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# **The social context of motorcycle riding and the key determinants influencing rider behaviour: A qualitative investigation**

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## **ABSTRACT**

**Objective:** Given the increasing popularity of motorcycle riding and heightened risk of injury or death associated with being a rider, this study explored rider behaviour as a determinant of rider safety and, in particular, key beliefs and motivations which influence such behaviour. To enhance the effectiveness of future education and training interventions, it is important to understand riders' own views about what influences how they ride. Specifically, this study sought to identify key determinants of riders' behaviour in relation to the social context of riding including social and identity-related influences relating to the group (group norms and group identity) as well as the self (moral/personal norm and self-identity).

**Method:** Qualitative research was undertaken via group discussions with motorcycle riders ( $n = 41$ ).

**Results:** The findings revealed that those in the group with which one rides represent an important source of social influence. Also, the motorcyclist (group) identity was associated with a range of beliefs, expectations, and behaviours considered to be normative. Exploration of the construct of personal norm revealed that riders were most cognizant of the "wrong things to do" when riding; among those issues raised was the importance of protective clothing (albeit for the protection of others and, in particular, pillion passengers). Finally, self-identity as a motorcyclist appeared to be important to a rider's self-concept and was likely to influence their on-road behaviour.

**Conclusion:** Overall, the insight provided by the current study may facilitate the development of interventions including rider training as well as public education and mass media messages. The findings suggest that these interventions should incorporate factors associated with the social nature of riding in order to best align it with some of the key beliefs and motivations underpinning riders' on-road behaviours.

**Keywords:** motorcyclist safety, social context of riding, Theory of Planned Behaviour, social influences, identity, qualitative research

The social context of motorcycle riding and the key determinants influencing rider behaviour:

A qualitative investigation

In Australia, motorcycles are fast increasing in popularity, representing the strongest growth of any vehicle type between 2005 to 2010 (ABS, 2010). Accompanying this increase is a marked change in the motorcycling population. The most noticeable change being the broadening social demographics with people of all ages and social strata taking up motorcycling either as a hobby or as a mode of transport (de Rome & Stanford, 2002; de Rome, Stanford, & Wood, 2002; Krige, 1995a). The increasing popularity of motorcycling is a public health and road safety concern given that, if the number of kilometres travelled is taken into account, the relative risk of incurring a fatal injury while riding a motorcycle, compared with travelling in a car, has been reported as 28 times greater (Australian Transport Safety Bureau [ATSB], 2005). Similarly, in terms of the risk of sustaining a serious injury, the casualty risk for motorcyclists is 16-18 times more likely than occupants of passenger cars (Christie & Harrison, 2002).

Given the increasing popularity of motorcycles on Australian roads together with the heightened risk of serious injury or death to riders, it is timely that a greater understanding of the factors influencing riders' on-road behaviour be gained. Such understanding may, ultimately, facilitate the development of interventions including rider training as well as public education and mass media messages. These interventions may be better aligned to address the key beliefs and motivations underpinning the riding behaviour of Australia's rapidly growing and changing motorcycling population.

Consistent with this need, the current study seeks to provide an in-depth exploration of some of the key psychosocial factors which may influence motorcyclists' on-road riding behaviours. In particular, this paper focuses upon motorcycling riding as a social activity given that it often occurs within groups (see Krige, 1995a). For instance, Krige (1995a) found that, although only 12% of the Australian riders in her sample belonged to clubs, over half rode in groups with other motorcyclists. In acknowledging that riding is a social activity, the paper seeks to investigate the influences which emerge from this surrounding social context. Currently, limited research has been conducted into whether riding within a social environment influences crash involvement. Various studies involving young car drivers have indicated that peer group pressure, or competitive environments could relate to risk taking behaviours (Delhomme & Meyer, 1997; Horvath & Zuckerman, 1993; Rolison & Scherman, 2003; Summala, 1987). It is reasonable

to suggest that group riding could be a protective factor if the group a person rides with models safe riding behaviours or vice versa if the group models risky or unsafe riding behaviours.

Adding complexity to the social context is the fact that motorcyclists are not an homogenous group, despite the fact that the non-motorcycling public have often perceived them to be (Krige, 1995b). Krige (1995b) and Veno (2002) suggest that the public now differentiate between 'bikies'<sup>1</sup> and 'bikers'<sup>2</sup> but, in reality, the world of motorcycling has a much more complex social structure than this simple dichotomy. As such, it is important to investigate how riders perceive themselves and who are the "others" most likely to influence the way an individual rides.

From the outset, there are three important issues to note regarding the focus of this study. First, it is acknowledged that rider safety is influenced by a myriad of factors relating to road engineering (e.g., the often unforgiving nature of roadside obstacles), their choice of a motorcycle as their vehicle type (which affords no protection in the event of a crash), and a rider's own behaviour. Of all the possible factors which may influence safety, it is the latter factor, rider behaviour and the influences on such behaviour, which is the focus of the current paper. Second, for this paper, 'rider' includes on-road motorcycle riders and excludes persons operating mopeds, scooters, or off-road motorcycles. Third, the research herein represented part of a larger study that examined a range of psychosocial influences upon riding behaviour from within a Theory of Planned Behaviour ([TPB] Ajzen, 1991) perspective (the full results of which are available in an ATSB report; refer to Watson et al., 2007; see also Tunnicliff, 2006).

### **The theory of planned behaviour**

Briefly, the TPB is a decision-making model which proposes that a person's intention is the best predictor of their behaviour. In turn the three determinants of intention are; attitudes (how favourable or unfavourable a person feels about performing a behaviour), subjective norms (perceived pressure from others to perform or not perform a behaviour), and perceived behavioural control (the degree of control a person feels they have over performing the behaviour; for a full review of the TPB, see Ajzen, 1991). This model has demonstrated its predictive and explanatory utility for various road safety related behaviours.

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<sup>1</sup> In this paper, a 'bikie' refers to a person who identifies with, and belongs to, an organised outlaw-type 'patched' gang.

<sup>2</sup> In this paper, a 'biker' refers to a person who rides a motorcycle, is a motorcycle enthusiast, who may or may not be a 'bikie'.

This paper presents the findings regarding social constructs (i.e., the determinants of our behaviour that are more explicitly based on influences from other people) that were added to the TPB framework within a larger body of research (see Watson et al., 2007). This aspect of the research sought to understand more about the social and identity-related influences relating to the group (group norms and group identity) as well as the self (moral/personal norm and self-identity) upon the behaviours that riders adopt when riding on-road. To the extent that the TPB's subjective norms have represented relatively weak predictors of intentions and behaviour (see Armitage & Conner, 2001a; e.g., Hamilton & White, 2008), together with the fact that riding represents a social activity, this research sought to understand more about the impact of the social context on motorcycle riders' on-road behaviour.

### **Group norms and group identity**

In the road safety context, Gordon and Hunt (1998) concluded that the subjective norm (perceived pressure from others to perform/not perform the behaviour) was the weakest predictor of intentions to speed in both urban and rural environments. They suggested their findings may have been because the item they used had asked about what important others thought, rather than accounting for potentially more relevant socially-determined factors, such as the speed of 'other drivers'. In other words, "others" within the driving context may represent an important source of influence on one's behaviour. Support for this conclusion has been found in other road safety-related studies (e.g., Haglund & Aberg, 2000; Parker, Manstead, Stradling, & Reason, 1992).

Researchers have suggested that strengthening or replacing the TPB's subjective norm with group norms may improve the relationship between the social component of the model (currently subjective norm) and people's intentions (e.g., Johnston, White, & Norman, 2004; Terry & Hogg, 1996). Group norm refers to the perceptions of whether fellow group members (like other riders on the road or friends I ride with) generally approve of performing the behaviour and perform it themselves (e.g., do other riders approve of lane splitting<sup>3</sup> and do they perform lane splitting themselves when riding?) (White, Hogg,

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<sup>3</sup> In the Australian state of Queensland where this study was conducted, Queensland has adopted the Australian Road Rules in which there is no specific law banning lane splitting or filtering, but it is covered by other legislation which effectively means that a rider will commit one or more offences when they engage in the behaviour such as: changing lanes without signalling for sufficient distance to alert other road users; failing to stay within a single marked lane or line of traffic; keeping a safe distance when overtaking; failing to stop at a stop line at traffic lights; driving on or across a continuous white edge line; or, not overtaking to the left of a vehicle.

& Terry, 2002). While the TPB's subjective norm reflects the extent to which important others (e.g., parents, friends, spouse) would approve or disapprove of an individual's behaviour, group norms relate to the extent to which individuals behave in ways regarded consistent with, and typical of, members of a specific referent group. The contribution of group norms to the prediction of intentions and behaviour, above the standard TPB constructs, has been supported (e.g., Hamilton & White, 2008; Terry & Hogg, 1996) including within road safety-related studies (e.g., Nemme & White, 2010).

Further, research suggests that those who identify strongly with a referent group will be most susceptible to act in accordance with the perceived norms of that group (Terry & Hogg, 1996; Terry et al., 1999). According to Social Identity Theory, a person constructs their identity in terms of emphasising how they are similar to fellow group members and distances themselves from members of groups they do not belong to (Tajfel & Turner, 1986). Within the general motorcycle riding population, it would be expected that the notion of an important referent 'group' will vary among individuals. For some, the 'group' may consist of a structured motorcycle club; for others, it may refer to a group of friends they ride with. Others may only moderately identify with other motorcyclists in general, as distinct from car drivers. Given the possible varied notions of a "group" within the broadening demographics of the growing motorcycling population, exploration of one's social or group identity and the influence it may have upon one's riding behaviour is likely to represent an important consideration.

### **Moral norms and self-identity**

Furthermore, identity constructs (and influences) may relate not only to the importance of identifying with specific people or groups of people (i.e., group identity), but also to one's own socially-constructed, role-related beliefs or what has been termed, self-identity. Self identity has been referred to as the extent to which performing a particular behaviour is an important component of one's self-concept (Armitage & Conner, 2001b). Evidence has shown that the inclusion of self identity can add significantly to the predictive validity of the TPB towards intentions to donate blood (Armitage & Conner, 2001b). Within the road safety context, Evans and Norman (1998) extended the TPB with a self-identity construct to investigate pedestrian decision making. They found that people who labelled themselves as "safe pedestrians" (i.e., that was part of their identity and how they viewed themselves) were more likely to report safer intentions when presented with various road crossing scenarios. To the extent that a

motorcycle rider may think and feel differently about themselves when on their bike, it is likely that self identity may influence how they behave (ride) on the road.

One final aspect of social influence which may be of importance is that of personal or moral norms. It has been argued that personal norm may be a useful addition to the TPB when examining deviant or socially undesirable behaviours (Parker et al., 1995). According to the definition of the construct, personal norm "...reflects [an individual's] internalized moral rules" (Eagly & Chaiken, 1993, p.177). While personal norm captures what an individual thinks he or she ought to do or not do, the TPB's subjective norm reflects an individual's perceptions about what he or she thinks important others would want them to do. Support has been found from within the road safety context in that additional variance can be explained (beyond the standard TPB constructs) by personal norm for a range of intentions to commit traffic violations (e.g., Gordon & Hunt, 1998; Nemme & White, 2010; Parker et al., 1995). To the extent that deliberate risk-taking on a motorcycle often includes committing traffic violations, the personal norm construct appears worthy of further investigation.

### **The present study**

In summary, the aim of the present study was to explore the social context in which riders make their safer and riskier decisions on the road. Drawing on the TPB as a broad starting framework, this study explored who the important 'others' are for riders when they make decisions about safe or risky actions and what impact these other people have on individuals' riding. In response to some of the criticisms of the TPB (in particular the weakness of the subjective norm construct in various studies of road user behaviour) as well as the acknowledgement of the broader social context of motorcycling, this paper explores the potential impact of a range of psychosocial influences on riders' behaviour. More specifically, the paper provides an in-depth exploration of the social and identity-related influences relating to the group (group norms and group identity) as well as the self (moral/personal norm and self-identity) upon riders' on-road behaviour. From the outset, a couple of key characteristics to note regarding Australian legislation regarding motorcycle riding and riders is that the wearing of helmets is compulsory by law, however the wearing of protective gear is optional.

## **METHOD**

### **Participants**



Overall, 43 people participated in this study representing various key community stakeholders in regards to the issue of motorcycle rider safety. A total of eight focus groups were conducted consisting of various groups of active motorcycle riders comprising club and non-club riders, and younger and older riders, as well as police, rider trainers (two groups), and a non-government organisation representing motorcyclists' interests. To maximise the diversity of the sample, various recruitment methods were undertaken. As well as advertisements in local newspapers, emails were forwarded to contact listings provided about rider groups in riding magazines and on-line sites as well direct recruitment from approaching riders stopping at popular rider rest stops. For the rider trainers, emails were forwarded to registered rider trainers throughout Queensland (a list of which was provided by the state transport authority). At least one female was present in 6 of the 8 groups. Participants included 34 males and 8 females aged approximately from 18 years to 65 years; however, most of the participants were older as only two groups included riders aged less than 25 years. All participants rode motorcycles, except for two police officers who patrolled, by car, a popular motorcycling route outside of Brisbane, Australia (providing a sample of  $n = 41$  riders). These latter two participants were included for the purposes of obtaining insight into the topic of interest from a law enforcement perspective and, thus triangulate data sources.

In addition to the focus groups, one individual interview was conducted with a male participant. This interview was conducted early in the process to assess whether there was a need for the focus group study to be augmented by individual interviews. Both the interviewee and the focus group participants were found to be equally forthcoming in their responses, perhaps because the questions were not of a highly personal nature. As anticipated, the focus groups appeared a richer source of information than the interview as the discussion and debate which occurred within the groups often prompted participants to re-examine the topic from a variety of perspectives (see Fischer, 2006).

Table 1 provides the identity and social influence-related questions included within the structured interview schedule, used to facilitate all of the discussions. To ensure the clarity of the interview schedule and, ultimately, improve the quality of data obtained, the overall schedule was pilot tested with one focus group comprised of university staff and students as well as an individual interview with a rider. The schedule remained largely unchanged as per the feedback received from the pilot study participants. As was noted earlier, the data on which this paper is based were derived from a larger qualitative study that

was guided by the TPB framework (see Watson et al., 2007). As such, while the questions shown in Table 1 constitute the probes used to explore, directly, any identity and social (i.e., social context-related) influences, other mention of issues relating to such social-context influences and which emerged during the course of the focus groups are also noted in the findings.

### **Data collection and analysis**

The focus groups were facilitated by two members of the research team, both of whom were current motorcyclists. It was thought that this aspect may enhance the extent to which the participants and researchers could each relate to one another and, in turn, enhance the quality of data obtained. Moreover, when coupled with other members of the research team who were not (or were not currently riding) motorcyclists, it was believed that the study's findings were arrived at via an extensive review of the from researchers with varying (riding) experience. Of note, a pre-determined number of riders was not set, rather, data analysis and collection was undertaken concurrently with the study's facilitators continually checking the extent to which new findings were emerging. When the facilitators believed that no new information was being uncovered, an additional confirmatory step was undertaken to determine whether saturation had been achieved.

Specifically, this step entailed subsequent individual interviews being run with 10 additional participants (2 females and 8 males, aged from approximately mid-20s to late 60s). These participants represented various rider types and included those who reported engaging in extremely high risk riding activities to those who reported being extremely safety conscious. These participants were recruited via the internet, rider clubs, and popular rider rest spots. These interviews were informal and not recorded. Out of consideration for the participants' time, each interviewee was only asked two or three of the full set of structured questions. Once they had responded, the researcher assessed whether they had raised issues similar to the focus group participants. If not, the researcher summarised the additional issues and asked the interviewee for comment. As no new information was gathered from these 10 informal interviews, it was deemed that the focus groups (and structured interview) had obtained saturation.

Prior to conducting the groups, ethics approval was gained from the University Human Research Ethics Committee. Before commencing, all participants signed consent forms. Participants were encouraged to share their thoughts irrespective of whether they agreed with other group members and it

was emphasised to them that the researchers were keen to hear everyone's thoughts on the topic. The facilitators noted down an approximate age and the gender of each of the participants. All discussions were audio-recorded and subsequently transcribed verbatim.

When analysing the data, conceptual content analysis was used. The first author conducted the analyses with on-going consultation and comment from other members of the research team. The focus group questions (see Table 1) were used as the basis to commence the analysis, as has been suggested by some (e.g., Fischer, 2006; Morgan, 1998). Specifically, the identification of themes commenced with a broad search for possible concepts whereby each new idea was coded. In subsequent reviews of the data, concepts were more closely scrutinized for similarities and differences with other coded concepts. This approach enabled new and emerging themes to be identified. Each of the identified themes is discussed together with supporting evidence in the form of direct responses provided by the participants. To protect participant anonymity, quotes are cited with reference only to a participant's gender as well as an arbitrarily assigned group number.

## **FINDINGS**

### **Who do you discuss your riding with? Do you ever discuss safety issues?**

In relation to first understanding more about who the potential 'others' were who would influence riders' behaviour, a key issue explored was who a rider generally discusses (and feels comfortable discussing) their riding with. Also explored was whether or not safety was a topic discussed. Generally, the findings indicated that riders believed that those who do not ride motorcycles tended to focus on the dangers associated with motorcycle riding. As such, they were more likely to discuss their riding with fellow riders and only those others who expressed a genuine, positive interest. In terms of safety-related discussions, many riders mentioned how safety information was often acquired via the sharing of stories and experiences with fellow riders:

"I had an uncle who almost died from a crash. He has told me what happened to him and I think about that. I have friends who send me emails, jokes, and stuff but occasionally the serious one – pictures of motorcycle crashes [gory pictures etc.] ... but in that minute, instant, second that you are on that bike, you think 'right, I'm going to do this'. You know the consequences, but it just happens. You know the danger factors of it, but either something is going to happen or it's not."  
Male, Group 5.

"You tell stories about your experiences, entertaining stories ... yes, learning [safe riding] occurs through story-telling, especially about other traffic." Male Interviewee.

Participants who belonged to motorcycle clubs expressed a similar reliance upon the discussion of safety issues with other riders, stating that safety issues were discussed at club meetings. It was noted that road conditions on local roads and specific routes prior to club rides were among the particular safety-related issues discussed.

Reflecting the tendency to discuss riding more with other riders, when “other riders” were family members, participants referred to experiencing a particular closeness in their ability to share their riding experiences:

“As a couple, we are in a fortunate situation because we can talk to each other about it [riding] and we talk quite intimately about how we feel about motorcycle riding, whereas we wouldn’t talk the same way with other riders we know. Our son has recently begun to ride too and he will talk a lot with his father but not with me.” Female, Group 6.

However, for others, their riding was something that they deliberately did not discuss with their families as they did not want to worry them.

#### **How do other important people in your life influence your riding behaviour?**

When asked how other important people in their life influence their riding behaviour, many riders expressed that their family did have a positive, safe influence on their riding behaviour. The pervasiveness of this positive influence was indicated by the fact that riders referred to being influenced by it when riding in the absence of important others:

“My wife would have my guts for garters if I didn’t wear good protective clothing. She’ll divorce me if I don’t wear my gear.” Male, Group 7.

“Yeah being married [affects the way I ride]. I stick to my limits for her sake.” Male, Group 3.

“I lost a brother on a bike and I wouldn’t put my parents through burying another child, but I know people who have.” Male, Group 6.

“The responsibility of children can make you more mature. Also people who have career prospects. Single tradesmen and labourers are cashed up, they don’t care. They are the fastest guys on the road. When you are single, you’re carefree and you only need to think of yourself.” Male, Group 1.

However, the positive, safe influence on riding behaviour was also readily apparent when important others were physically present on the ride with them, either as a pillion or when riding a separate motorcycle:

“My missus [as a pillion], she whacks me if I’m going too fast.” Male, Group 3.

“When I ride with my girlfriend, I ride the way I like to be seen riding. I want to make sure she’s safe, so I ride by the rules when I’m with her. She’s not as experienced as me. ... If I see a car making a stupid move or something, I’ll put myself between the car and her.” Male, Group 5.

“... but I would never lane split<sup>4</sup> in front of my son. I ride very differently when I am with him. My son is probably a better rider than I think he is, but I hope I’m never going to show him bad habits that I’ve picked up.” Male, Group 6.

Another aspect highlighted within the above comments is that there was importance placed upon one’s identity in terms of being seen, by important others (most likely family members/loved ones), to be a good, safe rider and abiding by the rules, particularly when those other persons were present.

Although some riders reporting going on group rides with people they do not know very well, most of the participants who took part in this study rode with at least one other person with whom they had a strong emotional tie (such as, a family member, partner, or close friend). However, while family was largely regarded as having a positive, safe influence on riding behaviour, several other participants did mention how riding can be an escape from family responsibilities:

“When you get on a bike, it’s just you – not your family – so you ride the way you want to ride.” Male, Group 2.

### **Are there any people/groups which may affect the way you ride?**

Beyond family members/loved ones’ influence on riding behaviour, there was evidence that others more broadly may also have a positive impact upon riders’ behaviour. However, it should be noted that this finding emerged mainly within the police and riding instructor groups. Many of these participants expressed that they had “a responsibility to behave”. The instructors discussed feelings of responsibility to model good behaviour in front of their clients. A few instructors indicated that this sense of responsibility extended to all their riding, whereas others stated they rode more carefully (and legally) when they were in charge of learners:

“Instructors must maintain a safe image for the company. Novice riders will put you on a pedestal so you have a responsibility to them. You need to lead by example, all the time – not just when you are at work. I won’t have credibility if I’m caught doing the wrong thing.”

“Lane splitting when traffic is stationary is OK, but we don’t tell learners that. More experienced riders are better able to do it than novice riders. You are better able to assess the conditions around you.”

When asked the broad question of “what do you think affects the way you ride?”, of all the possible factors that participants could identify, most responses, spontaneously, focused upon the impact of other riders and group riding. To some extent there was evidence of inconsistency between responses in terms of whether the influence other riders had was positive (safe) or negative (risky). However,

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<sup>4</sup> Lane splitting refers to the riding up between two lanes of either stationary or moving traffic.

generally speaking there tended to be considerable discussion of how other riders could inspire more negative, risky behaviour and competition.

“[If I’m riding with the group that likes to go out on the race track] They say “tuck in behind me, if you can keep up” - so they give me a challenge – me, at my age, I accept the challenge, so at the same time I’m learning.” Male, Group 5.

“ ... and you’ll come up to a corner and you know they’re doing their very best, so you take them on the inside .. it’s a bit of an insult, so you don’t take that lying down, you give it more and more and more. It’s easy to goad my friends into having a little race - not that I need to, they’re self starters.” Male, Group 6

Mostly, as the comments below indicate, participants saw this experience as a positive learning experience even if not a safe riding experience:

“Group riding can help people learn how to ride. You notice what others do more and more, and your perceptions change as you watch others. But you might pick up bad habits as well as good habits.” Male, Group 2.

“You should always ride with people who can ride better than you. They might go a bit quicker than you are comfortable with, but you will try to keep up, so the adrenalin will be pumping - because you’re nervous and you want to keep up – but you will learn to ride better because of that. They will talk to you and ask you stuff like, when you go round a corner, do you scan ahead of the corner?” Male, Group 2.

Again, the role of family members/loved ones in most likely influencing more positive, safe behaviour from riders was evident in comparison with other rider groups:

“I ride differently when I am with my friends than when I am with my Dad, but not saying I ride much more dangerous or anything, just that it is different. It’s because of my relationship with them, compared to my relationship with my Dad.” Female, Group 5.

“Riding with family, you ride most within your boundaries as you don’t want to come off in front of your family ... When you are riding with your friends, that is the next safest group. When you’re riding with people you don’t know, I think that makes you more inclined to test it out, there is the element of the unknown, it’s a race.” Male, Group 5.

Pillion passengers were also frequently identified as influencing rider behaviour. Perhaps, unsurprisingly however, to the extent that one would assume a rider would most likely know their pillion passenger, the protective influence of important others again emerged:

“Carrying a pillion slows me down as I’m responsible for their safety. But I’m like that in a car too.” Male, Group 3.

However, the above comment notwithstanding, a pillion passenger’s influence was dependent on who the pillion passenger was:

“If I’ve got a guy on the back, I’ll go fast, but not as fast as when I’m alone. If it’s a girl, then I’ll go much slower. I don’t want to injure anyone.” Male Interviewee.

“If I have a pillion, I’ll ride more carefully, rather than actually ride differently. But some people like to show their pillions a good time so ride riskily.” Male, Group 7.

And, on some occasions, riders admitted to taking risks that they normally would not take because they had a pillion on the back even though they knew it was not the right thing to do:

“I generally stick to the road rules and ride a little more cautiously than if it was just me (though I ride cautious the majority of the time). ... But my brother was back in town and he wanted to feel how the bike went, so I did 245kph on this piece of road. I didn’t like doing it, he was squealing like a girl, but I did it to scare him because he was talking about getting a bike and he’s a psycho. Like even though I knew it was wrong ... well I wouldn’t say I was doing it exactly for his benefit .. but yeah; and anything could have happened.” Male, Group 5.

Another issue that was evident in responses provided to the question of, “what do you think affects the way you ride?” was the importance of the image of a motorcyclist.

“Older riders see the Ulysses movement and think ‘that’s a great idea! I owned a bike 30 years ago, I’ll go buy one!’ They buy the image.” Male, Group 2.

“Those Harley riders with open face helmets or little half helmets, fingerless gloves or no gloves, all black ... Some of ‘em drag their helmet along the road to scuff it up. Some guys will wear defective helmets rather than mess up their image.” Male, Group 1.

The last comment suggests that some riders may compromise safety (i.e., use a defective helmet) to maintain their motorcyclist image. Other evidence suggested that an individual’s desire to maintain their motorcyclist image may also have a particularly negative influence on riding behaviour (i.e., increase risky riding) in instances where others may be observing:

“Just like when you are sitting at traffic lights and you come away a bit quick and your front wheel comes up and everyone looks at you and you are thinking .. ‘next set of traffic lights, do another!’ The next thing you are putting your feet out – anything to get attention! I mean, you don’t go out of your way to be seen, but you will always notice those people who are looking. Compliments make you feel good, so you do more to get more compliments.” Male [different from above], Group 5.

### **Is there a sense of being part of a group when you ride?**

The apparent role of image and other riders’ influencing one’s riding behaviour highlights the need to consider riding as the social activity that it is. Participants’ responses to the question, of whether or not a rider experiences a sense of being part of a group further emphasised the social nature of the activity. This issue represented a major topic of discussion among most of the groups. The feeling of belonging to a group appeared to be quite strong and universal. Even motorcyclists who rode alone seemed to identify to some extent with other motorcyclists as opposed to ‘ordinary’ car drivers.

"I don't belong to a group, because I want to live. But if I came off, I'm pretty sure the only person who would stop and help me would be another motorcyclist. ... Because motorcyclists share a similar interest, there is a commonality." Male, Group 4.

"You can be with strangers and still feel part of the group. For example, if you had a BMW and went to Perth, you could still ride with the BMW group there and you'd belong. You'd be in the right spot." Male, Group 5.

"It's a brotherhood. You tip your head, give a nod. Help each other if you break down. Motorcycle police are always friendly, even when they're booking you." Male, Group 3.

"I don't belong to a group, but there is definitely a camaraderie on the road. Sometimes I'll be riding along and a stranger will come up and ride beside me for half an hour or so, then we might pull into a coffee shop or something and have a chat. If I go somewhere, I might look for other bikes and park near them. It is a 'small community' feel. There is definitely a feeling of motorcyclists vs car drivers." Male Interviewee.

Also evident from the above comments is a tendency for riding groups to be formed more opportunistically and for riders to feel comfortable approaching others, previously unknown to them, simply because they were other riders. Such findings highlight the importance of feeling part of, and riding with, a group. For those who did ride in groups, there was an apparent sense of camaraderie although there was evidence of 'subgroups' defined by the type of motorcycle you ride, or the group you belonged to:

"It's nice to feel a belonging to the group." Female, Group 2.

"To belong [in a group], something needs to identify you. Either the type of bike, or the way you ride, or your age." Male, Group 5.

"I like riding with a group of personal friends. We all know each other's riding style, and we'll leap frog and some of us will go slow on days when we are not feeling like much of a ride that day and other people take off, but you have that thing with your friends. You are watching out for each other." Female, Group 6.

"If you ride a Buell, another Buell is your best mate, they must be cool because they ride the same bike as you." Male, Group 3.

"Harley riders don't wave to sports bike riders. I wouldn't stop and help a Harley rider or a BMW if they were broken down, but I would if it was a Jap bike." Male, Group 3.

In terms of the likely impact upon one's riding behaviour, as highlighted earlier, in some instances, other riders may influence more risky riding behaviour/s. For instance, riding in a group which was at a different [lower] level of ability was seen by some as boring or frustrating. Also regarding group riding, some riders described the "fishing line effect" where everyone follows the one in front and does not think for themselves, increasing the likelihood of a crash occurring. When asked directly, the participants suggested that group riding may be associated with negative, unsafe behaviour when a rider of a lower



ability level rides with a group in which members of the group are perceived to be of a higher level of ability. These responses suggest, however, that there can be a tendency to engage in more risky and competitive behaviour when riding with a group (noting, however, the tendency for family members/loved ones to often function to influence more positive, safe behaviour).

As was noted earlier, when riding in a group, some riders referred to pushing themselves to keep up with more experienced riders as a good thing for improving their learning and their competency, even if not necessarily a safe practice. Indeed, participants did associate the practical learning experience together with the opportunity to increase their safety on the road, as a couple of the main positive aspects of group riding. Participants also referred to the opportunity for fun and friendship as another positive associated with group riding. The findings suggest that the temptation to stay with the group, even if they are riding at a speed either slower or faster than what the rider is comfortable with, appears a strong influence for many riders. The desire to 'keep up with one's mates or the group' is a pervasive influence on one's riding behaviour which can override other considerations such as one's skill level and ability.

### **Do you feel differently about yourself when you ride your bike?**

In exploring the role of self-identity, in response to the question of whether one feels differently about themselves when riding their bike, few participants said that they felt differently about themselves when they were on their motorcycle; however, being a motorcyclist appeared to be an important part of many riders' identities and they took pride in being a motorcyclist:

"Having a bike is a prestige thing. It is like a person who owns a flash BMW or Rolls Royce or something. It's exceptional – like, how many people own cars? ...[and] you don't get seen in a car, so its not the same." Male, Group 5.

"I think you can pull chicks easily. It's that mysterious, rough, image." Male, Group 5.

Some of the groups mentioned how a different style of motorcycle or different clothing can make you feel and act differently.

"Getting on a Harley changes your attitude. Going to the pub as a Harley rider and I become a grumpy bum who won't take s\*\*\* from anyone. I go as a Honda rider and I'm friendly and have a drink with anyone." Male, Group 1.

"[name of a motorcycle club], half of them want to be outlaws. They wear the cut off gloves, pudding helmets, chains, tattoos, scarfs with skullcaps on them." Male, Group 2.

"The style of bike you ride affects everything. Your personality, attitude, behaviour, everything." Male, Group 1.

“When some people are on a bike they feel more masculine, rougher and tougher, like they are owed more respect.” Male Interviewee.

### **Is there anything you see other riders’ do which you think is just “the wrong thing to do”?**

Regarding the role of personal (or moral) norm, when asked whether participants thought there was anything that they had seen other riders do which they thought was just “the wrong thing to do”, all groups agreed that it was wrong to endanger others. Not endangering others included not drinking and riding, and refraining from reckless riding which may injure or frighten other road users. Most groups mentioned that pillion passengers should wear adequate protective clothing. The issue of protective clothing generated considerable discussion. While some riders disapproved of anyone riding without proper protection, others appeared to feel it was okay to risk their own skin, but not that of your pillion.

With regards to protective clothing, the ‘wrong thing to do’ included:

“People riding in stubbies<sup>5</sup> and thongs<sup>6</sup> are idiots. I’ve seen a guy lose three toes going round a corner in thongs. But you don’t have to wear full gear if you are just going down the shops. When you are using the bike as a commuter, rather than as a toy to play on, it is too hot and too much hassle to wear the gear.” Male, Group 1.

“Anyone who doesn’t use protective clothing, especially for pillion passengers. My taxes go to pay for their scars.” Female, Group 6.

“It should be - ‘It’s my bike, you dress the way I dress, or you don’t get on’. If I take my girlfriend and we don’t have a second jacket, I give her my jacket and put it on her.” Male, Group 5.

“The guy in protective clothes with his girlfriend on the back with nothing. But protective clothing costs a lot of money.” Male, Group 7.

“Wheel stands in a tee-shirt and shorts. You should try to protect yourself from getting hurt. You can still have fun, but you should try to lower the risks.” Male, Group 1.

Most of the groups stated that inappropriate speeding was not acceptable. Inappropriate speeding seemed to relate to speeding in built up areas or places that they themselves would not speed.

“Going quick in places I wouldn’t consider going quick. Like, coming out of the city, they will just cane it out. I’m thinking, you have a lane there, you think it is clear, but there are cars on that side, and pedestrians on this side – the number of pedestrians in the city that just step out in front of you is amazing – it’s just not safe for the rider or for others.” Male, Group 6.

“People doing stupid things at high speed, like passing over a blind crest (because traffic coming the other way is often doing the same thing) and you’ll get cleaned up.” Male, Group 2.

“Going too fast through traffic. You should allow the extra time to get to work rather than racing.” Male, Group 3.

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<sup>5</sup> A brand name of a particular style of shorts in Australia.

<sup>6</sup> A loose form of open-toed footwear in Australia.

The last comment reflects a belief held by drivers and riders alike; that speeding is a manner by which one can make up time on the road. Several motorcyclists listed road craft and handling errors, such as poor positioning, following too close, inattentiveness, not shoulder checking, not checking mirrors, not scanning properly, as ‘the wrong thing to do’. Not maintaining your bike was seen as the wrong thing to do by participants in at least two groups. Stunt behaviour was also seen by some as the wrong thing to do, particularly wheelstands or stoppies<sup>7</sup> in traffic.

Reflecting a concern that some riders do not like the image that others, particularly car drivers, have of them, several groups opposed the ‘bad image’ that some riders create that is subsequently applied to all riders. According to the participants, the general ‘bikie’ image of people on motorcycles appears to be changing, but many motorists still think of motorcyclists as ‘ratbags’:

“I hate it when motorcyclists do bad things that really annoy the car drivers. Like, I saw one guy, he was lane splitting, and there was a car parked there wanting to change lanes. He was coming up pretty quick in between the cars, and it came out. There is no way the car could have seen him – it was just tilted out enough so the driver could see – and he [the rider] just stopped and started going off at the driver and he hit the roof of the car and started screaming at him, and I’m thinking it is really his fault, not the car driver’s, and he is making a bad image for us.” Male, Group 5.

“Stoppies at traffic lights [is wrong]. It just gets everyone aggro around you.” Male, Group 6.

## **DISCUSSION**

Within road safety more broadly as well as rider safety more specifically, there has been a tendency for efforts to reduce risky behaviour (and to increase safe behaviour) to focus on what individuals should not do (i.e., what constitutes unsafe/illegal behaviour) as opposed to what they should do (i.e., what constitutes safe/legal behaviour). This paper, acknowledging that riding occurs within a social context, sought to provide insight into psychosocial factors influencing riding behaviour with the view that such understanding would help to inform future interventions. The findings, together with key implications and suggestions for intervention strategies are discussed in detail below while Table 2 provides a summary of the key applied implications emerging from the study’s findings.

### **The influence of ‘others’ in the riding context**

Overall, what was evident from participant responses was the inherent social activity that motorcycle riding constitutes. Many participants in the study referred to engaging in riding with others

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<sup>7</sup> A stoppie refers to a stunt where the motorcycle is brought to a stop suddenly, bringing the rear wheel off the ground (opposite to a wheelie).

either more informally (with at least one other who may be known/close to them), opportunistically (with others not known to them) or via more formal means, such as being a member of a motorcycle club. Even riders who did not ride with others in a group indicated that they identified themselves as motorcyclists, and distinct from car drivers. Evident in the findings was that those one rides with represent an important source of social influence. The findings revealed that the motorcyclist (group) identity was associated with a range of beliefs, expectations, and behaviours considered to be normative. For instance, there was an expectation that motorcyclists would always help another motorcyclist (and more likely to render assistance to, and receive assistance from, other riders than a car driver). There was also a belief that the stories and experiences of other riders was a key means for riders to learn about safety. Further, in terms of behaviours enacted, the influence other riders' had on one's safe and risky riding was also evident. Finally, there was evidence to suggest that being a rider was important to one's self-concept and, as such, self-identity may represent another source of influence on one's on-road behaviour.

To understand all of the potential influences emanating from the social context, it was important to first investigate who are the "others" likely to be influencing riders' behaviours. The role, and importance, of family members and loved ones was a consistently identified source of influence for riders. In most cases, this influence was protective in that it motivated safe, riding behaviour. The influence was apparent to riders both when family members/loved ones were either present at the time (as another rider or pillion) as well as in their absence and, thus, a more implied presence. Typically, riders discussed the desire to ride safely for the sake of family members including children, spouses, grandchildren, and parents. Riders' were also motivated by a desire to be seen as a good, safe rider who abides by the rules.

Such findings provide important insight into an influence which may be capitalised upon within training interventions and public education/ mass media campaign messages. Such messages, for example, could emphasise the importance of safe riding by depicting the positive outcomes of a rider being greeted by family members when returning home after a day of having ridden safely. Importantly, however, such messages would need to avoid focusing particularly on the dangers (and aversive consequences) of riding. Riders noted that they are not influenced by those persons who only want to talk with them about the dangers of riding; suggesting riders may be dismissive of messages that they perceive as preaching the dangers to them. As noted previously, while there appears to be much focus on

what is bad/unsafe riding behaviour (and the negative consequences of such riding), by comparison there appears to be less known about what actually constitutes “safe riding”. There is a role for rider interventions (including advertising and training) to focus more upon what constitutes safe riding and how a rider can maximise enjoyment while minimising their risk by doing the right thing. For example, the role and effectiveness of positive messages in road safety, that model safe behaviours and the associated positive consequences of such behaviour, has been identified as a potentially effective persuasive strategy for key road users, such as males (see Lewis, Watson, & White, 2007, 2009).

While family members were largely seen as a source of positive, protective influence, several of the riders said that they used their riding as a means to escape the responsibility of family life. This finding suggests that safety messages need to balance these rather discrepant motivations; namely, that family members are a key motivation for riding safely; however, riding was a strategy used to avoid family life responsibilities. Perhaps, a strategy would be to highlight that the benefits of riding (as an escape) can still be obtained without the need to ride unsafely or recklessly, akin to the notion of riders being able to obtain the best of both worlds. This finding also reflects that riders cannot be considered an homogenous group (Krige, 1995b) for which one type of intervention or strategy would be effective.

### **Group norms and group identity**

In terms of safety information and education, many riders believed that an important source of such information was via the sharing of stories and experiences with other riders. This finding reflects an aspect of the motorcyclist's identity and highlights a key belief that accompanies the identity; namely, that motorcyclists should be able to rely upon and learn from others' experiences. To the extent that the experiences likely to be shared may relate to negative experiences (i.e., crashes), arguably, this practice is problematic to the extent that riders may be trying to learn safety through doing and surviving or, at the very least, via vicarious experience of doing and surviving. An innovative means of delivering safety information to riders may be needed to ensure that the information that is being shared among rider groups is accurate and helpful. For instance, rather than promote the notion that relying upon the advice of other riders is a bad thing to do, interventions could incorporate the opportunity for riders to share their experiences within an environment where trained instructors can provide comment on the reported on-road experiences and, most importantly, highlight strategies that would reduce future potential risky

situations (see Rowden, Watson, & Haworth, 2007). Indeed, evidence has suggested that providing individuals with strategies to reduce and/or prevent their risk is a potentially effective strategy (see Lewis, Watson, & White, 2010). While it would not be anticipated that all riders would necessarily partake in such interventions, particularly those who have already acquired their licence, it could help to at least get the information “out there” to riders not physically attending any training intervention.

Others identified as influencing rider behaviour was, perhaps unsurprisingly, other riders. The nature of other riders' influence was somewhat inconsistent in nature; however, the evidence mostly suggested that other riders may influence more negative, unsafe behaviours. This finding needs to be considered in parallel with a previous finding discussed; that being, that riders would often take more care and were keen to ensure the maintenance of an image of being a safe rider when in the presence of family members/loved ones. Given that riders in this study reported often travelling in groups in which at least one family member/loved was also present, it may be that risky behaviours may be associated more with instances where riders are less known to each other and, occasions, where riding groups may be formed more opportunistically. Supporting this suggestion, one participant had ranked the “safest” group riding contexts, in order from most to least safe as, family, friends, followed by people he did not know.

While riders still reported engaging in risky behaviours when riding with others (friends) known to them, their responses suggested that their behaviour may be particularly risky in situations when they are not aware of the skill level of other riders and less familiar with the riders that they are riding with. This finding reinforced another insight provided by participants, that being that they believed it was important to choose to ride with others at a higher skill level than themselves. This tendency suggests that riders are likely to be putting themselves at greater risk to the extent they were more likely to take risks and ride quicker than they would usually would for the purposes of keeping up with other (more skilful) riders.

The choice to ride with more experienced riders was, however, often deliberate and considered a valuable opportunity to learn. This finding suggests that riders may continually search for groups comprising riders who they regard as possessing a higher skill level than themselves and, thus, may be regularly riding above their own skill level. By contrast, participants regarded riding with others below their skill level as annoying and frustrating. Together, these findings suggest that the skill level of others' represents an important consideration for riders when choosing the group with which they will ride. Such

findings highlight the importance of training interventions to help address this issue; first, in terms of emphasising the value of learning and riding at one's own pace; and second, to ensure that riders are learning correct riding behaviours.

In terms of the first aspect, emphasising the value of learning and riding at one's own pace, there is opportunity for educational information and/or messages to be devised which highlight the importance of being one's own person (i.e., the value of one's individuality and being able to make one's own decisions). Alternatively, however, and perhaps representing a more effective message to address this tendency would be to highlight the importance of not encouraging a fellow rider to ride beyond their limits. In this regard, the findings of this study suggest that many riders identify group riding as being unsafe in instances where less experienced riders ride with more experienced riders. The concern is that the inexperienced rider may ride beyond their limits which may potentially endanger not only themselves but the group. Accordingly, training interventions could encourage all rider groups to undertake a pre-ride debrief covering the intended destination and stops as well as the expectation of the group (to ride to one's ability) and to keep the safety of the group in mind at all times. This suggestion draws upon the camaraderie that participants, across all groups, reported was particularly strong among motorcyclists. This camaraderie was associated with the desire to look out for each other as well as the expectation that motorcyclists would both assist and be assisted by other motorcyclists. It also follows that, depicting images of group riding with any messages targeting rider safety would likely be relevant for motorcyclists.

### **Moral norms and self-identity**

There may also be value in training interventions helping riders to identify what it is that makes a rider skilful and/or regarded as being at a higher skill level relative to his/her peers. This suggestion draws upon what riders thought represented the wrong thing to do (i.e., the exploration of personal or moral norms related to riding). Participants were readily able to provide numerous, specific examples of the "wrong thing" to do when riding. Thus, there may be value in highlighting that high risk behaviours, such as speeding in built up areas and stunts are not associated with being more skilful and, in fact, are regarded by some fellow motorcyclists as "the wrong thing to do".

In terms of self-identity, there was some evidence to suggest one's self identity as a motorcyclist was important to one's self-concept and in defining who a person was within broader social structures.

The findings revealed that participants believed different types of motorcycles (e.g., Harleys versus Honda) would be associated with riders taking on different roles.

Regarding the role of personal norm, a concern emerged about not wanting to be seen by other road users as 'ratbags' and not behave in a manner which would serve to perpetrate a bad image for motorcyclists. Behaviours, such as stunts at traffic lights, some riders regarded as the wrong thing to do and likely to have others look negatively not only at the rider but, at motorcyclists more broadly. There was an apparent desire to see motorcyclists (as one's group) in a positive way and to have others share the same view. However, some participants reported how the motorcyclist image could encourage stunts because others are perceived as looking at riders who do such things. It may be important to promote the belief that other road users do not necessarily see such behaviour as skilful and that some riders may regard such stunts as detracting from the motorcyclists' image. The finding reflects again that motorcyclists are not an homogenous group with some riders likely to regard stunts as acceptable (expected) behaviour, while other rider groups would likely hold a different view.

Further, riders made note of a particularly topical issue in current motorcycling literature, the issue of protective clothing (e.g., Haworth, de Rome, Varnsberry, & Rowden, 2007). This issue was discussed by participants as the wrong thing to do (i.e., personal norm), however, implicit in the participants' responses was the motorcyclists' identity and the expectation that riders would and should look after others. Participants expressed quite strong sentiments in support of the need to wear protective clothing; for instance, "people riding in stobbies and thongs are idiots".

While some participants referred to the need for riders to "protect themselves", there was particular focus on the importance of their pillion passenger wearing protective gear. For instance, one participant commented that it was wrong for a motorcyclist to be all dressed in protective clothes while their pillion had no protective gear. Another participant suggested that they would provide their own jacket to their girlfriend rather than see her not have any protective gear. Further, impeding factors for riders' wearing of protective clothing were noted including, the (expensive) cost of protective clothing and there being no need to wear full gear "...if you are just going down the shops".

This latter issue, of short trips not posing a safety concern, may be akin to that of car drivers believing seatbelts or child restraints were not necessary for short trips (see Lennon, 2007). While there is



evidence for the efficacy of using seatbelts, the evidence regarding the efficacy of the wearing of protective clothing (other than helmets) by motorcyclists appears less definitive (e.g., Hurt, 1981; Kasantikul, 2002; Otte, 2002). This inconsistency seemed to be reflected in the current findings with riders appearing not clear on the role and effectiveness of protective clothing (e.g., regarded as important for their passengers but of less importance to themselves). When seriously injured (rather than killed) the main injuries sustained by motorcyclists are to the legs (38%), trunk (18%) and head and neck (12%). While protective clothing will not prevent a broken leg, it can prevent or reduce serious skin and tissue loss (see ATSB, 2003). The current findings further attest that the efficacy of protective clothing in preventing serious injuries is an area that requires greater research, and would need to take into account the amount of clothing required for protection compared with the dangers of, for example, dehydration due to wearing such clothing in hot weather. In the event that efforts were sought to heighten public (rider) perceptions regarding the importance of the wearing of protective clothing, then similar interventions that have been used in Australia at heightening seatbelt compliance may be helpful. Primarily, these interventions have included the raising of public awareness about restraints preventing injury as well as legislation (Fildes et al., 2002) and related enforcement (see Wundersitz, Kloeden, & Walker, 1999).

While participants largely reported favourable views towards group riding, there was a belief that individuals may stop thinking for themselves and simply 'follow the leader' when group riding. Several participants recounted stories where they had either directly experienced, or witnessed, where riders had 'switched off', and crashed. This finding also reflects that individuals expect (and trust) the group to take responsibility for their safety. Ensuring that riders are at least aware of the "fishing line effect" would be important safety information that training interventions could highlight. Further, it could be promoted that the safety of the group, as comrades, is everyone's responsibility and one way they can help achieve group safety is to ensure that they personally are aware of their surrounds. There may also be value in encouraging riders to 'ride one's own ride', even when riding within a group, and highlight how this action (of looking after one self) is likely to have positive consequences for the group.

### **Theoretical implications**

The current findings have important implications for both research and practice. In terms of future research, the findings highlight the complexity associated with influences emanating from the social

context of riding and being a rider. As such, theoretical frameworks such as the TPB, while well-validated within the literature, both generally and within the road safety context, may require further extension to the subjective norm construct if it is to capture comprehensively all of the social influences impacting upon riders' behaviours. While the role of family members/loved ones could be expected to be captured by standard subjective norm measures (i.e., explicit pressure from important others), it appears that there would be value in providing empirical assessment of "others I ride with" as a specific referent group also in future research studies. Finally, there was evidence to suggest some riders did form their self-concept through identifying themselves in terms of their role as a rider, suggesting that there may be value in further exploring the extent to which the self-identity construct may improve prediction of riders' intentions and behaviours. Further research is needed to determine the extent to which each of these social influences explains variance in riders' intentions and behaviours beyond the TPB framework.

### **Applied implications**

In an applied sense, as has been highlighted throughout this discussion (and in Table 2), the findings have highlighted many factors that should be considered within rider training interventions and/or which could be targeted in public education or mass media campaigns for motorcyclists. One of the key practical implications is the need to promote the values of safe riding and the positive consequences of such riding (e.g., arriving home, safely, to one's family, avoiding traffic tickets). Also, it is important to recognise the strong role of peer learning in this context and the need to encourage riders to share safety information with one another and model safe behaviour for their fellow riders. A particularly significant broader implication is the need for interventions (education and/or training-based) to focus on encouraging safe riding behaviour and what actually constitutes such behaviour. For instance, there is a need for interventions to promote the value of riding one's own ride, for one to ride within their capabilities as well as to ride as required by law. The current findings suggest that riders are likely to disregard information which focuses solely upon the dangers of riding.

### **Strengths, limitations, and future research directions**

This study has offered valuable insight into the influence of the social context on riders' behaviour. Some strengths of the paper include the efforts undertaken to ensure the reliability and validity of the data obtained. For instance, to ensure rapport was built between the facilitators and participants (riders), the

facilitators were themselves current motorcycle riders. Also, the study design incorporated the conducting of further individual interviews to ensure saturation had been obtained. Finally, as well as the current motorcyclists in the research team, other members of the team were non-motorcyclists (or currently not motorcyclists) and were able to bring “fresh” eyes and interpretations to the data.

The study strengths notwithstanding, there were some limitations. First, while riders from various riding backgrounds and experiences were recruited, the overall sample was relatively small in size and potentially biased as a result of the sampling strategies adopted. Although qualitative studies do not aim for their findings to be generalisable to the wider population, the varied methods undertaken meant that a diverse range of active motorcycle riders' (with varied experiences) were recruited. The verification of findings via the individual interviews with a range of active riders also triangulated the focus group findings. Future research would be required to demonstrate whether the current findings, based within an Australian context, generalize to elsewhere. In particular, further quantitative research in a larger, more representative sample should be conducted that investigates the relative importance of the various social influence-related constructs. Second, while the aim of this research was to explore social influences, future qualitative research may look to undertake theoretical sampling (see Draucker, Martsof, Ross, & Rusk, 2007) whereby, for instance, particular motorcycling groups may be followed up further. This research would be important for furthering understanding about discrepancies between rider groups (e.g., some riders believed stunts in traffic demonstrated skill whereas other riders disagreed).

### **Overall summary**

In concluding, this study has provided insight into some of the key social context factors influencing riders' behaviour. Further research must seek to investigate the relative contribution of the different influences to the prediction of riders' intentions and behaviours. Also, it is crucial that future research design and evaluate interventions, including training, education, and mass media approaches in order to identify those approaches that most effectively target riders and, ultimately, reduce their risk of being involved in a crash.

Table 1. Identity and social influence-related questions included within the study's interview schedule

Social influences – Group norm
Who do you discuss your riding with? Do you ever discuss safety issues?
Are there any people/groups which may affect the way you ride?
How do other important people in your life influence your riding behaviour?
Self influences – Personal/Moral norm
Is there anything you see other riders' do which you think is just "the wrong thing to do"?
Identity-related influences - Group Identity
Is there a sense of being part of a group when you ride?
Identity-related influences - Self Identity
Do you feel differently about yourself when you ride your bike?

Table 2. Summary of key applied implications (for potential use in future training interventions and/or public education/mass media campaigns) emerging from the study's findings.

1.	Emphasise positive outcomes.	It is important to emphasize safe riding by depicting the positive outcomes of riding. For example, in a campaign/message it would be good to depict a rider being greeted by family when returning home after a day of having ridden safely.
2.	Avoid focusing on dangers.	There is a need to avoid focusing on the dangers and aversive consequences of riding as riders indicated being dismissive of attempts to 'preach the dangers' of riding to them.
3.	Balance discrepant influences.	There is a need to balance the sometimes discrepant influences on rider behaviour arising from a rider's family and other social interactions. While family members are a key motivation for riding safely, riding was also used as an escape from family responsibilities. For example, interventions could highlight the benefits of riding (as an escape) and how these benefits can still be obtained without the need to ride unsafely.
4.	Recognise learning occurs through the sharing of experiences.	The delivery of safety information to riders should recognise that many riders learn from sharing experiences with other riders. For example, interventions could incorporate the opportunity for riders to share their experiences within an environment where trained instructors can provide comment on the reported on-road experiences and, most importantly, highlight strategies that would reduce potential risky situations.
5.	Recognise the value of learning and riding at one's own pace.	The skill level of other riders is an important consideration for riders when choosing the group with which they will ride. Therefore, there is a need for interventions to (i) emphasise the value of learning and riding at one's own pace and (ii) ensure that riders are learning correct riding behaviours. For example, an intervention could highlight the importance of being one's own person or highlight the importance of not encouraging a fellow rider to ride beyond their limits, and/or encourage all rider groups to undertake a

		pre-ride debrief covering the intended destination and stops as well as the expectation of the group (to ride to one's ability) and to keep the safety of the group in mind at all times.
6.	Utilise images of group riding.	Camaraderie is particularly strong among motorcyclists, thus, to be relevant for motorcyclists, it is important to incorporate images of group riding in mass media campaigns.
7.	Identify what makes a rider skilful.	There is a need to help riders identify what it is that makes a rider skilful and/or be regarded as having a higher skill level relative to his/her peers. It would also be important for interventions to highlight that high risk behaviours, such as speeding, particularly in built up areas, and stunts are not associated with being more skilful and, in fact, may be regarded by some fellow motorcyclists as "the wrong thing to do".
8.	Identify important aspects of the motorcyclists' image.	There may also be value for interventions to promote the belief that other road users do not necessarily see risky behaviour, such as stunts and speeding as skilful, and that some other riders may actually regard the behaviour as detracting from the motorcyclists' image.
9.	Emphasise the individual's role in protecting the safety of all riders in group riding situations.	Given the popularity of group riding, interventions should encourage riders to look out for their fellow riders, by taking responsibility for the overall safety of the group. In other words, individual riders should not just be focussed on their own riding behaviour, but consider the safety of their fellow riders. In this regard, it is important to highlight the potential negative effects of the 'fishing line effect'. Similarly, there is a need to encourage riders to 'ride their own ride', even when riding within a group, and to highlight how this action (of looking after one self) is likely to have positive, safe consequences for the entire group.
10.	One size does not fit all.	It is important to recognize that motorcyclists are not an homogenous group and, therefore, there cannot be a 'one size fits all' approach to interventions/campaigns.

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[http://www.infrastructure.gov.au/roads/safety/publications/2007/pdf/road\\_rgr\\_200704.pdf](http://www.infrastructure.gov.au/roads/safety/publications/2007/pdf/road_rgr_200704.pdf).

## REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Org. Beh. Human Decision Processes*, Vol. 50, pp. 179-211.
2. Armitage, C. J. & Conner, M. (2001a). Efficacy of the theory of planned behaviour: a meta-analytic review. *Brit. J. Soc. Psy.*, Vol. 40, pp. 471-499.
3. Armitage, C. J. & Conner, M. (2001b). Social cognitive determinants of blood donation. *J.App. Soc. Psy.*, Vol. 31, pp. 1431-1457.
4. Australian Bureau of Statistics. (2010). ABS catalogue 9309.0: Motor vehicle census, Australia Canberra: Australian Bureau of Statistics.
5. Australian Transport Safety Bureau. (2005). Road Deaths Australia: 2004 Statistical Summary. Retrieved 31 January, 2006, from <http://www.atsb.gov.au/publications/2004/pdf/rfa2004.pdf>
6. Australian Transport Safety Bureau. (2003). Serious injury due to road crashes: Australia, July 1999 to June 2002. Retrieved 19 March, 2004, from [http://www.atsb.gov.au/road/stats/pdf/serious\\_injury\\_2003.pdf](http://www.atsb.gov.au/road/stats/pdf/serious_injury_2003.pdf)
7. Christie, R. & Harrison, W. A. (2002). Investigation of motorcycle crash patterns for riders aged 17-25 in NSW and development of countermeasure strategies. Sydney: Motor Accidents Authority of NSW.
8. de Rome, L. & Stanford, G. (2002). Positioned for safety: Road safety strategic plan 2002-2005 Colyton, NSW: Motorcycle Council of NSW.

9. de Rome, L., Stanford, G. & Wood, B. (2002). *MCC Survey of Motorcyclists, 2001*. (Colyton, NSW: Motorcycle Council of NSW.
10. Delhomme, P. & Meyer, T. (1997). Control motivation and driving experience among young drivers. In T. Rothengatter & E. Carbonell Vaya (Eds.), *Traffic & Transport Psychology: Theory & Application* (1st ed., pp. 305-316). Oxford: Pergamon.
11. Draucker, C. B., Martsolf, D. S., Ross, R., & Rusk, T. B. (2007). Theoretical sampling and category development in grounded theory. *QHR, Vol. 17*, pp. 1137-1148.
12. Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Orlanda, FL: Harcourt Brace Jovanovich.
13. Evans, D. & Norman, P. (1998). Understanding pedestrians' road crossing decisions: an application of the theory of planned behaviour. *HER., Vol.13*, pp. 481-489.
14. Fildes, B., Fitzharris, M., Koppel, S., & Vulcan, P. (2002). *Benefits of seatbelt reminder systems*. Report No. CR211a prepared for the Australian Transport Safety Bureau, Canberra, Australia.
15. Fischer, C (2006). *Qualitative research methods for psychologists: Introduction through empirical studies*. Burlington, MA: Elsevier Academic.
16. Gordon, C. & Hunt, M. (1998). *The theory of planned behaviour applied to speeding, drink-driving and seat-belt wearing*. In Proceedings of 1998 Australasian Road Safety Research, Education, and Policing Conference, Wellington, New Zealand.
17. Haglund, M. & Aberg, L. (2000). Speed choice in relation to speed limit and influences from other drivers. *Trans. Res. Part F, Vol. 3*, pp. 39-51.
18. Hamilton, K., & White, K. M. (2008). Extending the Theory of Planned Behavior: The role of self and social influences in predicting adolescent regular moderate-to-vigorous physical activity. *J Sport & Exerc., Vol. 30*, pp. 56-74.
19. Haworth, N., de Rome, L., Varnsberry, & Rowden, P. (2007). Motorcycle protective clothing: Are stars better than standards? In Proceedings of 2007 Australasian Road Safety Research, Education, and Policing Conference, Melbourne, Australia.
20. Horvath, P. & Zuckerman, M. (1993). Sensation seeking, risk appraisal, and risky behavior. *Personality Individual Differences., Vol. 14*, pp. 41-52.



21. Hurt, H. H., Jr., Ouellet, J. V., & Thom, D. R. (1981). Motorcycle accident cause factors and identification of countermeasures, Final Report to the National Highway Traffic Safety Administration, US Department of Transportation. Available on-line from <http://isddc.dot.gov/OLPFiles/NHTSA/013695.pdf>
22. Johnston, K. L., White, K. M. & Norman, P. (2004). An examination of the individual-difference approach to the role of norms in the theory of reasoned action. *J App. Soc.Psy.*, Vol. 34, pp. 2524-2549.
23. Kasantikul, V. (2002). Motorcycle accident cause factors and identification of counter-measures in Thailand: Volume I: Bangkok Study, KP Printing, Bangkok. Available on-line from <http://www.mosac.eu/public/file/Kasantikul%20Motorcycle%20Accident%20Research%20in%20Thailand%20-%20Bangkok%202002.pdf>
24. Krige, M. (1995a). Quantitative report on the profile of Australian motorcycle riders, *Public Education Market Research Report 2/95*. Canberra: Federal Office of Road Safety.
25. Krige, M. (1995b). Motorists attitudes towards motorcyclists and motorcyclists current attitudes and behaviour, *Public Education Market Research Report 3/95*. Canberra: Federal Office of Road Safety.
26. Lennon, A. (2007). A risky "treat": exploring parental perceptions of the barriers to seating their children in the rear seats of passenger vehicles. *Inj. Prev.J.Int.Society Child Adol.Inj. Prev.*, Vol. 13, pp. 105-109.
27. Lewis, I., Watson, B., & Tay, R. (2007). Examining the effectiveness of physical threats in road safety advertising: The role of the third-person effect, gender, and age. *Trans.Res.Part F*, Vol. 10, pp. 48-60.
28. Lewis, I., Watson, B., & White, K. M. (2009). An examination of message-relevant affect in road safety messages: Should road safety advertisements aim to make us feel good or bad? *Trans. Res. Part F.*, Vol. 11, pp. 403-417.
29. Lewis, I., Watson, B., & White, K. M. (2010). Response efficacy: The key to minimizing rejection and maximizing acceptance of emotion-based anti-speeding messages. *Accid. Anal. Prev.*, Vol. 42(2), pp. 459-467.

30. Morgan, D. L. (1998). *Planning focus groups* (Book 2), Focus Group Kit. Thousand Oaks, CA: Sage.
31. Nemme, H., & White, K. M. (2010). Texting while driving: Psychosocial influences on young people's texting intentions and behaviour. *Accid. Anal.Prev.*, Vol 42, pp. 1257-1265.
32. Otte, D., Schroeder, G., & Richter, M. (2002). Possibilities for load reduction using garment leg protectors for motorcyclists, 46th Proceedings, Association for the Advancement of Automotive Medicine, 367-385.
33. Parker, D., Manstead, A. & Stradling, S. G. (1995). Extending the theory of planned behaviour: the role of personal norm. *Brit. J. Soc. Psy.*, Vol. 34, pp. 127-137.
34. Parker, D., Manstead, A., Stradling, S. G., Reason, J. T. & Baxter, J. (1992). Intention to commit driving violations: an application of the theory of planned behaviour. *J App. Psy.*, Vol. 77, pp. 94-101.
35. Rolison, M. R. & Scherman, A. (2003). College student risk-taking from three perspectives. *Adolesc.*, Vol. 38, pp. 689-704.
36. Rowden, P., Watson, B., & Haworth, N. (2007). What can riders tell us about motorcycle rider training? A view from the other side of the fence. In *Proceedings of 2007 Australasian Road Safety Research, Education, and Policing Conference*, Melbourne, Australia.
37. Tajfel, H. & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & L. W. Austin (Eds.), *Psychology of Intergroup Relations* (pp. 7-24). Chigago: Nelson-Hall.
38. Terry, D. J. & Hogg, M. A. (1996). Group norms and the attitude-behaviour relationship: a role for group identification. *PSPB*, Vol. 22, pp. 776-793.
39. Terry, D. J., Hogg, M. A. & White, K. M. (1999). The theory of planned behaviour: self-identity, social identity and group norms. *Brit. J Soc.Psy.*, Vol. 38, pp. 225-244.
40. Tunnicliff, D.J. (2006). Psychosocial factors contributing to motorcyclists' intended riding style: An application of an extended version of the theory of planned behaviour. Unpublished Research Masters Dissertation. CARRS-Q, QUT, Brisbane.
41. Veno, A. (2002). *The Brotherhoods: Inside the Outlaw Motorcycle Clubs*. Crows Nest, Australia: Allen and Unwin.

42. Watson, B., Tunnicliff, D., White, K. M., Schonfeld, C., & Wishart, D. (2007). *Psychological and social factors influencing motorcycle riding intentions and behaviour*. Report No. RSRG 2007-04 prepared for the Australian Transport Safety Bureau.
43. White, K. M., Hogg, M. A., & Terry, D. K. (2002). Improving attitude-behaviour correspondence through exposure to normative support from a salient group. *Basic App. Soc. Psy.*, Vol. 24, pp. 91-103.
44. Wundersitz, L.N., Kloeden, C.N. & McLean, A. J. (1999). *An evaluation of interventions aimed at increasing restraint use in Whyalla, South Australia*. Unpublished Report: Transport SA.