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## Motorcyclist perceptions of risk when riding

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### Introduction

- Importance of understanding hazards and risks as perceived by motorcyclists
  - Motorcycle specific hazards not as relevant to other road users
  - Possible influence of age and experience in changing what is considered an important risk and which hazards are identified
  - Potential disparity between objectively reported risks and subjectively experienced risks



## Introduction

- Hazard perception and risk identification
  - Typical measurement:
    - Video based driving and riding simulators
    - Reaction time, gaze fixation, visual scanning, response to hazards
  
- Influence of age and experience
  - Conflicting results depending on method and measurement used



## Introduction

- Potential disparity between subjective and objective identified risks
  - MAIDS study (2004)
  - Primary factors contributing a crash:
    - Human error: other road users = 50.5%
      - Perception failure: lack of attention, temporary view obstruction, low conspicuity
    - Human error: motorcyclists = 37.4%
      - Decision failures to avoid a dangerous condition
    - Environmental = 7.7%
      - Roadway design defects, roadway maintenance, temporary hazard obstruction, construction, defective traffic controls, weather
    - Vehicle = 0.3%

## Aims of study

- To examine what a sample of motorcyclists consider to be the greatest risks to themselves while riding
- To see whether age and experience play a role in what risks and hazards are considered important
- To explore the consistency between objectively reported risks and subjectively perceived risks to motorcyclists

## Methods

- **Sample**
  - 72 participants
    - Recruited by: flyers, presentations at social clubs, online forums
    - 6 month period from November 2012 to April 2013
  - Age: 19 to 76 years (mean=49.2, SD=15.4)
  - Riding experience: 0.5 to 60 years (mean=19.8, SD=16.6)
  - Weekly riding: 1 to 30 hours (mean=6.2, SD=4.5)
- **Materials**
  - Questionnaire in an ongoing study examining human factors in motorcycling behaviour and safety
  - “What are the greatest risks to motorcyclists on the road today?”

## Methods

- Procedure
  - Identifying and coding themes and risk categories
  - Disaggregating by age and riding experience groups
    - Younger = < 40 years (n=16)
    - Older = ≥ 40 years (n=56)
- 0 to 1 years (n=4)
- 2 to 5 years (n=11)
- 6 to 10 years (n=11)
- 11 to 20 years (n=19)
- 21 + years (n=27)

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## Results

Theme	Risk category	Item count
<b>Other road users</b> n=75 (42.9%)	- Behavioural	36
	- Inattention	28
	- Attitude	11
<b>Motorcyclists themselves</b> n=24 (13.7%)	- Behavioural	17
	- Inattention	3
	- Attitude	2
	- Training	2
<b>Road surface conditions</b> n=35 (20%)	- Badly maintained (surface)	18
	- Bad repairs (friction changes)	9
	- Potholes	6
	- Oil/diesel spills	2
<b>Road design hazards</b> n=19 (10.9%)	- Reflective markings (when wet)	7
	- Manholes	5
	- General design	4
	- Lane width	2
	- Poor/missing signage	1
<b>Roadside environment hazards</b> n=11 (6.3%)	- Roadside barriers	5
	- Debris on road	2
	- Close roadside furniture	2
	- Weather (run-off)	2
<b>Aspects of the motorcycle</b> n=8 (4.6%)	- Small size	2
	- Quiet exhausts	2
	- Conspicuity	2
	- Cost of gear	2
<b>Policing</b> n=3 (1.7%)	- Attitude (biased against MC)	1
	- Reliance on cameras	1
	- Laws (preventing full use of MC)	1
<b>Total risk items</b>		<b>175</b>

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## Results

Age group distribution- Percentage of responses by theme for each age group

Theme	Younger (n=35)	Older (n=140)
Other road users	<b>34.3</b>	<b>45.0</b>
Motorcyclists themselves	11.4	<b>14.3</b>
Aspects of the motorcycle	14.3	2.1
Policing	2.9	1.4
Road surface conditions	<b>17.1</b>	<b>21.4</b>
Road design hazards	<b>17.1</b>	8.6
Roadside environment hazards	2.9	7.1
Total	100	100

## Results

Experience group distribution- Percentage of responses by theme for each experience group

Theme	0 - 1 year (n=11)	2 - 5 years (n=20)	6 - 10 years (n=19)	11 - 20 years (n=62)	21 + years (n=63)
Other road users	<b>18.2</b>	<b>40.0</b>	<b>57.9</b>	<b>40.3</b>	<b>46.0</b>
Motorcyclists themselves	9.1	<b>20.0</b>	5.3	<b>16.1</b>	<b>12.7</b>
Aspects of the motorcycle	<b>27.3</b>	10.0	0.0	3.2	1.6
Policing	0.0	5.0	5.3	0.0	1.6
Road surface conditions	9.1	<b>15.0</b>	<b>15.8</b>	<b>19.4</b>	<b>25.4</b>
Road design hazards	<b>36.4</b>	10.0	5.3	12.9	6.3
Roadside environment hazards	0.0	0.0	<b>10.5</b>	8.1	6.3

## Discussion

- Identification of hazards
  - Higher attention given to other road users and road surface hazards
- Differences between age groups
  - Both identifying other road users
  - Younger identifying design aspects of the road, surface friction changes
  - Older identifying road surface, poorly maintained roads
- Differences in experience groups
  - Less experienced concerned more with aspects of the road design and the motorcycle
  - More experienced concerned with other road users, motorcyclists themselves and road surface conditions



## Discussion

- Consistency with hazards identified in MAIDS
  - Other road users in MAIDS were 50.5%, compared to 42.9%
  - Motorcyclists in MAIDS were 37.4%, compared to 13.7%
  - Environmental factors in MAIDS were 7.7%, compared to 37.2%

## Limitations

- Sample biased towards the older motorcyclist
- Method of recruitment
- Response bias
- Coding of themes and risk items

## Conclusions and future research

- Differences between objectively reported crash causal factors of motorcyclists and the subjectively identified risk factors
  - Implications for motorcycling licensing and training courses
- Consideration of infrastructure resources
  - Road surface conditions
  - Media addressing the perceived risk of other road users, inattention, competitive and aggressive attitudes
- Further work in exploring how perceptions of risk change over time with age and experience



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