

Exploring the role of passengers for safer driving

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Backseat drivers?



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Passengers and crash risk

- Drivers <25 years more likely to be in an injury crash when travelling with one/more passenger (OR = 3.02) (Orsi, Marchetti, & Montomoli, 2013) & crash risk increases with each additional same-aged passenger (Preusser et al., 1998; Regan & Mitsopoulos, 2001)
- OR = 15.55 for serious injury crashes with two or more same-aged passengers (Lam et al, 2003)

BUT

- Drivers > 25 years old more likely to be seriously injured in a crash when they drive alone (OR = 4.14) (Orsi, Marchetti, & Montomoli, 2013)
- Drivers aged 65-79 have a net safety increase when passengers are present (Bedard & Meyers, 2004)

What do passengers do?

- Young passengers/drivers characterised as “spectators” encouraging unsafe behaviour (Orsi, Marchetti, & Montomoli, 2013)



BUT

- Passengers carry out secondary tasks (Regan & Mitsopoulos, 2001), modulate conversation based on driving situation (Charlton, 2009 ; Precht et al., 2017), warn drivers about hazards (Regan & Mitsopoulos, 2001), talk about the driving situation (Drews et al., 2008; Charlton, 2009) and provide directions (Bryden et al 2018).
- Presence of a passenger increases the safe driving behaviours (seatbelts and lower alcohol) and decreases traffic infringements (Lee & Abdel-Aty, 2008; Rosenbloom & Perlman, 2016)
- Older drivers and their regular passengers often adopt a “team” approach to driving, particularly for longer trips and unfamiliar locations (Vrkljan & Polgar, 2007)

Aim: To explore passenger behaviour and driver passenger interactions

1. Describe Kiwi drivers' current experiences of passenger activities and behaviours

Survey (n= 592, 50.7% male; age 25-87 years)

- What passengers usually *do, tell* and give *indirect advice* about to the driver;
- Drivers' ratings of *helpfulness* of each
- Drivers ratings of how carrying passengers changes their driving

2. Explore driver/passenger interactions during an everyday journey

Drive a 15km route in own car, recorded by a go pro camera (22 driver passenger pairs who travelled frequently together (14 female drivers; mean age 41.6 years)

- Coded topics of conversation as driver/passenger initiated or joint, and by type
- Post-drive questionnaire a(safety/difficulty of the drive passenger behaviour)

Top 5 things passengers *do, tell* or give *indirect advice* about

Rank	Do	Tell	Indirect advice
1	Talk to you/keep you company	Point out an available parking spot	Make a remark about another road users' behaviour
2	Remain quiet during a difficult manoeuvre	Tell you when the intersection is clear	Remark on the weather conditions/visibility
3	Unwrap food item/open a beverage for you	Point out the destination when they see it	Remark on the presence of a police car (or speed camera)
4	Get things that are out of reach	Tell you to turn right or left at an intersection	Point out the presence of cats, dogs or items in the road
5	Adjust the heater, air conditioning, or radio	Point out a potential road hazard e.g. a dip or a curve	Remark on/point out road works or road workers

Top 5 most helpful things passengers *do*, *tell* or give *indirect advice* about

Rank	Do	Tell	Indirect advice
1	Unwrap food item/open a beverage for you	Point out an available parking spot	Point out cats, dogs or items in the road
2	Remain quiet during a difficult manoeuvre	Tell you when the intersection is clear	Remark on a police car/speed camera)
3	Answer your mobile phone	Point out the destination when they see it	Point out a pedestrian or cyclist
4	Look after children or other passengers	Point out a potential road hazard e.g., dip or a curve	Ask whether you are sober enough to drive
5	Get things that are out of reach	Tell you to turn right or left at an intersection	Remark on the direction to turn at an intersection

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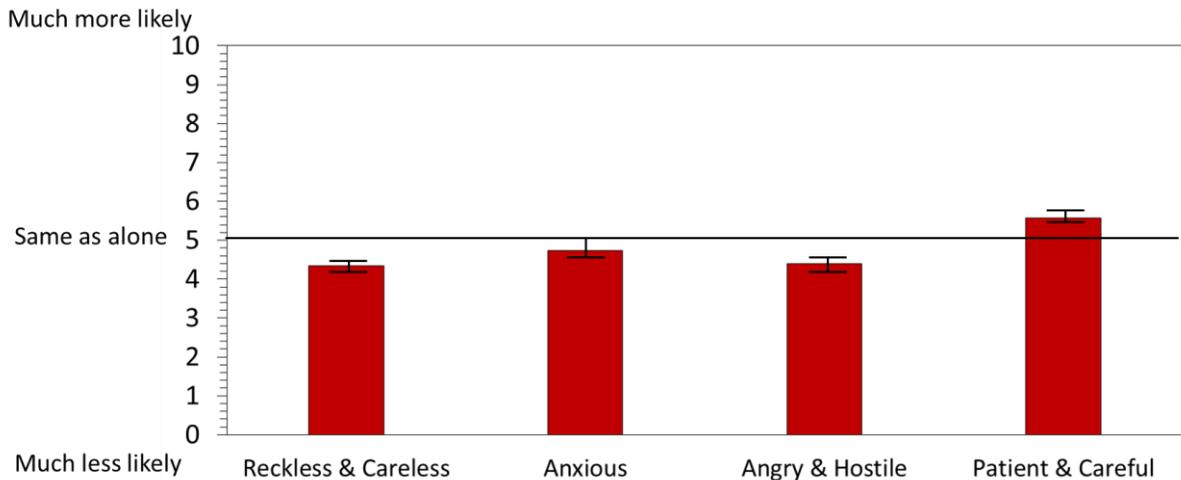
The least helpful things passengers *tell* and give *indirect advice* about

Rank	Tell	Indirect advice
13	Tell you to relax	Remark on the speed limit
14	Tell you to speed up	Remark on the distance to the car ahead
15	Offer advice on the best way to park the car	Make a remark about another road users' behaviour
16	Tell you to overtake	Remark on the route you are taking
17	Tell you to drive through a red or amber light	Remark on the starting time of an event at your destination
18	Tell you to honk your horn at other road users	Make a remark about your driving style

Drivers prefer indirect advice to being told how to drive

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Influence of a passenger on driving styles



Summary: Survey

- Drivers thought that most of the things passengers already *do* were helpful
- Drivers reported that being *told* how to drive was not helpful (e.g. how to park, to slow down)
- Drivers reported being *told* about hazards, and to dip their headlights was helpful but passengers did not do this very frequently
- Passengers were more likely to give *indirect advice* than to *tell* drivers what to do (and drivers found indirect advice much more helpful)
 - “like, “Oh, you’re going to crash into that truck.” I probably just tell them, “Oh, do you know the other day I forget this is an 80k, like Wairere Drive, zone.”
 - “Not like you’re going over the speed limit but oh, it’s a 60 k zone”

Conversations during an everyday journey

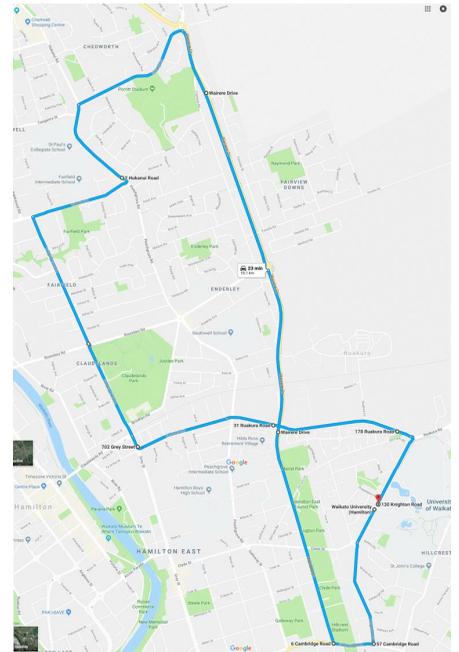
Pairs of drivers who frequently travel together drove a

15.1 km route

Predominantly urban and suburban streets

Speed limits included 50, 60, & 80 km/h

Contains roundabouts, signalised, and priority intersections, two school zones, two shopping areas, and a limited access road.



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Passenger initiated topics

Driving support	Read map, turn left/right, read sign, check clearance, point out destination, police, other driver, cyclist, pedestrian, parking spot, red light
Non-driving support	Adjust radio, AC, care for children, open food/beverage, reach item, answer phone
Advice (direct)	Slow down, speed up, indicate, overtake, following dist, speed limit, dip headlights, honk horn, be careful, don't answer phone, how to park, criticise style
Advice (indirect)	Time to destination, current time, ask if sober or tired, what constitutes bad driving, ask what lane or what speed is appropriate, tell driver to relax
Self-comment	Comment on own performance, map reading, navigation help, being a distraction

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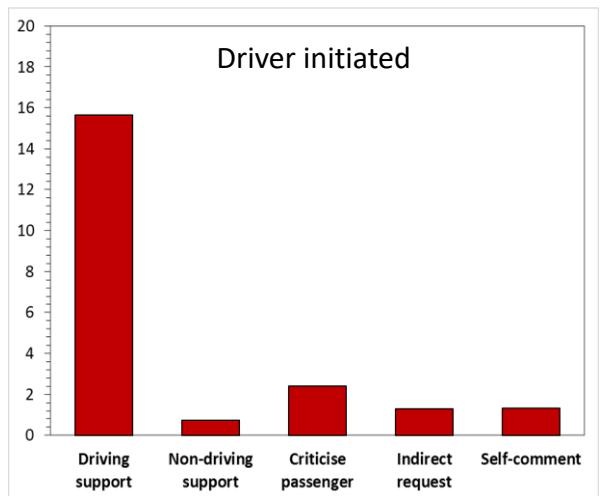
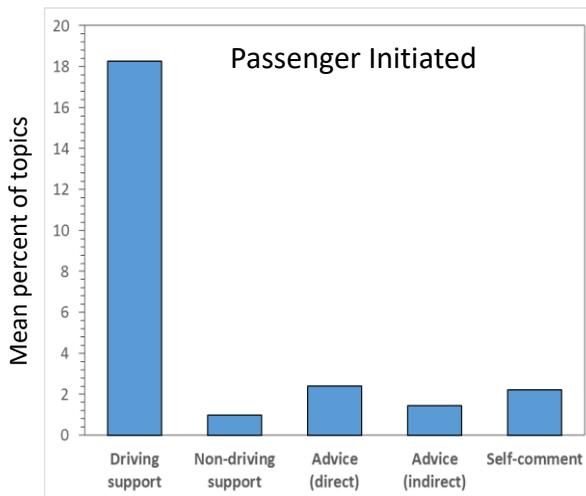
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Driver initiated topics

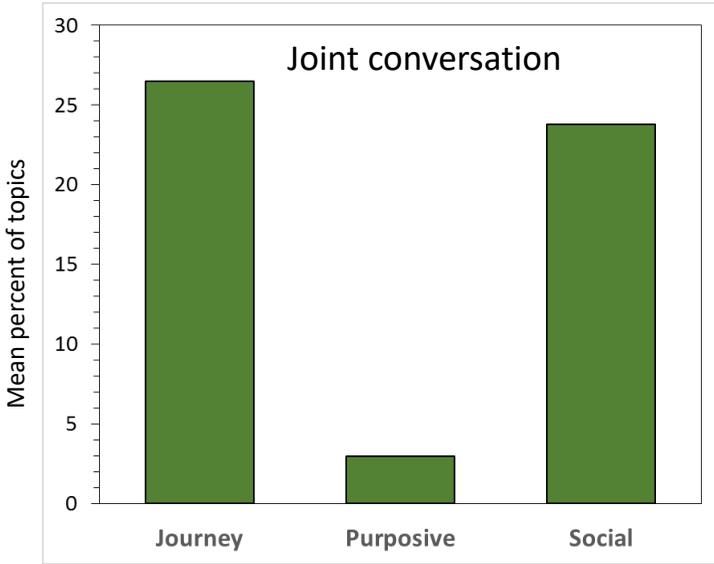
Requests driving support	Asks directions, speed limit, clearance
Non-driving support	Ask passenger to retrieve item, change music, answer phone, assist passenger
Criticise passenger	Reject advice, reject conversation, failure of support
Indirect request	Ask about noise, presence or location of items
Self-comment	Comment on own driving, speed, lane choice, indicating etc.

Joint conversation topics

Journey	Weather, road works, bad drivers, traffic, road condition, other road users, or people/animals/ objects at roadside, discussion of route alternatives
Purposive	Keep awake, stop talking during manoeuvre (diff to score)
Social	Non-driving discussion of people, places, events



Differences across driver pairs



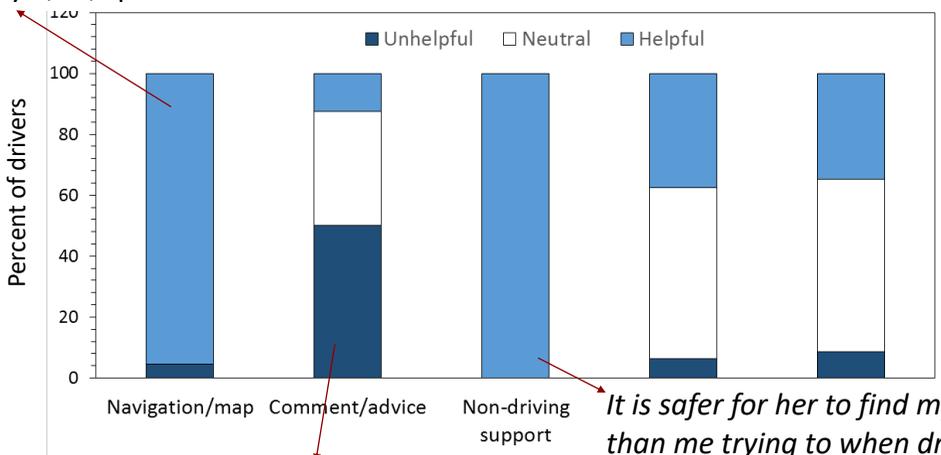
Female passengers were most likely to offer support and advice, particularly to male drivers

Male drivers were more likely to request support if their passenger was also male

Female drivers least likely to criticise male passengers

What did drivers say was helpful and unhelpful?

I didn't have to think about where to go; M, 37 yrs, FP, spouse



It distracted me more; M, 31 yrs, FP, spouse

It was unnecessary; M, 37 yrs, FP, spouse

It is safer for her to find my phone than me trying to when driving, lets me concentrate on the road
M, 50 yrs, FP, spouse

Helpful things that drivers wished their passengers had done

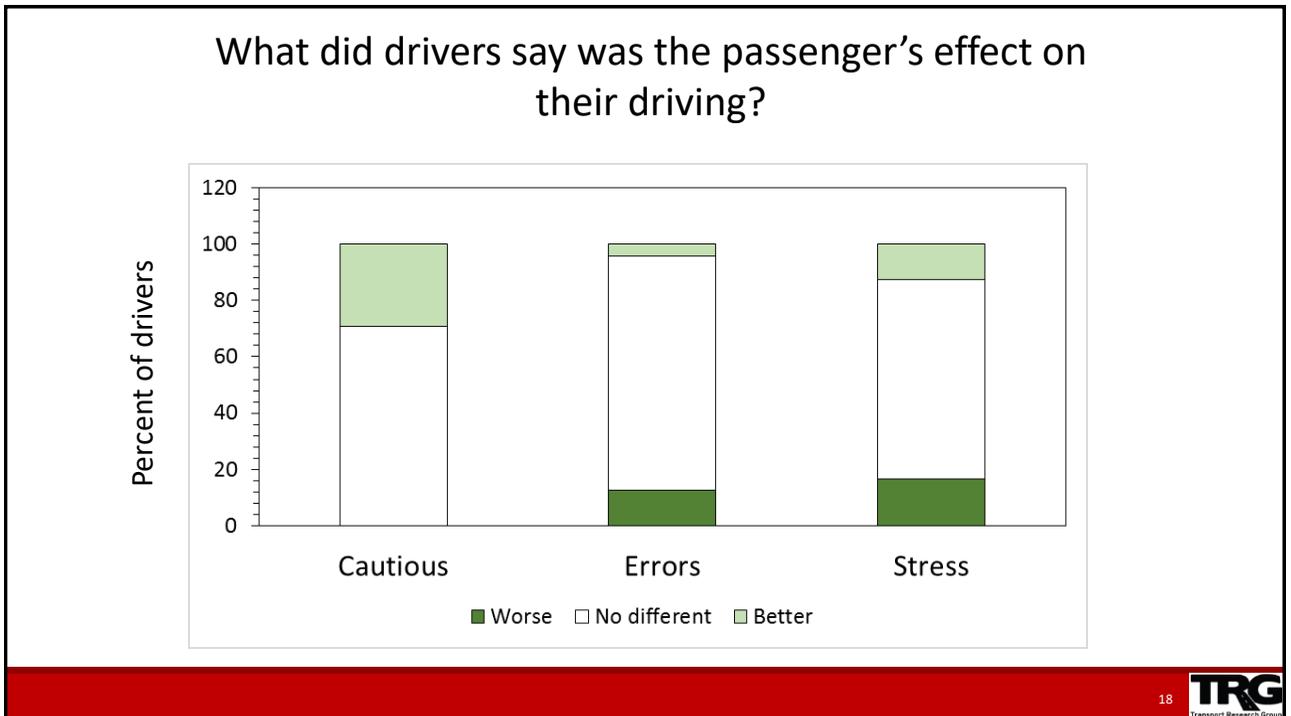
- Keep silent
F, 36 yrs, MP, family
- Not make smart comments about my driving
M, 37 yrs, FP, spouse
- Given directions in time to follow the correct route
F, 26 yrs, FP, spouse

Unhelpful things that drivers wished their passengers hadn't done

- Was quite nervous at times, which was distracting
F, 41 yrs, FP, family
- Not being able to read the map accurately and questioning while driving
M, 31 yrs, FP, spouse
- initiated conversation then spoke negatively at my response
F, 64 yrs, FP, family



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How does a passenger increase safety?

- Offer non-driving support (i.e., prevent driver distraction)
- Alert the driver to hazards (situation awareness)
- Check for traffic at intersections
- Give directions
- Remind drivers about the road rules (e.g. speed limits)

How to be a good passenger

- Point out turns and when to change lanes (in a timely manner)
- Comment on the road, the situation and other bad drivers i.e. give indirect advice, rather than criticise their driving
- Discuss the trip rather than family problems or continuing an argument
- Offer to be another set of hands for the driver (or ask how you can help them)
- Don't have lengthy mobile phone conversations
- Keep an eye out for parking spaces (and speed cameras)

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Questions?