Adolescents' perspective of transport related risk-taking and injury: Definitions, consequences, and risk and protective factors.

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Injury is the leading cause of death for adolescents in Australia. This is of particularly great concern as the leading cause of these injuries (those that are transport related) could be largely preventable by reducing risk-taking behaviour. In order to reduce such behaviour, effective road safety interventions should seek the input of the target participants. A series of focus groups were conducted with 30 high-risk adolescents, to seek information on their understanding of transport related risk-taking and injury. Primarily risk-taking involved car use, motorbike use, bicycle use, pedestrian behaviour and skateboarding. Further alcohol and drug use in the context of such behaviours were frequently reported. Most injuries were minor (for example, cuts and bruises) however participants identified more serious injury consequences (for example, head injuries and miscarriage). It was also found that the risk-taking was done in the context of peers, who exert a direct and indirect pressure to conform. Multiple risk and protective factors were also identified related to the individual and their environment. The results will be further discussed in terms of the value of seeking target participants' perspective of road safety issues and how this information will be used to design a prevention program.

INTRODUCTION & BACKGROUND

More than two thirds of the deaths of Australian young people are the result of injury (AIHW, 2004). Amongst the leading causes of young persons' injuries are those that are transport related. The aim of this research was to understand adolescents' perspectives of transport related injuries and risk-taking in order to inform the design of an injury prevention behaviour change program.

A U.S. based study indicated that many adolescents report engaging in risk-taking behaviours (Johnson et al., 1996). An Australian study concluded that substance use and reckless driving are widespread risk-taking behaviours (Sankey & Lawrence, 2001). Further, at the more local level, a Queensland study found that at least three-quarters of secondary students engaged in at least one risk-taking behaviour (Western et al., 2003).

It is believed by some theorists that risk-taking in adolescence is part of healthy development and that healthy risk-taking can positively impact on adolescents (Abbott-Chapman & Denholm, 2001). Despite this, taking some risks can have varied serious injurious consequences. The prevalence and corresponding injury rates of transport related risk-taking behaviours by adolescents is of great consequence in terms of the health and injury burden, as well as the economic costs of medical care, property damage and to the insurance industry and the criminal justice system.

Risk-taking as an experience of human behaviour can be defined as an action with an unclear outcome; it is an action with a chance of loss or negative outcome (Ben-Zur & Reshef-Kfir, 2003). A considerable amount of research has sought to understand the nature of risk-taking in adolescence and factors within the adolescent environment that might shape or influence risk-taking behaviour. What has emerged from this large body of research is that risk-taking and reducing risk-taking behaviour is highly complex. The present study sought to seek further clarification from the target sample on their perceptions of adolescents' risk-taking behaviour, corresponding injury and associated risk and protective factors.

A useful way to conceptualise risk-taking behaviours is to understand factors shown to increase the likelihood (risk factors) or reduce the likelihood (protective factors) of

engagement in the behaviour. Prinstein et al (2001) noted that risk and protective factors can cumulatively affect adolescent risk-taking behaviour. They found that rates of higher risk-taking behaviour increased two fold for each added risk factor present and that more protective factors evident at each risk level led to a decreased probability of harm. A clear need in any program designed to change transport related risk-taking behaviour is to examine both risk and protective factors. The study sought to understand risk and protective factors from an ecological perspective. Such factors are interdependent and evident in many aspects of adolescents' lives; in individual cognitive and personality factors, in relations with family and parents, in the school environment and in the wider community (Hawkins, et al., 1992).

Whilst it is important to understand risk and protective factors, successful programs are those that are maintained in communities and are owned and supported by community members (Reese et al., 2001). This suggests that customising programs for specific communities prior to planning and implementation is a critical investment. Lerner (1995) indicated that a key aspect of interventions is that they are accepted by target populations, and that the perceptions of the targets' social ecology through the participants themselves are understood. A qualitative understanding of the target participants affords insight into how risk and protective factors might interact with the community and give voice to the perceptions and perspectives of participants. Thus the process of understanding the targets' perspective is an important step to designing behaviour change programs that are culturally, ecologically and face valid.

An important rationale for understanding the target populations' perspective is that it allows the specific content of the program to be drawn from 'real world' experiences of risk-taking and its consequences. The content in the proposed behaviour change program, the next stage of the research, will use an interactive discussion format and the scenarios processed by adolescents in a curriculum setting will aim to be as personally relevant for participants as possible. This approach provides a number of benefits, firstly, of being more likely to be enjoyable (Simplico, 2001). An interactive method is also useful in generating associations between program material and real-life situations for adolescents (Sussman et al., 2003). A program most closely resembling real-world events is expected to generate a higher likelihood of success (Perry, 1999). Future curriculum activities should be written to focus on the risk-taking behaviours identified by the target audience so to be in a language consistent with that expressed by participant adolescents. Such a process reduces the likelihood of dissonance between new ideas and skills to be promoted in the behaviour change program and adolescents' current beliefs regarding risk-taking and injury.

This study potentially provides the foundations for operationalising and identifying program components applicable to the target audience. Perry (1999) suggests this is essential to determining which types of activities are most suitable. The findings of this research will be used to design activities that reflect the adolescents' life experiences and to ensure that elements are pertinent, applicable and allow participants to best identify with characters and scenarios. The aim of this study is thus to gain a subjective understanding of the perceptions of participants about factors in their environment that have the potential to compromise their own and others' safety. Such an aim enables the identification of concerns important to participants so that appropriate hypotheses can be generated for further behaviour change research with youth in this community and similar populations. Specifically, this study is the first step in the development of a behaviour change program for youth.

METHOD

Rationale: Focus groups were selected as the data collection method as they offer the opportunity to gain valuable insights into participants' perceptions and experiences. Focus groups have been highly utilised in the fields of health and social science research as a method of data collection (Beyea, 2000). They are one of the most favoured and accepted

methods of qualitative data collection. In the focus group setting, participants can provide their own explanations for behaviours and describe scenarios from an ecologically valid setting. Selected adolescents are using their own language in the context of their own experiences and thus providing examples which are likely to be engaging when explored in the program content. It also provides an opportunity to explore and facilitate new ideas and skills within adolescents' current experiences and beliefs. An advantage of using focus groups as a data collection method for adolescents' opinions is that they allow data to be collected from a number of people in a relatively short period of time (Beyea, 2000) and provide 'high density' qualitative information. The group experience is also advantageous as it facilitates discussion in a supportive environment.

Participants: Participants were thirty students (n=23 males) aged between 14 and 17 years who attended one of four class groups in South-East Queensland. Two groups comprised of all male participants, while the other two groups were of mixed sex. The groups ranged in size from 5 to 10 participants, with all students attending class on the day of the focus group agreeing to participate. These students had disengaged from traditional mainstream schooling and were receiving high school education from Flexible Learning Programs (FLPs). The selected programs are part of community organisations staffed by teachers and youth workers who support these adolescents in their education. Students typically complete Education Queensland curriculum through distance education supported in smaller class sizes (typically less than 10 individuals across ages) in a flexible environment. Participants who had disengaged from mainstream education were considered more likely to participate in risk-taking behaviours and were considered more likely to be at high risk.

Measures: Participants' understanding of risk-taking behaviour, associated injury and risk and protective factors were examined through the use of several open-ended questions presented as focus group prompts. Some example focus group prompts included *"How do people your age get hurt?"* and *"What sort of things happen, can you think of someone that has been hurt and give me and example?"* These were followed with prompts to elicit more detail about the behaviour concerned, where appropriate. For example, some prompts related to motorbike use included*, "How commonly does that sort of thing happen?", "What were the injuries?", "What happened just before they got hurt?", "What makes someone keep going harder and faster?", "What do you think makes young people take risks riding motorbikes?"* and *"What might restrict them from taking risks?"* The focus groups adopted a semi-structured format to include further follow-on questions that enabled clarification and enhancement of participants' responses. Participants were also asked about risk-taking in the context of interpersonal violence, however results from these questions are only included in this study as they relate to transport issues.

Procedure: Permission was initially sought from the co-ordinator of the organisation in which the FLP is held. FLPs typically occur on the premise of a youth community agency. A convenient class time was arranged with the teacher and on arrival; two research officers were introduced by the class teacher. A research officer then explained the nature of the research as well as presented information sheets and consent forms. Participation began after the consent forms were completed. The hour-long discussions were tape recorded with participants' permission. In three of the four focus groups a teacher or youth worker was an active member of the discussion. In the fourth group a teacher was present in the room but did not take part in discussions. There did not appear to be any differences in responses between the groups with staff actively participating and the group with staff not actively involved. On conclusion of the discussion, participants were thanked for their involvement and shared pizza and soft-drinks for lunch.

Analysis: Data was analysed using the computer software program, NVIVO 2.0 (QSR, 2003) for qualitative data analysis. Qualitative analysis enables the exploration of the relationships between identified themes and involves a process of managing, summarising and finding meaning in large semi-structured quantities of data. A decision about the depth of analysis depends on the purpose and theoretical grounding of the research. In the case of this

exploratory study, it was decided not to undertake theoretical testing or development as the aim of the focus groups was to gather information on characteristics of adolescents' perspective of risk-taking behaviour, injury and risk and protective factors. Although not directly testing a theory, prompts were developed so that key areas of influence identified in the literature were covered.

      To increase the rigour and reliability of the study and to avoid the bias inherent in researcher transcribed verbatim or dialogue summary, the discussions were tape recorded and transcribed. The transcription was double checked for accuracy. Any names or identifying information were removed from the transcription and replaced with pseudonyms.

      Through familiarisation and ongoing interpretation of the data, codes were generated to index categories of information. Coding is the process of conceptually dividing the raw data. At the simplest level, when a concept is noted a textual label is attached and when it reappears the label is attached again. Theme identification began by refining codes to form more well-defined categories or themes. These themes along with sub-themes were checked across focus groups to assess dependability and confirmability. Checks also occurred through the discussion process by the facilitator's use of paraphrasing and summarising, thereby checking the accuracy of participants' responses in situ.

RESULTS

      The focus group results covered the following: (1) risk-taking behaviour, (2) injuries associated with risk-taking behaviour, and (3) risk and protective factors (those factors associated with a higher and reduced likelihood of engaging in risk-taking behaviour respectively). The responses are addressed, in turn, in the following sections.

      Risk-taking behaviour. The transport related risk-taking behaviours identified by participants involved; motorbike use, car use, pushbike use, skateboard use, pedestrian behaviour and alcohol use in the context of transport related behaviour (see Table 1).

Table 1. Themes associated with risk-taking behaviour and example content and quotes

Themes	Content	Example Participant Response
Motorbike use	Mostly male; mostly off-road; no alcohol use; injury related to: attempting jumps, inadequate protective clothing & poor mechanics	*Rolled the dirt bike…* (it) *was still on flames …*(he) *put petrol down the spark plug hole and kicked it over without the spark plugs in* (male)
Pushbike & skateboard use	Mostly male; on- & off-road; often with alcohol use; injury related to: attempting jumps & tricks	*He was riding down the stairs at the station and goes like I'll just ride down and the whole bike just split in half at the frame and, oh man, just split going down the stairs, it was so funny hey, and* (he) *just went down the stairs on his arse* (male)
Car use	Mostly male; some off-road, mostly on-road; sometimes alcohol use (mostly not); all unlicensed; injury related to: car surfing (off-road), inadequate handling & dangerous manoeuvring (on-road)	*Eight trees on the side of the road… And then he hit a um whatsaname a rubbish bin… And screwed the car totally...(*this person was) *completely blind off his nuts..* (he was stopped by a) *garbage bin then had to try and get it off it* (male)
Pedestrian behaviour	Mostly males; no associated injuries reported	*Running across the highway.. had to get the lighter that dropped…the cars doing 120* (male)

      Alcohol use frequently occurred in the context of transport related risk-taking behaviour as well as on its own. Drugs (only marijuana), were generally not used in the context of on-road transport related risk-taking although some use reportedly occurred before

riding a pushbike on-road. In the transport context it was also used prior to off-road skateboard and pushbike use. Incidents of illegal car use (driving without a licence) were reported in all but one of the groups. Most of the illegal car use was with cars owned by older friends (also participating in the risky behaviour) or family. The on-road risky pushbike use typically involved tricks and jumps, riding after drinking and always riding without a helmet. This was similar to skateboard use although primarily skateboards were used off-road. There was mixed use of protective equipment for motorbike riding, with most indicating that young people generally use a helmet when riding, however one male also used other protective clothing equipment. Participants denied consuming alcohol before riding indicating that they did not do so because it was dangerous, as one male joked, *yeah all the time, we've always got a stubbie in one hand.* Interviewer: *So you don't* (drink beforehand), Participant: *Nah* (male). However some recalled knowing or speculated that other young people that they were not friends with most likely consume alcohol before riding a motorbike. All bikes used were designated off-road vehicles, however many indicated that unlicensed driving occurred on public roads to get to off-road sites.

      Injury. Few injuries were reported as a result of the transport related risk-taking behaviours. Most commonly, cuts and bruises were reported, however 'other' injuries included; broken bones, grazes, burns and others, such as being winded, losing consciousness, and a miscarriage – see table 2. Participants struggled to recall ever seeking medical attention for the injuries, although one participant recalled that all those involved in a car accident were treated by a G.P. Participants generally agreed that young people tolerate any pain and do not seek medical attention, however they suggested that others (not themselves) might see a doctor if it was serious.

Table 2. Themes Associated with Injuries and example content quotes

Themes	Content	Example Participant Response
Breaks	Few; all male; mostly pushbike riding	*I broke my neck when I was hit by a car* (male)
Cuts & bruises	Very common; obtained across all risk-taking	*You get blood, bruising, scarring* [from risk taking] (male)
Grazes & burns	Common; mostly with pushbike, skateboard and motorbike use	*Up his face and arm. He does it* (grazing) *all the time* [from motorbikes] (female) *A mate of mine he caught fire… He wasn't actually burnt and hurt… it was just his shirt and my hat…… He ran away and rolled into the sand …..He was gone …The bike was still sitting there on flames…It put itself out. It ran out of fuel* (male)
Other	Single incidents; more serious injuries occurred with cars & motorbikes	*Someone got winded* [car accident– underage driver] (female) *She had a miscarriage* (female) *Yeah he got knocked out it was quite funny… probably* (for) *about half an hour… he was driving up* (place named) *on his motorbike and he got hit with a rock. He had his open face helmet.* (male)

      Risk & Protective Factors. Participants' identification of risk and protective factors for adolescent risk-taking behaviours covered a wide ecology within the adolescents' environment, including individual, peer, family and community factors. The results have been organised according to the different aspects of the ecology.

Table 3. Themes Associated with Risk & Protective Factors and example content and quotes

Themes	Content	Example Participant Response
Individual	Sensation seeking; perception of peers; norms, attitudes, self-efficacy	*It's the speed that's the adrenalin* [motorbike] (male)
Peer	Collective behaviour; supply materials; verbal encouragement	(It's) *always with everyone else* [illegal driving] (male)
Family	Parental supervision & control	*If his dad's around, he'd kill him* [so he doesn't take illegal risks] (male)
Community	Opportunities for alternatives; support; external consequences	*Nothing bad comes unless you go like to juve or something* (male)

Individual factors: Themes reflected at an individual level that were associated with encouraging risk-taking behaviour, included having a positive attitude towards the behaviour and perceiving risk-taking behaviour as normative. The positive attitudes towards the behaviour were reflected in the emotions expressed by participants, such as an adrenalin rush, fun, relieving boredom, enjoyment or release of aggression. One male said, a*s soon as the adrenalin rush starts kickin' in, that's it, nothing else enters your mind, just thinking about going faster and harder*, and another male commented, *we just do it for fun* (risk taking).

Having a positive attitude toward the behaviour was reflected in a positive evaluation of the outcomes of the behaviour and corresponding positive emotional experience. Further, having a negative attitude toward the risk-taking behaviour appeared to reduce involvement, although this was mostly articulated by females in the group; for example one female stated, *no man, its like skateboards you don't have no brakes. And the way you've gotta stop is like stack it or jump off...so it's suicidal.*

A further individual factor related to adolescents' cognitive representation of risk-taking is their perception of peers and themselves within their social environment. Peers indirectly influence behaviour through adolescents' perceptions and this appeared to hold a powerful influence on the likelihood of engaging in risk-taking behaviour. There was evidence of the adolescent's desire to present oneself as cool or to meet the perceived expectations of peers. Some example statements made by participants included; *if I think that* (it's) *pretty cool I'll wanna show someone else* (male), *ninety-nine percent of the time people, grommets, do stupid things just to show off* (female), and *also like people think they're cool* (for doing the risks) (female).

In contrast, there is the potential for peers to provide a protective influence through pressures, with one male highlighting the 'rules' of risk-taking do not include stealing from old ladies; *that was an old lady's car I can't believe you stole that, that was an Excel, I can't believe you stole that either.*

There was also an indication that if any adolescent did not want to engage in the risk-taking behaviour that a sense of self-efficacy would serve as a protective factor, as one male referred to the discomfort of being a passenger of his mate; *that's why ever since my mate rolled a car I've never gone* (back in the car with him)…*he's a punce now*. Another female responded*, that's my choice* (to not engage in certain risks)*.* The female also reflected on how adolescents' choices were difficult to make, stating, *they don't think these aren't really your mates if you refuse to do this*. Further, a lack of perceived control of the behaviour was another risk factor, with one male stating, *you c*ontrol *yourselves* (male), and another, *you just know how to ride* (male).

Peer factors: Although peers have an indirect influence on adolescent behaviour through perceptions of norms and desire to uphold a reputation, peers have a very direct influence, for example, supplying materials for risk-taking behaviour; such as in this example, regarding motorbike use; *there's a big long bit where everyone sits...so you only have one bike* (and take turns) (male). Peers also provide verbal encouragement, *most of the stuff they would do it because people are telling them to* (female).

There were no reports of risk-taking behaviours performed alone, instead friends or relatives considered to be friends (e.g. a sibling of similar age) were involved. Further, adolescents were getting injured as a result of being in a risk-taking environment; one male explained involvement with risky peers, *then he locked 'em and then cut 'em and so the doors wouldn't unlock and Mark jumped in it* (not knowing) *and* (he's) *in the back sitting... in the back of the car and Tim's racing up and down the street doing big handbrakes and shit they're at Beams road out the front of Tim's house and he's like, "ooh I'm gonna hit a tree," and Mark's like, "you're a dickhead, don't, let me get out," and he's like whoa and he's like doin' thirty clicks and he's like bang straight into a tree and there goes the front end of the car smashed it up and Mark's sliding around ...and he's like," let me, let me out"*. There is also the potential for young people to provide a direct protective influence on their friends' behaviour, with some males explaining that they will only ride their motorbike in tandem with one particular female, so as not to let her ride dangerously on her own. This protective behaviour appeared to only occur between sexes.

Family factors: In all of the focus groups the issue of parents' influence was raised, in particular in relation to parents' supervision. Many of the participants were not living at home with their parents and had estranged relationships with their parents. These participants acknowledged a lack of supervision and corresponding higher likelihood of engaging in risk-taking behaviour. This was compared with their experience of some friends' parents who reportedly knew their child's activities or to their earlier experiences when some supervision was experienced. As one male explained, *parents don't do shit, my parents don't do shit, they said go if you f***in' wanna go out* (it's up to you)*, and another, Interviewer: (Are you) hassled by parents for doing what you do? Participant: Nah, our parents are mad they don't care... James' mum and dad would go mad. He doesn't do it ....James' the good one ...*(his) *dad goes off it's not worth it*.

Young people perceived two key elements with supervision; parents knowing where the young person was and providing age-appropriate punishment. The understanding that no punishment would ensue on being caught was a risk factor. Some participants were highly cognisant of the fact that because there was no threat, that is, that their parents would not acknowledge their risk-taking, that this increased their likelihood of engaging in the behaviour, *bullshit my dad was around while I got done up the Coast...no he didn't, he didn't do shit* (male).

In contrast, a supportive dynamic within the family may be a protective influence, with one young person referred to in the following statement by a staff member who was checking the accuracy of a participant's earlier response, *it's about keeping the family safe, Aaron, your sister's got family and little ones and it's hard isn't it*.

Community factors: While the participants had all disengaged from mainstream schooling, the youth community network (that included their current schooling) appeared very important in providing support and the potential for protection against engaging in risk-taking behaviour. For example, one male stated, *they take us out and that, they reward us for coming in and that like keeps us from doing stuff out in the streets and coming to school...if we had something better to do we wouldn't do half the stupid shit we do*. Participants' acknowledged that they valued their time in the centres and they would most likely be engaging in risk-taking if it wasn't for their attendance. One male suggested that they be open longer, (we need) *night time youth centres...there is one every Friday night but its only one night a week*.

It was also indicated that the wider community might provide external threats that could protect against the engagement in risk-taking behaviour, for some it was the presence of police, as one male stated, (they) *try and stop you in Langtown... the cops* (do) *because there's a lot of cops around on the street*. Young people noted that a deterrent could be juvenile detention and that this was a potential consequence however they acknowledged that this did not actually stop their risk-taking behaviour. Further, some young people might also experience alternative activities in the community that have the potential to provide other risk-taking experiences and thus prove a protective factor such as, *throw footballs with each*

other (female) or *play pool* (male). One male responded to the following suggestion of increasing available activities, *yeah hell yes we wouldn't be bored every day*.

CONCLUSION

Data from this study highlights the sophisticated knowledge that young people have of the risk and protective factors that operate to impact on injury. Further, the participant adolescents were able to describe risk-taking scenarios and injury with detail. This enabled comprehension of the adolescents' risk-taking environment thereby potentially providing a basis for discussion in curriculum activities.

The common risk and protective factors across a wide number of behaviours (skateboarding, car use, motorbike use etc) was clearly evident. Such overlap indicates a need for prevention efforts to target multiple behaviours rather than an individual behaviour singularly. There have been several suggestions that targeting multiple risk-taking behaviours is no less effective (and perhaps more effective) than targeting a single risk behaviour (Jessor et al., 1998). Assumptions underlying the theories that guide prevention efforts must therefore recognise the interplay of risk and protective factors across many transport related behaviours.

These focus groups were part of the early stages in the development of an intervention program. From this research it is clear that programs should be designed for many behaviours but also target many aspects of the ecology of the adolescent's environment. The value of developing multi-component programs is being evidenced in multi-systemic interventions such as that by the Conduct Problems Prevention Research Group (2000). This large-scale and expensive research targets different developmental periods to address the multiple risk and protective factors of adolescent risk-taking behaviour. The current focus group research is thus consistent with the theoretical grounds of such research, indicating that the targeting of individual, peer, family and community factors would be appropriate. However, this raises the issue of managing the balance between cost and an 'ideal' behaviour change program.

The individual's beliefs regarding transport related risk-taking behaviour in their social world is a key area impacting upon their likelihood of engaging in risk-taking behaviour. This is consistent with Rolison and Scherman (2002), who showed in quantitative research that both perceived benefits and perceived peer risks were associated with risk-taking behaviour among older adolescents. Adolescents may discover a social reward for engaging in the behaviour. The passive influence of peers is reflected in the social acceptability of the behaviour. This has also been demonstrated with quantitative research by Beck and Treiman (1999), who found that peer norms rather than peer approval predicted driving while intoxicated in adolescent U.S. licensed drivers.

Adolescent's attitudes and beliefs are one of the most popular targets of prevention curriculum which previously have addressed many cognitions; including expectancies, peer norms, and self-efficacy. This individual approach targeting beliefs has had success and can more easily be applied than many other programs, as it can be included in school curriculum where young people are a 'captive' audience. This qualitative study is therefore able to be used to help develop school curriculum by providing the stories of participants in order to understand what they expect from transport related risk-taking behaviour, their peer norms and avenues for exploring self-efficacy. However, a limitation to this study is its focus on addressing attitudes and beliefs regarding dangerous risk-taking behaviours. An alternative would be to understand positive risk-taking behaviours (perhaps sport).

The difficulty faced by youth in avoiding risk-taking once they are involved with their peers creates a great challenge for transport related behaviour change programs. Currently, many attempts to change the risk factors associated with the peer influence have been done by changing the individual's beliefs about the behaviour. However, it may be possible that peers could provide a protective influence through active verbal or physical protection. The behaviour change programs that directly attempt to engage peers as a protective factor against

risk-taking behaviour are rare however have done so by teaching first aid skills. The Australian designed (SHAHRP) program, for example, aims to minimise harm from alcohol and other drug use by including (in a small part) the teaching of first aid skills to participants as they relate to alcohol and drug scenarios (McBride et al., 2004).

One of the important findings of the current research was the adolescents' perceived link between lack of parental supervision and engagement in greater risk-taking behaviours. The issue is consistent with quantitative research by Siskind and colleagues (2004) who found that a lack of supervision was a risk factor for engaging in risk-taking behaviour. This data advocates for transport related behaviour change programs which address parental supervision. However, as noted, many of these high risk adolescents no longer had contact with parents and instead were living with relatives or friends. Perhaps the target of research at this developmental period for such high risk youth might focus on an alternative adult relationship and encouragingly previous research has demonstrated some success in fostering mentoring relationships (Rhodes et al., 2002). Targeting parental change could thus still be important; however most appropriate for young people who still have a relationship with a parent or targeted at an earlier developmental period.

The recognition of the importance of the school in providing a welcoming environment to facilitate students' desire to attend rather than engage in greater risk-taking behaviour during the day is noteworthy. The community appears important not just for providing support but providing opportunity for engagement in positive risk-taking, such as organised sports or music. Further research should explore the avenues available to support positive risk-taking that might be accessed by young people. Future behaviour change programs might therefore be able to draw on such information to develop resources and abilities for adolescents to access potentially valuable services both in the school and wider community.

The findings of this research have several limitations. Firstly, the small sample limits generalisability of the results. However, sufficient detail was obtained to meet the aim of the study, that is, to develop an understanding of adolescents' experiences in order to design a targeted injury prevention program. Secondly, there is the potential in focus group discussions for a few individuals to dominate proceedings. To best manage this risk, trained facilitators were used who were able to elicit responses from all participants while managing dominant speakers. Adolescence is a developmental period characterised by struggle for identity formation and subsequent pressures to conform to peers and their expectations, which can often lead to socially desirable responses. However, the class groups that were sampled generally socialised together outside of their school environment, which meant that the groups were able to provide valuable elaborations to what were typically shared experiences.

The data in this study presents some information on potential goals of behaviour change programs by incorporating the views of participants. The perspective of young people is an important consideration to meaningful and effective behaviour change research. However, this perspective is not always embraced because of time and cost constraints (Reese et al., 2001). The future of effective road-safety programs should not only be informed by established strategies but include the perspectives of young people if they are likely to be optimally received and inclusive.

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