turn, have a positive impact on the safety of community members.

› Take measures to engage and inform key community leaders.

› Evaluate programme outcomes.

Several key road safety initiatives have been implemented to reduce the number of young driver crashes over recent years. The most significant of these has been a more graduated approach to licensing new drivers. Road safety programmes for youth should support and encourage these effective practices and policies.

3. APPROACHES THAT DON'T WORK

3.1 Information based programmes

Most road safety programmes in schools and communities aim to prevent young people from being injured in road crashes. Injury prevention programmes that primarily focus on providing information or knowledge to students about health behaviours have had little success in achieving positive change. Research evaluations of road safety programmes (Christie, 2001) as well as the alcohol and drug education programmes in schools (Gottfredson, 1997) have found the same results.

Some information about safe driving and the licensing system is needed and the delivery of this information can occur in a school or community setting. However, just providing information about what is safe and what is dangerous or risky does not address the range of reasons why young people engage in risky behaviours. Programmes need to recognise the underlying motivations and expected outcomes of the risky behaviour and address these, as well as a range of other factors, such as the influence of social norms, the self-belief of the individuals to adopt certain behaviours as well as a young person's social skills and ability to adopt safer strategies (Niremberg et al, 2013).

One reason why just raising awareness of the risks is unsuccessful with young people is that it appears that many adolescents are already aware of the risks of dangerous driving. In a detailed review of adolescent risk-taking across a range of health behaviours, Reyna and Farley (2006) reported that several studies have shown adolescents who engaged in higher-risk activities often seemed to be aware that they were at higher risk but engaged in those behaviours anyway. A lack of risk awareness is not what is causing these young people to be risky.

3.2 One-day or one-off events

Some communities conduct one-day events or forums that involve speakers or personnel from emergency services or related fields to speak to young people about their role and their experience of road trauma. Some include mock road crash scenarios.

Many of these programmes are fairly didactic in nature due to the large numbers of young people or school groups involved. They mostly aim to increase awareness of the dangers of high-risk driving with the hope that this awareness will lead to less-risky behaviours. However, this approach is not effective for the reasons outlined earlier. Other short-comings are:

› One-day or one-off events can only ever be of value if they are integrated with a longer-term multifaceted approach (Elkington et al, 2000).

› Relying on external experts to provide information can be difficult, as it relies on the experts having a sound understanding of effective health promotion approaches, and being able to engage and interact with students, which requires specific training (Gottfredson, 1997).

› Developing, promoting and coordinating the event and getting students and or young people to the event is resource intensive, and limited resources could be used in more effective ways (Rafferty & Wundersitz, 2011).

A recent evaluation of a one-day school based programme was undertaken by researchers from Griffith University (Glendon et al, 2014). The school-based intervention they evaluated was designed to improve road safety attitudes and risk perceptions among senior secondary students. It was conducted over one day and featured presentations from police officers and road trauma victims. The evaluation compared the attitudes and risk perception of the students who completed the programme with a control group from another school. The results showed that the programme had no effect on the student's risk perceptions, but rather than having safer attitudes, students who participated in the programme showed riskier attitudes to road safety after completing the programme. The authors commented that the single occasion delivery of the programme, together with the reliance on guest speakers and some content based on fear appeals may have led to the disappointing results.

In a detailed review of effective measures to reduce injury among young people, Elkington et al (2000) concluded that lasting behaviour change and ultimately a reduction in injuries experienced by young people is beyond the scope of one-off educational programmes.

3.3 Using fear appeals

Some educational interventions focus on shock tactics. These "fear" approaches usually contain graphic descriptions of the potentially negative consequences of risky behavior (Chamberlain, 2012).

A fear appeal is defined as a persuasive communication attempting to arouse fear in order to promote a self-protective action (Witte, 1992). This can be in the form of advertisements, messages, images or discussions. Fear appeals are typically used in health campaigns to vividly show people the negative health consequences of life-endangering behaviours so people will be motivated to moderate their current risky behaviour and adopt safer alternative behaviours (Ruiter et al, 2001).

However, a large body of research has found that in general fear appeals do not lead to positive behaviour change (De Hoog et al, 2005, Lewis et al, 2007, Ruiter et al, 2001). Research has found that some people accept the fear appeal message, whereas others reject it (Witte & Allen, 2000; Ruiter et al, 2001). Those people who are already motivated to behave safely and who have high self-efficacy (i.e. they believe that they can behave in the desired way), are more likely to accept the fear appeal message and will be more likely to adopt the safer behaviour. However, these people are usually behaving in a safe manner already. In contrast, for some people, fear appeals invoke defensive mechanisms like denial ("that is not true"), ridiculing the message, neutralising ("it won't happen to me") or minimising ("that message is exaggerated") (SWOV, 2011). It is not surprising that females seem to be more likely to accept fear appeal messages than males (Lewis et al, 2007). One study has found that fear appeals in some instances have led to an increase in risky behaviour (Taubman Ben- Ari, 2000).

Despite this, many programmes that operate in schools and the community are broadly based on using fear appeals to try to change behaviour.

Some schools and community groups utilise programmes that use fear appeals as part of their road safety education. An evaluation of a programme that utilised testimonials from road crash victims that operates in The Netherlands has recently been undertaken by Maastricht University. This programme, called "Traffic Informers" is delivered to students from years 9-11 and involves the screening of an 8 minute video featuring crash scenes and a 30 minute presentation from a road crash victim. The evaluation found that the programme did not result in any self-reported behaviour changes. The authors concluded that the time and money would be better spent on more effective programmes (Feenstra et al, 2011).

3.4 Some types of simulation activities

The use of driving simulators as a tool to assist young drivers is often suggested and low-grade simulators are promoted by some community organisations as a road safety initiative for young people. While simulation is a commonly used training tool in aviation, in most cases the application of simulation as a training tool for driving has not been shown to be effective. One possible exception to this is the use of simulation to help novice drivers scan for, anticipate and identify hazards (Isler & Starkey, 2012 and Chan et al 2010).

Driving simulators attempt to reproduce some or all of the perceptual experiences of driving a motor vehicle. Research shows that driving simulators cannot faithfully reproduce all the experiences of driving a real motor vehicle on a real road in real traffic (Johanssen & Nordin, 2002). It has been concluded that in most cases, using real cars on real roads is cheaper, more realistic and more effective in training terms than building and using simulators (Christie, 2008).

A very low level of simulation used in some road safety and alcohol prevention programmes involves using alcohol impairment goggles. The broad aim of activities using these goggles is that participants potentially experience the negative effects caused by drinking and ultimately change their views and behaviours as a result. However, an evaluation of this type of programme for young people found that this prevention strategy is not effective in creating behaviour change (Jewell and Hupp, 2005). Alcohol impairment goggles only supply visual impairment, whereas the real risk is due to the cognitive impairment. People who are significantly impaired by alcohol also lose the ability to assess just how impaired they are (Charlton & Starkey, 2013). Further, using goggles to simulate the effects of being drunk can have the unintended effect of trivialising the issue, or making being drunk seem like a fun activity. For students with little experience, such lessons may increase interest in alcohol use. Such approaches may also inadvertently imply to young people that there is an expectation that all young people will at some point get drunk and act in an unsafe manner. This can have the unintended effect of normalising the unsafe behaviour.

3.5 Driving skills programmes

Driving programmes mostly involve young people undertaking driving sessions on off-road tracks or circuits. These programmes may be targeted at learner drivers, novice drivers or young offenders. Systematic evaluations of these programmes have all concluded that the programmes had little or no positive effect on the road safety behaviour of the students who participated in them (Christie, 2001; and Lonaro, 2008).

These programmes were regarded to be ineffective because they predominately focus on driving skills. While it is acknowledged that all novice drivers need to master basic car control skills to become licensed and drive safely, providing an increased emphasis on driving skills does not lead to better safety outcomes (Christie, 2001; and Lonaro, 2008). This is because very few crashes on public roads involve car-handling skill as a causative factor.(Curry et al, 2011) In contrast, the vast majority of crashes involve some aspect of decision-making, which is in turn influenced by the driver's attitudes. In reality, if a driver finds himself or herself in a 'critical' or 'emergency' driving situation, their options for avoiding or lessening the severity of a crash are extremely limited.

Other off-road programmes for novice drivers, especially those that include skid control training, were found to either have no positive effect or to have negative effects on those who completed them (Williams, 2006 and Hatakka et al, 2002). This outcome may be because some of the young drivers who completed these programmes felt that they were more skilled drivers than they were previously. As a result, their confidence and level of risk taking as a driver increased, leading to a greater involvement in crashes. This outcome was more evident in young male than young female drivers (Christie, 2001). Helping drivers to see that, no matter how good a driver they may be, they have a far better chance of avoiding a crash if they minimise their chances of being in an emergency situation in the first place is likely to lead to better results.

It is difficult to construct driving skills or track-based training programmes that improve driver attitudes and decision-making while avoiding unintended effects such as decreased safety margins and increased driving speeds.

A number of reviews into road safety education (SDERA, 2009) as well as those that have reviewed health education programmes (Booth and Samdal, 1997) and crime prevention programmes (Gottfredson, 1997) have concluded that the following approaches are the most effective.

4. CONTENT OF ROAD SAFETY PROGRAMMES TARGETING YOUNG ROAD USERS AND THEIR PARENTS

4.1 The Graduated Licensing System (GDLS)

The New Zealand Graduated Driver Licensing System is designed to reduce the number of crashes involving young drivers by limiting young drivers' exposure to risk while they develop both maturity and experience. The GDLS is one of the most effective interventions available to reduce the number of crashes among young drivers. It has been shown to be an effective tool in reducing crash risk among young, novice drivers (Begg & Stephenson, 2013). A key design element is the age of entry into the system (raised to 16 in 2011). The key provisions are a 6-month learner phase where the driver must be accompanied by a fully-licensed, experienced supervisor at all times, and restrictions on driving at night or with passengers. At each stage, drivers must pass an assessment (theory test for learners, practical tests for restricted and full) before they earn a new licence with fewer restrictions and more responsibilities.

The restricted licence practical test that was introduced in February 2012 requires much more driving experience than the old test. The NZ Transport Agency recommends that drivers aim for around 120 hours of practical super vision in a range of conditions and situations.

A key issue that reduces effectiveness of the GDLS is non-compliance with the key conditions. Police data shows that just over half of young drivers at fault in fatal or serious injury crashes have a history of GDLS breaches (CRSI, 2014).

Approaches that support and encourage compliance with the GDLS among students, parents and the broader community are likely to be beneficial (Williams, 2012). Parents can have considerable positive influence on their adolescents, through ensuring compliance with the GDLS, by limiting vehicle ownership and by modeling safe driving behaviours (Brookland et al, 2013). This means helping parents learn about the GDLS conditions and the rationale for them and encouraging parents to make arrangements such as 'driving contracts' to help young drivers to comply with the conditions.

4.2 Managing distraction, fatigue and speed

Distraction, cell phone use, fatigue and speed are particular risk factors for young drivers. Despite its seriousness, public understanding of distraction is low. Research shows that many drivers do not see distraction as a road safety issue. People tend to view distraction as a normal part of driving. This is despite people also describing 'near-misses' and other situations where their driving had been affected by distraction. Studies suggest that young drivers are not as efficient as more experienced drivers in processing the visual information needed to drive safely while attending to non-driving tasks at the same time (Mourant & Rockwell, 1972; Summala, 1996).

With evidence accumulating that teenagers often do not get enough sleep, the issue of fatigue as a risk factor is growing in prominence (National Sleep Foundation, 2000). Crashes resulting from driver fatigue are among the most severe on the road.

Speed affects all crashes. It can be a factor in causing them and it has a direct effect on the damage done in a crash. It is clear from the crash statistics that many people underestimate how changing conditions, such as wet weather, can increase road risk. Research shows that moderating both mean and excessive speeds could significantly reduce road deaths and serious injuries. A number of observational studies have found that young drivers take more risks than older drivers. For example, younger drivers tend to accept narrower gaps when pulling out into traffic (Bottom & Ashworth, 1978; McKenna, Waylen, & Burkes, 1998). They also have been observed with shorter following distances (Baxter et al., 1990; Evans & Wasielewski, 1983) and driving faster (Galin, 1981; Quimby & Watts, 1981, Ferguson, 2003).

It is important that young drivers understand that not all roads and roadsides are created equal. This is especially important for drivers in rural areas who tend to assume that their roads are safer because there is less traffic, but don't take into account the higher speed limits and roads that are generally less forgiving of error. The KiwiRap road assessment programme assesses road risks, identifies safety shortcomings and provides information about where the greatest levels of risks are. It is a useful resource to draw on to reinforce this point.

Approaches to road safety education that address these risk factors need to be part of comprehensive programmes which help young people to develop the social competence and attitudinal and cognitive skills to make sound decisions that reduce risk.

4.3 Safer vehicles

Another area of research emerging in recent years has been the importance of vehicle safety for young drivers and their passengers. Research that draws on Australian and New Zealand data estimates that if all young drivers killed or seriously injured in crashes over the past five years had been driving the safest vehicle of the same age as the one they were driving when they crashed there would be a reduction of death and serious injuries of more than 60 per cent (Whelan et al, 2009).

However, in many cases, young people and their families do not consider the safety of the vehicle when purchasing a first car. Parents/whānau often assume that older and larger vehicles are safer because they're less likely to get dented or suffer panel damage than newer cars designed to crumple and distribute crash forces through the chassis while protecting the occupants. While mopeds and motorcycles are cheaper than cars, they are also a riskier option because they offer less protection for the rider.

Informing young people and their parents about vehicle safety and encouraging the purchase of a safe vehicle is particularly important for the safety of young drivers.

Safer vehicle choices don't have to be the newest, most expensive or even the biggest models. The latest used car safety ratings show that there are a number of makes and models of used cars with 4 or 5-star safety ratings that could be affordable and appropriate choices for young drivers. The most up-to-date information on which used vehicles provide the best protection, including safer options for young drivers is available at Right Car.

4.4 Enforcement and deterrence

New Zealand has effective road safety laws, such as drink driving and seat-belt wearing laws, which have reduced road trauma significantly over the last few decades. For laws to be effective, especially at a deterrent level, the relevant population groups need to be aware of the laws and they also need to understand and accept that there is a reasonable chance of detection if they breach these laws and that penalties for breaking the laws will be applied (Homel, 1986).

For young people, being aware of the relevant road safety laws of the level of enforcement and of the legal consequences are important in creating the basis for effective enforcement systems. Providing this information to young people, especially if it supports effective programmes, like the GDLS, are likely to be worthwhile. Education both at a school and community level does have an important role to play in enabling and expanding interventions that work (McKenna, 2010). However, it is important that the programme content is developmentally appropriate for the young people and also needs to be perceived as relevant by them (Buckley et al, 2012).

Developing programmes for young people who are identified as "high risk" or who are serious traffic offenders requires understanding which young people are more risky than the average young person. Harrison (2011) reported that among young drivers, it is possible to identify subgroups of drivers that have a higher than average level of crash involvement or serious offending. Literature indicates that patterns of risky driving behaviour appear to be part of a broader pattern of problem behaviours (Smart et al, 2005), and drivers who engage in frequent unsafe driving behaviours also undertake behaviours that reflect an unsafe lifestyle (Blows et al, 2005).

5. ROAD SAFETY PROGRAMMES FOR YOUNG OFFENDERS

It needs to be acknowledged that most of the literature about what is effective for high risk young people indicates that almost all of the effective interventions need to be delivered by professionals who specialise in this work. As such, involvement by community road safety groups with high risk young people and young offenders may be limited. However, there is scope for community organisations to support some of this work through volunteering either to assist directly, or by providing funding and ancillary support to the organisations conducting specialist interventions.

There is evidence to suggest that the following areas are more likely to be effective in assisting young high risk people and these should be supported by community road safety groups:

› Initiatives to reduce and limit social disadvantage in the driver licensing system by assisting and encouraging local community driver mentoring programmes. The NZ Transport Agency and NZ Automobile Association have developed a guide to communities who may wish to develop their own community driver mentoring programme that can be found here.

› Community-based programmes that are designed to minimise general risk factors among young people – such as proven youth mentoring programmes or preventative programmes that encourage school completion and employment for at-risk young people (Tolan et al, 2009 and Broadbent & Papadopolous, 2009).

Community groups should also look for ways to support and acknowledge specialist groups and individuals who are working with high risk young people via proven measures. The most effective approaches to working with young offenders are cognitive-behavioural therapy (Andrews & Bonta, 2010), motivational interviewing (Nelson et al, 2008) and family-based interventions (Greenwood, 2008).

6. CONCLUSIONS

The research on effective road safety approaches for young people indicates that communities should:

› Implement comprehensive programmes that are delivered across age levels and across the curriculum.

› Ensure that programmes are interactive, age appropriate and engaging for students.

› Provider programmes, especially for teenagers, that focus on the social competence of students to assist them develop resilience, coping strategies, refusal skills and self-efficacy to behave in a safe manner.

› Build school capacity by supporting and training staff in the delivery of road safety material and ensuring that sound road safety practice is reflected in their school policies, practices and importantly in their engagement with parents and the local community.

› Implement programmes that are supported by evidence.

A number of detailed evaluations have been undertaken of a range of injury prevention initiatives and there is now a reasonable body of evidence from what is called the prevention sciences, about what works well.

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