
Peer influences on teenagers' driving performance: what do teenagers have to say?

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Teenage Naturalistic Driving Study

• VTTI

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- ✦ Sheila Klauer
- ✦ Tom Dingus
- ✦ Jennifer Muller

Underlying Mechanisms

- Presumed, but untested, mechanisms underlying passenger effect:
 - ◆ Distraction/concentration
 - ◆ Peer pressure (direct)
 - ◆ Social influence (indirect)
- What can be found in the literature about these mechanisms?
 - ◆ Self-report quantitative and qualitative data

Distraction

- Are high schools seniors distracted while driving by things passengers had done? (Heck and Carlos 2008)

 - Yes, for about 38%

- How are passengers distracting? Heck and Carlos (2008)

Table 3
Reported distractions

Type of distraction	Among those distracted, percent reporting this distraction
Talking, yelling	44.7
Fooling around	22.4
Music, dancing	15.5
Pointing something out, showing something	7.7
Deliberate distractions	7.5
Accidental distractions	2.7
Other reasons	18.6

- Young passengers compared to passengers 55+

 - More likely to talk to drivers

Regan and Mitsopoulos, 2003

Comments About Driving (Peer Pressure)

Do passengers affect drivers with their comments?

- ✦ Young males (≤ 25 yrs old) involved in a crash (compared to those who were not) report friends ask them to take driving risk Clark, 1976
- ✦ Young passengers compared to passengers 55+
 - ✦ More likely *to tell* drivers to take risk and display anti-social behavior
 - ✦ Less likely to provide helpful comments related to driving
- ✦ Male passengers more likely *to tell* female driver to take risk and display anti-social behavior
 - ✦ Than female/female and male/female dyads
 - ✦ Not significant for male/male dyads
 - ✦ Age not considered in analysis

Presence (Social Influence)

- Do passengers affect drivers by their presence only?
 - Young drivers (≤ 25 yrs old) report that they do compared to older age groups Regan and Mitsopoulos, 2003; Rolls et al., 1991
 - Male passenger more likely *to influence* female driver to display anti-social behavior
 - Than female/female dyads
 - Not significant for male/male and male/female dyads
 - Age not considered in analysis
 - Young male drivers report more likely to show off even if not asked explicitly by young male passengers

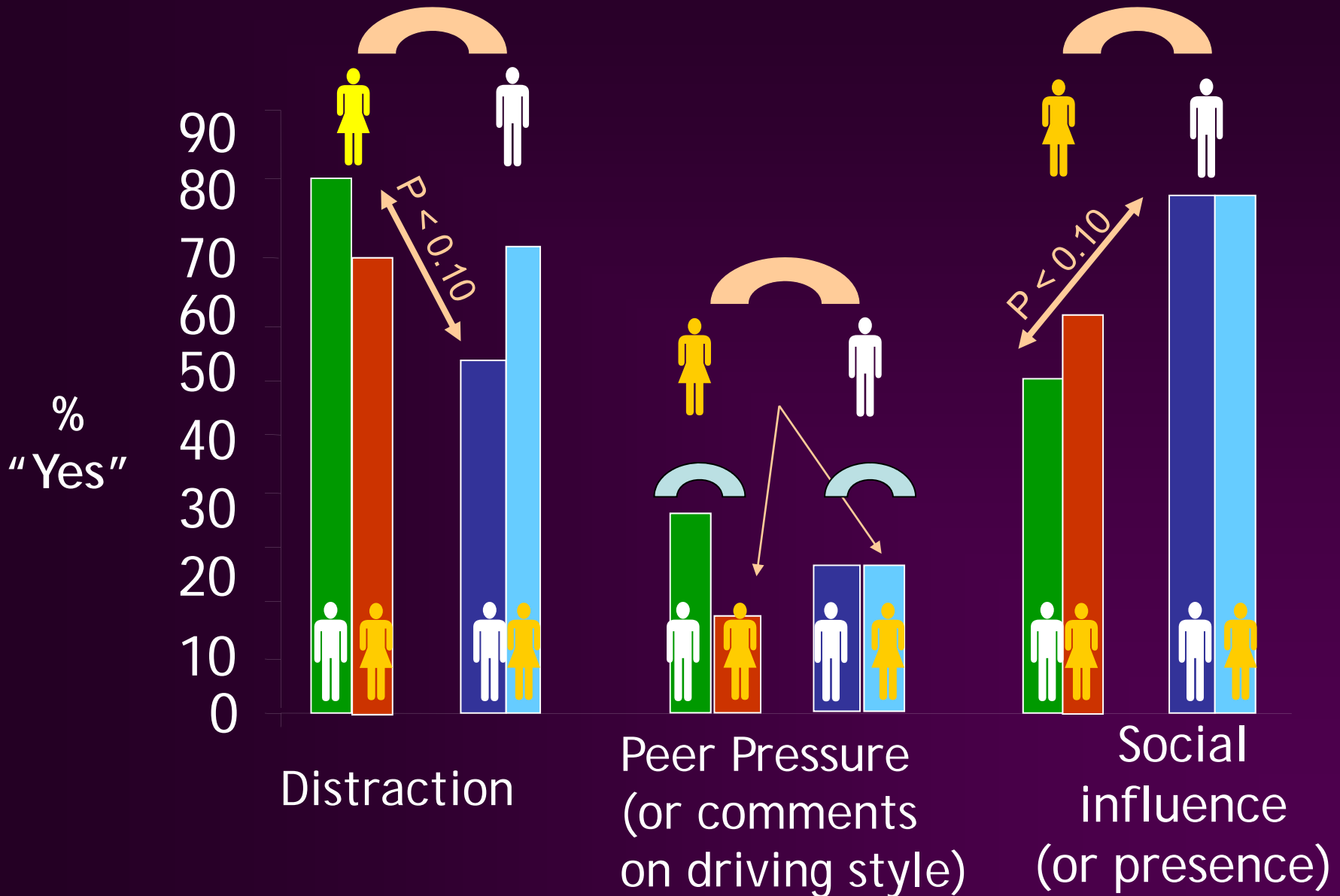
Research Question

- Are passengers having effect through distraction, pressure, influence, or a combination of these or other factors?
 - ✦ Not only one study can answer this question
 - ✦ Large part of these questions could be answer through a series of experiments (or by other ways)
 - ✦ Which question(s) should we answer first?

Pilot Study: Research Question and Method

- Which effects are the most important between distraction, peer pressure, and social influence
 - ✦ Any differences by driver and passenger sex
- Qualitative semi-structured interview with 40 participants of the Naturalistic Teen Driving Study

Do teen drivers perceive a greater effect on driving performance from male or female teenage passengers?



Conclusion

- Results of this pilot study lead to the next study, which is the first of a series of studies aiming at understanding the underlying mechanisms of passenger effect

Peer influences on teenagers' simulated driving performance

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Context

- We found in pilot study just presented that 80% of males reported passenger presence affect their driving
- Some studies have showed that the highest risk is found for the young male driver/ young male passenger combination
 - Observation: Simons-Morton, Lerner & Singer (2005)
 - Epidemiological study: Chen et al. (2000); Ouimet et al. (2009)

Context

- Effect from passenger can be
 - Negative: drivers perceived passengers' expectations that they should drive in a certain way
 - Positive: greater responsibility felt when driving a passenger

Rolls et al., 1991

- “Safe” drivers report less effect of passengers on driving behavior

Clark, 1976; Rolls et al., 1991

Context

- Negative effect of presence of teenage passenger on teenage drivers, especially for males
 - ✦ Yes, but not in all cases
 - Sometimes it is also positive
 - Not all trips involving a male/male dyad end up in a negative consequence
- What else could possibly increase risk beside age and sex?
 - ✦ Personality of the driver and passenger?
 - One of the main suggestion for future research of Regan and Mitsopoulos (2003)

Effect of the personality of the passenger on driver performance

- Main hypothesis
 - ✦ Male teenagers driving with a risk accepting male passenger will engage in more risky driving than male teenagers driving with a risk adverse male passenger
- Secondary goal
 - ✦ Does driver personality characteristics mediate the effect?

Methods: Research Tool and Measures

• Driving Simulation

- ✦ High level of control on the experiment
- ✦ Safety
- ✦ Many variables of interest

• Performance is defined as attention and risk measures

- ✦ eye glance behaviors
- ✦ following distance
- ✦ closing speed
- ✦ gap acceptance
- ✦ **Speed**
 - Mean speed difference from speed limit (8 locations)

Methods: Inclusion Criteria

- Being male
- Under the age of 18
- Provisional or full license
- Driven in the past 3 months
- No past experience with motion sickness

Methods: Design

- 36 participants randomly assigned to a 2X(2) mixed design
- A) Between group: driving with a male passenger
 - ✦ risk accepting
 - ✦ risk adverse
- B) Within-group
 - ✦ One circuit with a passenger
 - ✦ One circuit without

Condition	Counter-balancing	Sample size
Risk accepting	1) No passenger; passenger	9
	2) Passenger; no passenger	9
Risk adverse	3) No passenger; passenger	9
	4) Passenger; no passenger	9

Our Passenger

● Risk accepting

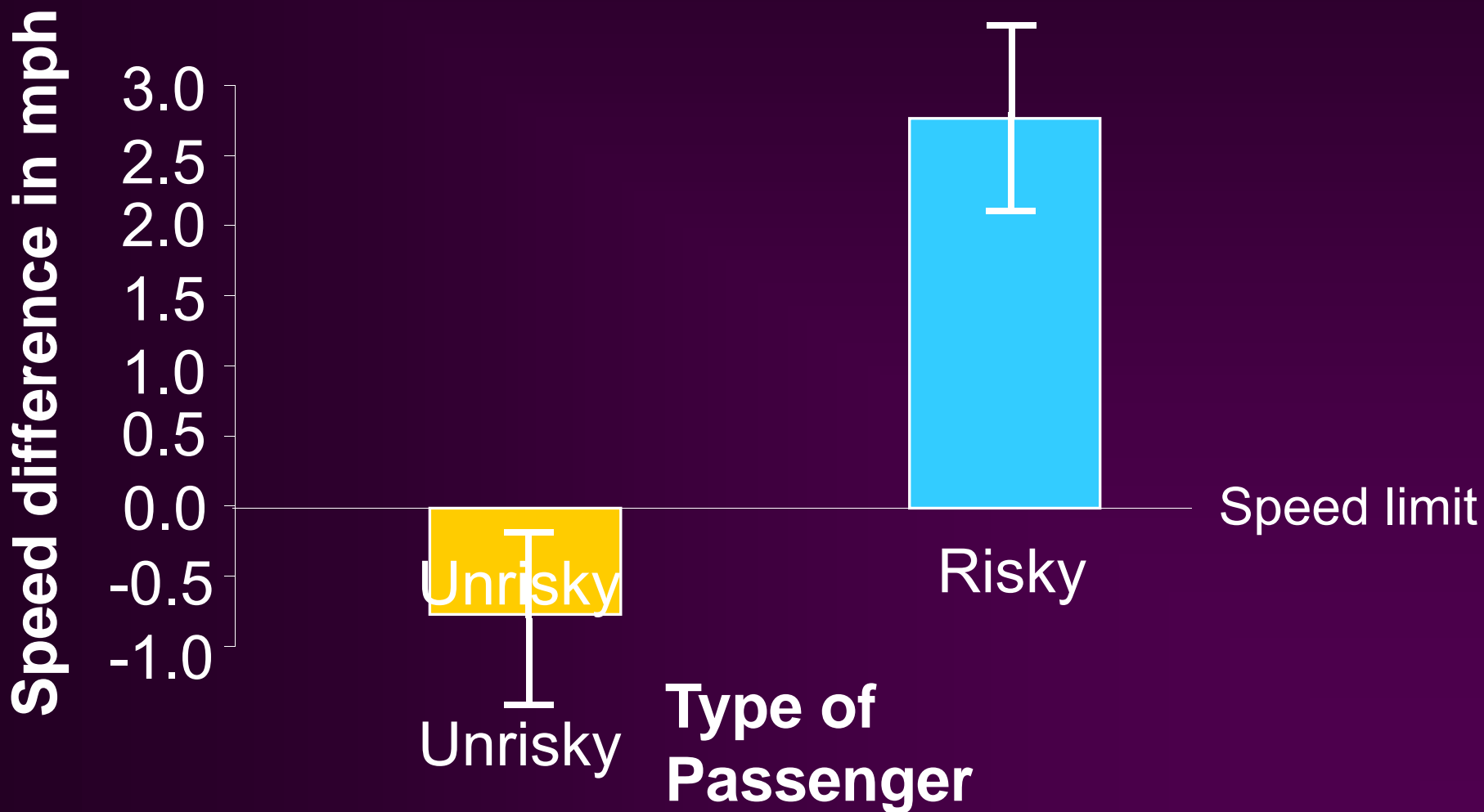


● Risk adverse



Results of Pilot Study (N = 6)

Mean speed difference from speed limit (8 locations):
with passenger minus without passenger



Secondary Research Questions

- 1) Did participants perceived passengers as intended (i.e., the risk acceptor passenger will be perceived as more risk accepting than the risk adverse passenger)?
- 2) To better explain the results, secondary analyses will explore some mediators of risk taking
 - ✦ Sensation seeking (Hoyle et al., 2002; Stephenson et al., 2003; Zuckerman, 1994)
 - ✦ Tolerance to deviance (Rachal et al., 1975; Shope et al., 2003)
 - ✦ Susceptibility to peer pressure (Dielman, Campanelli, Shope, & Butchart, 1987; Steinberg & Monahan, 2007)
 - ✦ Self-esteem (Rosenberg, 1989)
 - ✦ Perception of passenger risk acceptance



Thank you!

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