

“a maccas on the left... something on the right”: The influence of emotions and passengers upon young driver situation awareness

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Abstract

A breadth of driving experience-related factors (eg., situation awareness skills, SAS), driving exposure-related factors (eg., friends as passengers) and age-related factors (eg., strong emotions) have been found to increase the crash risk of young drivers. The influence of passengers and emotions upon the SAS of 73 drivers aged 17-24 years with a Provisional 1 licence was explored in a cave simulator. Passengers and emotions negatively impacted upon SAS through operationalisation of a surface understanding of the driving environment, rather than a deeper understanding of the nature and mechanisms of driving hazards evident when driving alone and without experiencing strong emotions.

Background

The pernicious problem of young driver road crashes remains despite a plethora of intervention, with young drivers at greatest risk of crashing when they first start driving independently. Crash risk is related to driving-inexperience and driving exposure-related factors. To address these risks, graduated driver licensing programs generally allow driving skill acquisition in lower risk conditions (eg., supervised driving as a learner), gradually increasing risk exposure (eg., night-time passenger restrictions) (Scott-Parker & Rune, 2016). Young driver crash risk is related to age also; and young drivers tend to carry their friends as passengers (Scott-Parker, Watson, King, & Hyde, 2012). Moreover, strong emotions – while carrying passengers or travelling alone – increases the likelihood young drivers intentionally drive in a risky manner (eg, speeding) (Scott-Parker, 2017) which increases crash likelihood and severity.

The objective of this study was to explore the influence of passengers, and the influence of strong emotions, on the SAS of young drivers.

Method

Seventy-three drivers (24 males) aged 17-24 years provided verbal commentary regarding to what they were paying attention during a real-world 15-minute day-time driving GoPro clip (see Figure 1) in a cave simulator. After a 10-minute writing task in which strong emotions were evoked, drivers completed a second driving task. Thirty-six drivers completed both tasks in the presence of their friend as their ‘passenger’. The SAS of the driver was examined through commentary coding as pertaining to (a) hazard perception (Perception, P, eg., ‘100 zone’); (b) hazard comprehension (Perception/ Comprehension, PC, eg., ‘Big sign about entering the motorway’), or (c) hazard projection (Perception/Comprehension/Projection, PCP, eg., ‘We can turn at any time but we need to take care that nothing’s coming on my right’; indicative of comprehensive SAS). SAS exemplified as the proportion of P, PC, and PCP before (Drive A) and after (Drive B) the emotion invocation, and for driving alone and with passengers, was examined.



Figure 1. Example day-time, city, driving footage

Results

There was a statistically significant reduction in the proportion of verbal commentary pertaining to PCP after the emotion invocation. While there was no difference in the proportion of PCP during Drive A, participants carrying friends as passengers experienced the greatest reduction in PCP post-emotion invocation (Figure 2).

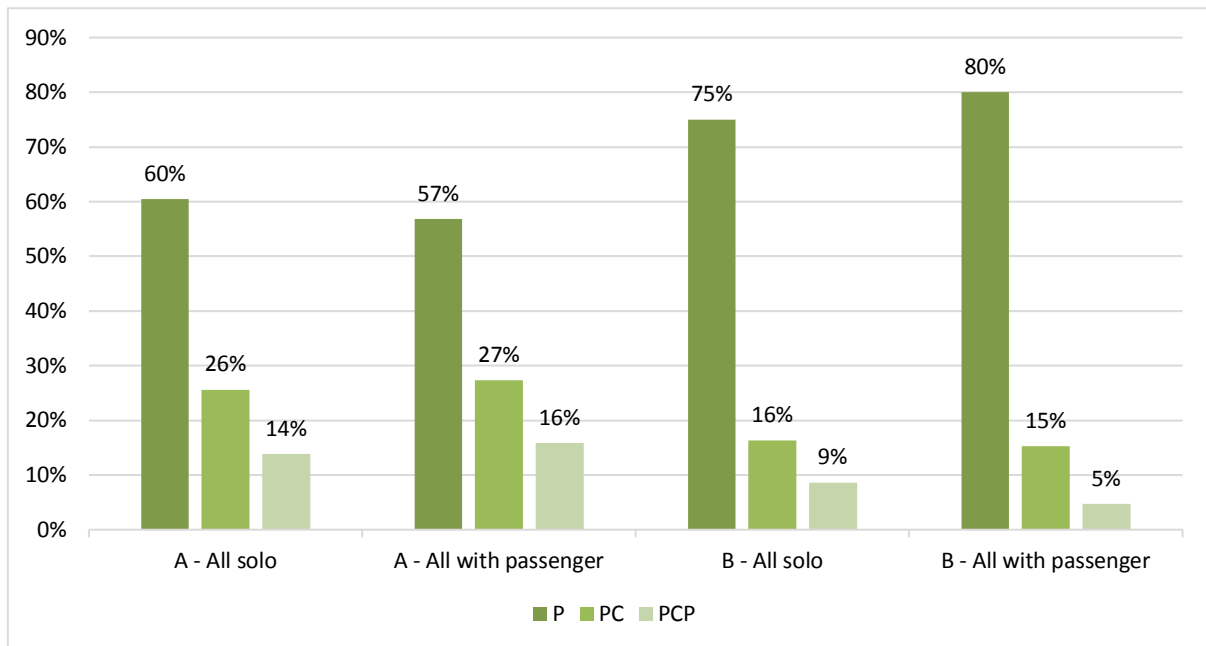


Figure 2. SAS as indicated by Perception, Perception/Comprehension, and Perception/Comprehension/Projection, by drive and by passenger presence

Regarding the emotions invoked, there was a statistically significant reduction in the proportion of verbal commentary pertaining to PCP after the emotion invocation, with participants driving ‘happy’, ‘excited’, and ‘sad’ experiencing considerable reductions in SAS while participants driving ‘angry’ evidenced greater SAS. Carrying passengers further reduced SAS compared to driving alone for all four emotions (eg., ‘happy’, Figure 3; ‘excited’, Figure 4).

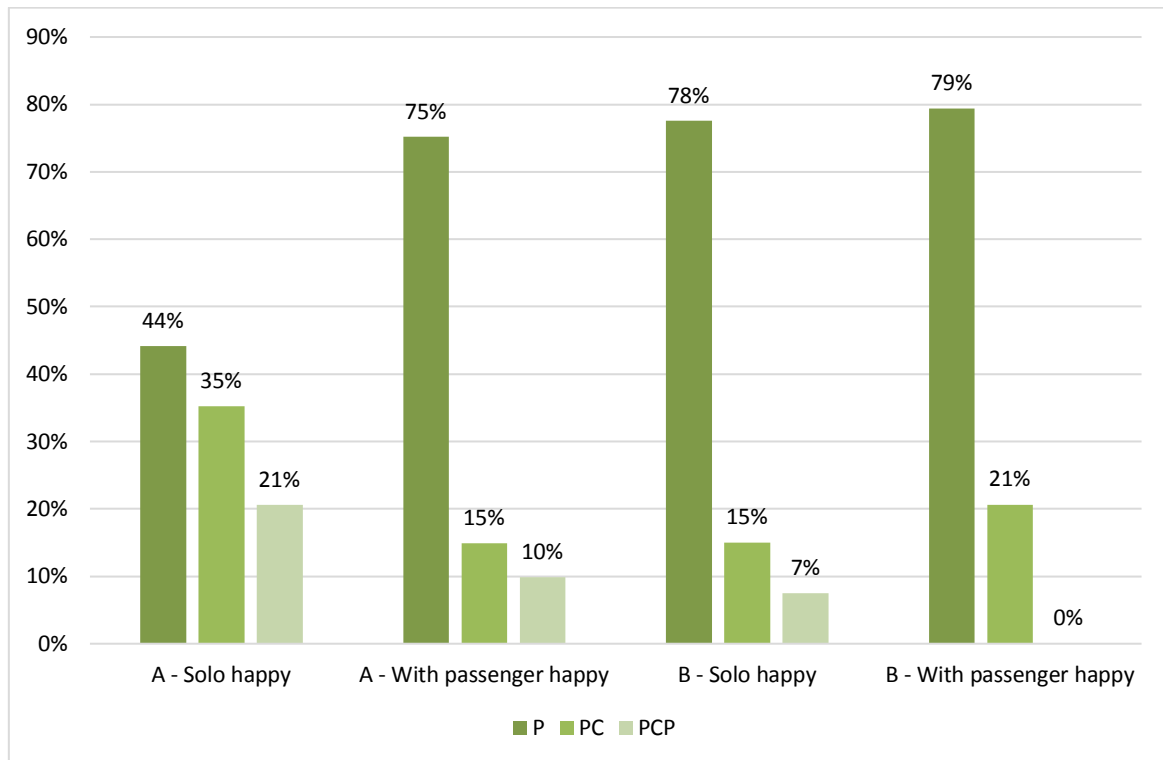


Figure 3. SAS of Happy drivers as indicated by Perception, Perception/Comprehension, and Perception/Comprehension/Projection, by passenger presence

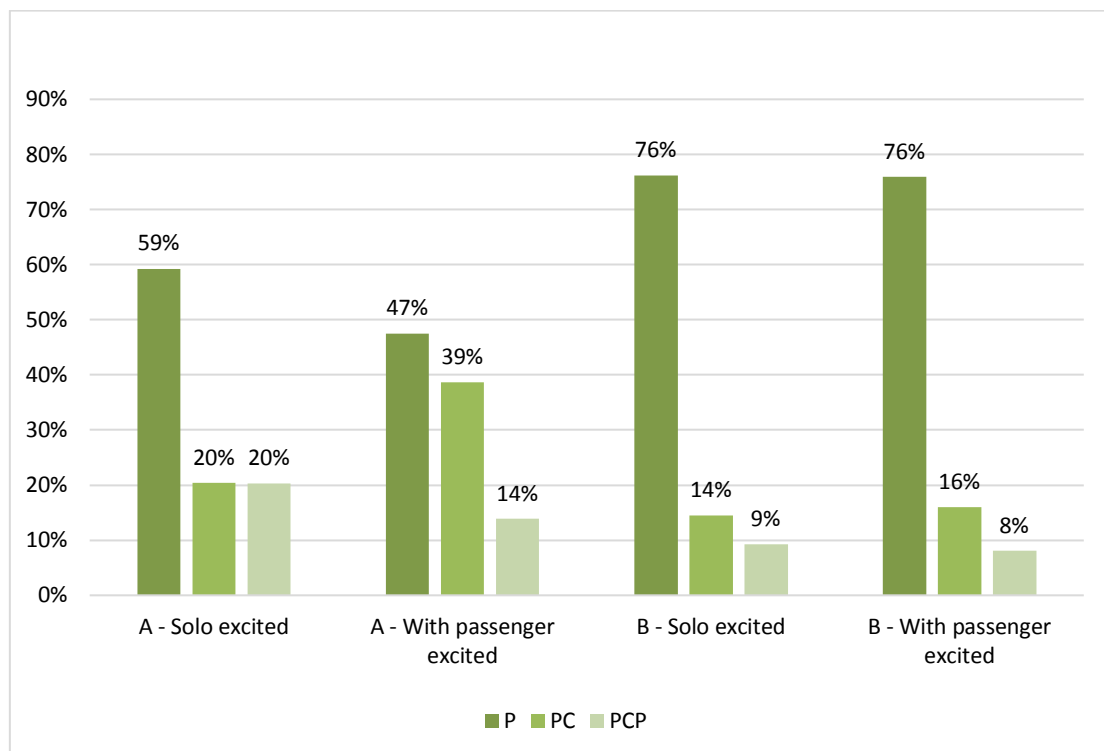


Figure 4. SAS of Excited drivers as indicated by Perception, Perception/Comprehension, and Perception/Comprehension/Projection, by passenger presence

Conclusion

Driving inexperience, evidenced as incomplete and/or inadequate situation awareness skills, place young novice drivers at increased risk of a road crash. Driving with a friend as a passenger, driving while experiencing strong emotions, and driving while experiencing strong emotions and while

carrying a friend as a passenger were found to further degrade young driver situation awareness. Effective intervention targeting the increased road safety risks associated with poor situation awareness should explicitly address the negative impact of passenger presence and driving while experiencing strong emotions.

References

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