



Univerzita Palackého
v Olomouci

Fitness to Drive

Psychological aspects

Matúš Šucha, Czech Republic



Background

1. Human being is a **controlling system element** (consequence: $\approx 90\%$ of accidents are caused or co-caused by human beings) (e.g. NHTSA, 2015 – 94%, $\pm 2.2\%$).
2. Most of the drivers **are safe and good drivers** (*but still behaving risky in some situations*). To enhance their safe driving behaviours, traffic safety measures **on the societal level** (e.g. strict and fair enforcement, smart traffic infrastructure – self-explaining and forgiving roads, safe and ergonomic vehicles) are needed.
3. Only **very small part of drivers are very risky drivers** (repeat offenders, excessive speeders, drunk drivers): 0,5% of all drivers committ more that 20% of all serious offences. For these drivers, **special interventions on individual level**, as rehabilitations (driver improvement courses) and psychological assessment of fitness to drive, are needed.



Background

Driving performance and behaviour

It is crucial to distinguish between **driver performance** and **driver behaviour**. Not differentiating between them has caused, and continues to cause, confusion. The two concepts are:

1. Driver performance – what the driver **CAN do** / (*driving instructors and traffic psychologists*)
2. Driver behaviour – what the driver **DOES do** / (*traffic psychologists*)

Driver performance relates to the driver's knowledge, skill, and perceptual and cognitive abilities. **Driver behaviour** is what the driver chooses to do with these attributes.



Background

Driving performance and behaviour

The distinction between **performance and behaviour** is central to **traffic safety** because normal driving is a **self-paced task**. That is, drivers choose their own desired level of task difficulty.

Rothengatter (1997) pointed out that research in traffic psychology shows not only the importance of performance factors, but also **the importance of motivational and attitudinal factors.**

A distinguished sea captain commented: A superior seaman uses his superior judgment to keep out of situations requiring his superior skills (Evans, 2004).



Background

1. 1 Driving performance and behaviour (Gadget model)



An analysis of the driver's task and accidents has shown that **adequate psychomotor skills and physiological functions are not sufficient** for good and **safe performance** as a driver (Näätänen & Summala, 1974).



Background

Traffic psychology and traffic psychologists

Traffic psychology is primarily related to the study of the **behaviour of road users and the psychological processes underlying that behaviour** (Rothengatter, 1997, 223), as well as to the relationship between behaviour and accidents.

*Human behaviour – whether “normal” or “deviant” – **is explained, individually assessed, and altered by psychological means.** Psychologists have developed concepts and instruments to assess individual drivers and other road users in order to improve their safety.*



Research design

1. The study sample comprised $n=2471$ individuals aged 18-87, drivers who undergo FTD assessment. 2 groups based on drivers' history (crashes, offences, DPS points): safe and risky drivers.
2. We compared results of **performance tests** (e.g. Cognition, Perception, Attention, Memory, Intelligence) and **personality tests** (e.g. PSSI, NEO-PI-3)
3. Age was shown to have a significant influence on the results of both performance- and personality-related tests. Therefore, all the results were checked using residual analysis.



Research design

Sample

Two groups of drivers: Risky drivers and Safe drivers

Safe drivers

- 1) Professional drivers
- 2) Offences in driver's lifetime: max. 3
- 3) Offences in the last 2 years: 0
- 4) No history of their licence being withdrawn

Risky drivers

Licence withdrawn (12 points in the demerit point system or speeding or DUI offence).



Key outcomes

1. Performance tests (what driver CAN DO)

No differences were found between the risky and non-risky drivers. Moreover, in some of the tests the risky drivers achieved better scores than the non-risky ones (especially in the domain of memory, both verbal and non-verbal).

In terms of practical implications, it is important to recognise that when assessing psychological fitness to drive, we cannot predict a person's safe driving behaviour in the future on the basis of their good results in performance tests.



Key outcomes

2. Personality tests (inventories) – what driver DOES

Statistically significant differences between the risky and non-risky driver groups were shown for some personality traits.

Risky drivers are: less deliberate and cooperative and more likely to seek excitement, show less self-control and less respect for responsibilities and commitments, are more likely to break rules, flout social norms, and assert themselves. They are more preoccupied with their feelings and show a greater sense of their own incompetence and insecurity. They also have a stronger inclination to manipulate others.



Conclusion

- Personality traits are a valid predictor of safe driving.
- Personality traits are measurable.
- Traffic psychologists have knowledge and instruments to assess psychological fitness to drive.



Univerzita Palackého
v Olomouci

Questions?



Matúš Šucha

Department of Psychology,
Faculty of Arts, Palacky University
Olomouc

www.trafficpsychology.cz

