

Reckless cyclists or impatient drivers? A naturalistic study of group riding in Perth, Western Australia

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Abstract

This study aimed to describe the unsafe events and road rule violations observed among groups of riders in Perth, WA using naturalistic video and GPS data. A total of 72.5 hours of eligible naturalistic group riding video footage recorded from cameras mounted on bicycles were analysed. Common violations were stop sign violations and riding more than two abreast. For unsafe events, 65% of the events involved an interaction with a motor vehicle, with over half of these involving unsafe overtaking manoeuvres (58%). Recommendations include motorist education as well as considering the safety needs of group riders in road infrastructure design.

Background

Group riding (also called 'bunch' or 'peloton' riding) is rapidly gaining popularity in Australia (O'Connor & Brown, 2007). Currently, there is little information on the safety issues faced by group riders in Australia. Therefore, this study aimed to describe the unsafe events and road rule violations observed among groups of riders in Perth, WA using naturalistic video and GPS data.

Method

This study consisted of a convenience sample of 22 cyclists who exclusively recorded group riding video footage in Perth WA, between May 2015 and April 2017. Participants were eligible if they rode as part of a group of five or more cyclists (including themselves) at least once a month. Data collection included the recording of up to six hours of group riding video footage from front and rear mounted bicycle cameras, GPS data and an interview. All video footage was viewed manually to identify the unsafe events (crashes, near misses and incidents) and road rule violations (red light, stop sign and other violations) that occurred while riding on the road. The type and percentage of unsafe events and violations were then described in detail. Correlations between group size and the mean number of violations and unsafe events per hour were also calculated. This study was approved by the Curtin University Human Research Ethics Committee.

Results

A total of 72.5 hours of eligible group riding video footage from 22 participants, recorded over 68 trips were analysed by two researchers. In terms of road rule violations, 38 (10%) out of a total 368 red lights faced and 113 (75%) out of 150 stop signs faced were violated. A total of 191 'other' violations were observed, the most common being riding more than two abreast (48%), riding on the wrong side of the road (25%) and occupying more than one lane (15%). There was a significant positive correlation between the number of riders in the group and the number of 'other' violations per hour ($r=0.413$, $p<0.001$).

A total of 186 unsafe events (crashes, near misses, incidents) were observed with 65% involving an interaction with a motor vehicle. Over half of these involved overtaking manoeuvres in which a motor vehicle was at fault ($n=69$, 58%) including failed overtaking attempts, risky overtaking and close passing. Fifteen percent of events ($n=18$) involved aggressive behaviour on the part of the driver or cyclist/s. For events not involving a motor vehicle (35%), over half ($n=36$, 54%) involved an interaction with another cyclist. A further 36% involved a temporary hazard, poor road maintenance

or a road design or infrastructure issue. There was no significant correlation between the number of riders in the group and number of total unsafe events per hour or between the number of 'other' violations and unsafe events per hour. Since this study involved a convenience sample from Perth only, the generalisability of the findings may be limited.

Conclusions

Common safety issues for groups of cyclists included unsafe overtaking by motor vehicles and road design/ infrastructure issues. Recommendations include motorist education on how to drive around groups of cyclists as well as considering the needs of cyclists in the design of popular group riding roads. This may include a reduced number of roundabouts and traffic islands, less traffic calming, wider bicycle lanes and improved road maintenance. Cyclist education and training is also recommended to reduce the observed number of violations.

References

O'Connor, J. P., Brown, T. D. 2007. Real cyclist don't race: informal affiliations of the weekend warrior. *International Review for the Sociology of Sport* 42, 83-97.