Risk perception assessment in young novice drivers

The role of Portuguese driving training system in the acquisition and development of this competence

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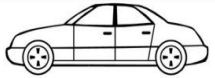
Agenda

1. Overview of driving training and testing process in Portugal
2. The role of risk perception
3. Our research
4. Presentation of the main results and findings
5. Preliminary conclusions and next steps

Overview of driving training and testing process in Portugal

Portugal has a traditional training and assessment system



B category

Theory, Training and/or Practice

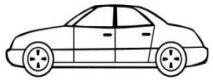
- Previous requirements: Minimum age: 18 years; Physical, mental and psychological fitness
- Mandatory course; Licensed driving schools; Minimum number of theory and practical lessons; Certified instructors

Written Test and Driving Test

- Public and private exam centres; Certified examiners
- Curriculum regulated by Government, according to predefined contents (EU Driving Licence Directive)
- Theoretical test in a computer based system and a on road skills and behaviour test

Overview of driving training and testing process in Portugal

Portugal has a traditional training and assessment system



B category

Probationary License

- Probationary period (3 years) – License revoked if newly drivers commit serious traffic offenses
- Blood alcohol limit allowed decreased to 0.2 g/l

Full License

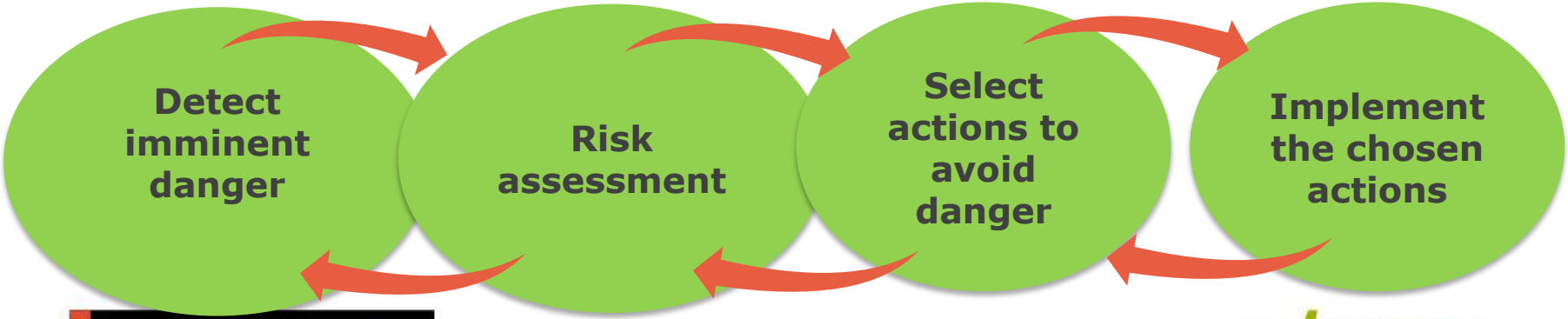
- After probationary period without practicing traffic offenses

The role of risk perception

Hazard perception (HP)

"The ability to read the road", preventing potential hazards that develop in the road environment[1]

4 processes play a role in hazard perception[2]



[1]Horswill & Mckenna, 2004; [2]Groeger, 2000

The role of risk perception

Theoretical contents	Practical contents
Human error as the dominant factor in the accident	Adapting speed to traffic
Visual perception in driving performance	Driving self assessment – Be able to take the best decision
Strategies for anticipating and predicting the potential dangerous of the road elements	Commented driving
Assessment of risk and the accepted lower risk	Independent driving

Goals of our research

- Knowing that training and assessment system for drivers candidates in Portugal already includes topics related to risk perception skills
- But considering that this is a traditional system, with possible limitations in the acquisition and development of higher skills
- We set out to investigate the impact of certain parameters of the system, in the levels of risk perception skills in a sample of young novice drivers

Our research

Overall objective

To assess risk perception skills, such as visual perception and acceptance of risk by young novice drivers, to know the role that driving schools in Portugal have in the acquisition and development of these skills

Our research

Specific objectives

Identify if certain characteristics of driver training contribute to better risk perception skills

- Training curriculum
- Duration of training
- Success in tests (T+P)

Identify if patterns of behaviour influence risk perception skills

- Specific difficulties after obtaining the driving licence
- Practice of traffic offenses
- Involvement in road accidents

Identify if certain factors influence risk perception skills

- Driving experience
- Age
- Gender

Method

Sample

- ✓ N=68
- ✓ University students, category B driving license, issued in Portugal
- ✓ Age: 18 to 26 years; Average (21,96 years); SD (1,32)
- ✓ Gender: M = 31 (46%); F = 37 (54%)
- ✓ 35 (51%) in the probationary period (< 3 years); 33 (49%) in the post-probationary period (> 3 to 5 years and 4 months)

Our research

Materials

1. 2 Psychological tests to assess risk perceptions skills (Vienna Test System)
2. Questionnaire and data from exams (IMT database)

- ✓ Collect information of the training process and the impact when driving solo
- ✓ Importance given by driving schools in contents related with risk perception
- ✓ Driving experience (years of license; hours and km/week of driving)
- ✓ Driving behaviour and attitudes (traffic offenses and accidents)

Our research

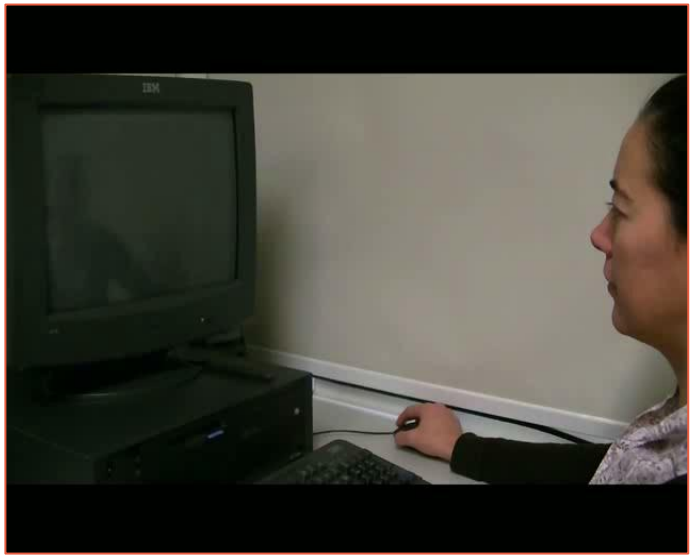
1

Tachistoscopic Traffic Perception Test – TAVTMB: assesses visual perception performance and perceptive speed in tasks with short presentations (1 second) of traffic situations

Variable: "Obtaining an overview" – A high percentile rank (PR>84) indicates a well-developed ability to perceive a situation accurately and quickly – 22 pictures (2 training)

Tachistoscopic Traffic Perception Test – TAVTMB

How is the test?



Our research

1

Vienna risk-taking test traffic – WRBTV: measures the subjectively accepted level of risk in potentially dangerous driving situations, in accordance with Wilde's theory of risk homeostasis

Variable: "Willingness to take risks in traffic situations" – A high percentile rank (PR>84) indicates a low level of subjectively accepted risk, measured by the distance from the moment of danger, in hundredths of seconds – Individuals tend to accept a lower degree of objective danger

Vienna risk-taking test traffic – WRBTV

24 traffic situations in video format

Multiple traffic situations

Procedure

Participants were given standardized information about how to perform each test

They were asked to answer truthfully and to position themselves as if they were in a natural driving environment

Then, completed two psychological tests and the online questionnaire

In total, the assessment lasted for about 50 minutes

Global psychological tests results

✓Young novice drivers have percentiles in the average (25 to 75) in both psychological tests

Table 1. Percentiles – TAVTMB (n=68)

Average	SD
39,61	22,40

Table 2. Percentiles – WRBTV (n=68)

Average	SD
43,75	29,02

PERCENTILE RANK

<16 = Below-average

16-24 = Below-average to average

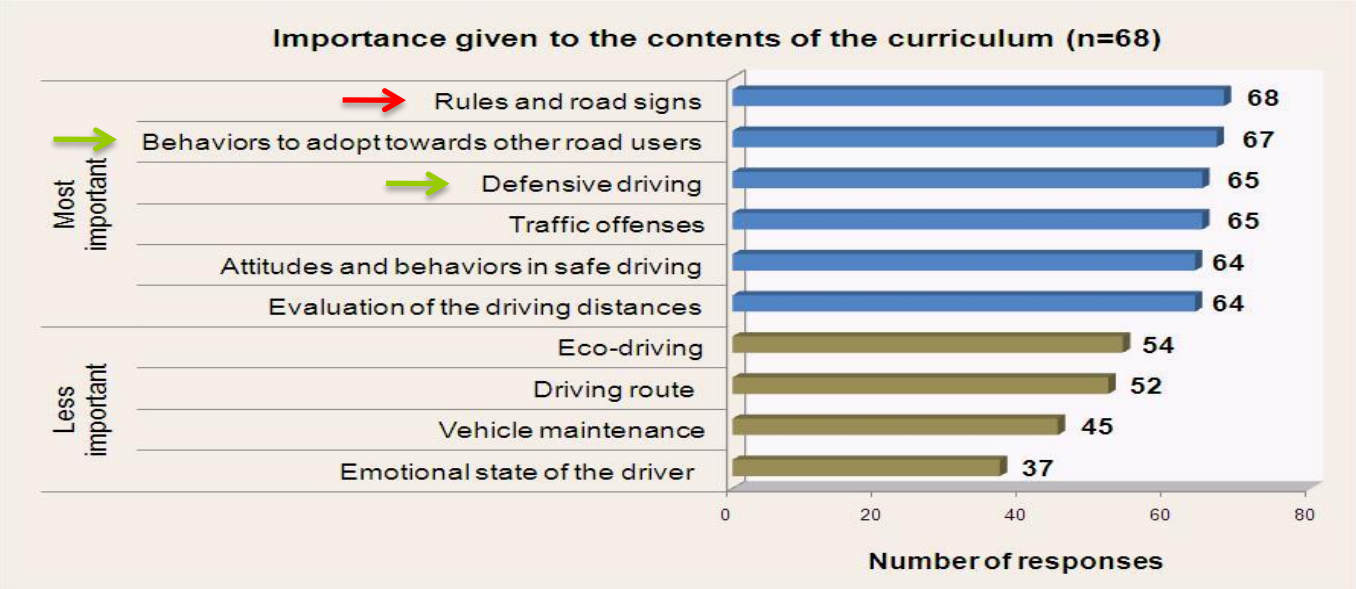
25-75 = Average

75-84 = Average to above average

>84 = Clearly above average

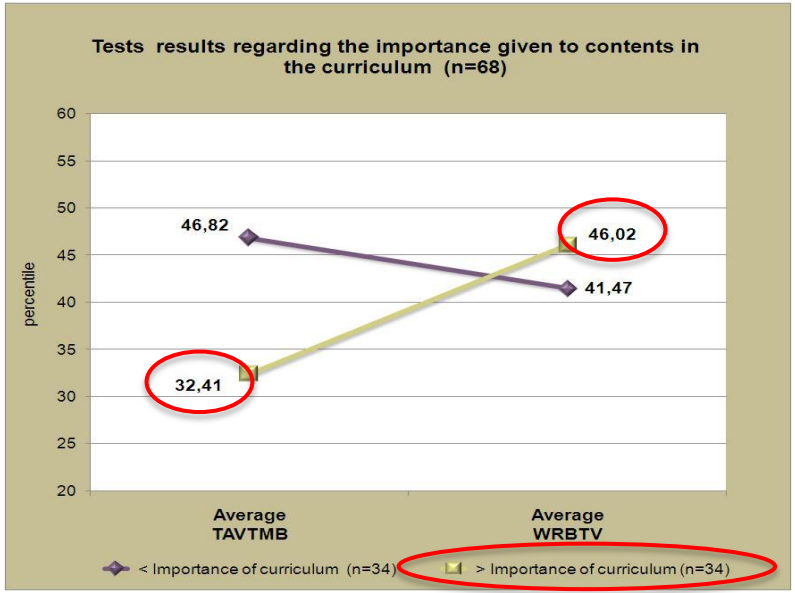
Training Curriculum

✓ Driving schools seem to give importance to contents related to risk perception



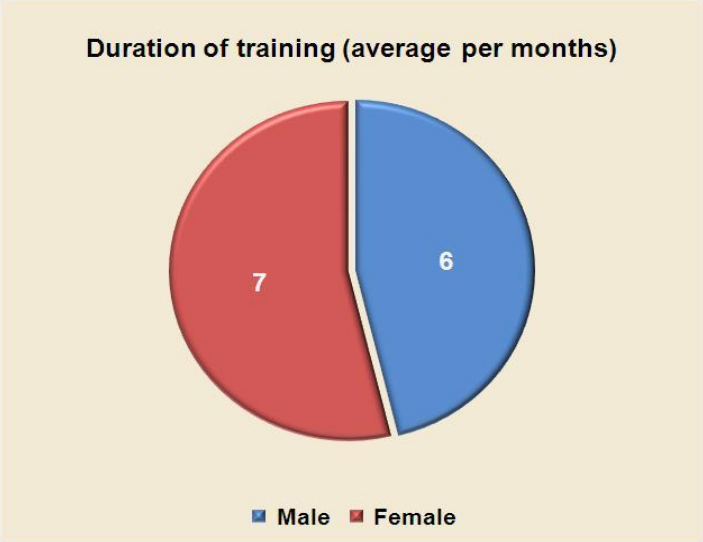
Training Curriculum

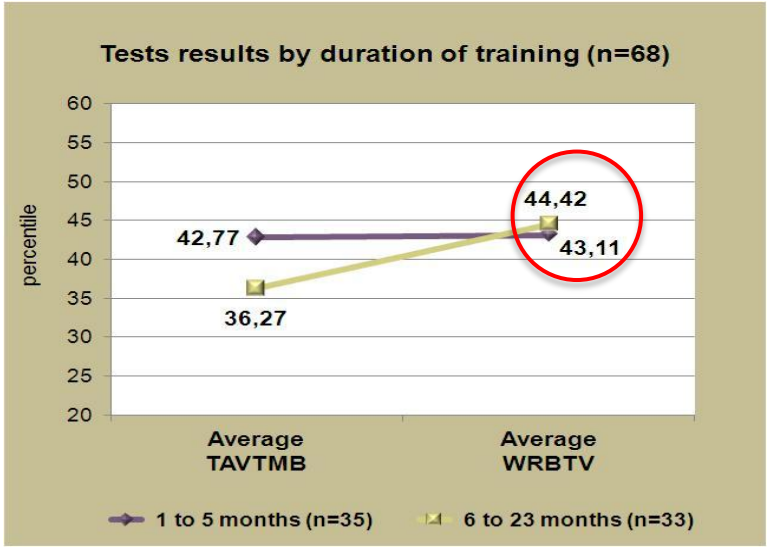
- ✓ Participants who consider that driving schools give more importance to the overall curriculum have lower willingness to take risks (> WRBTV) and less accurate overview of traffic situations (< TAVTMB)



Presentation of the main results and findings

Duration of training

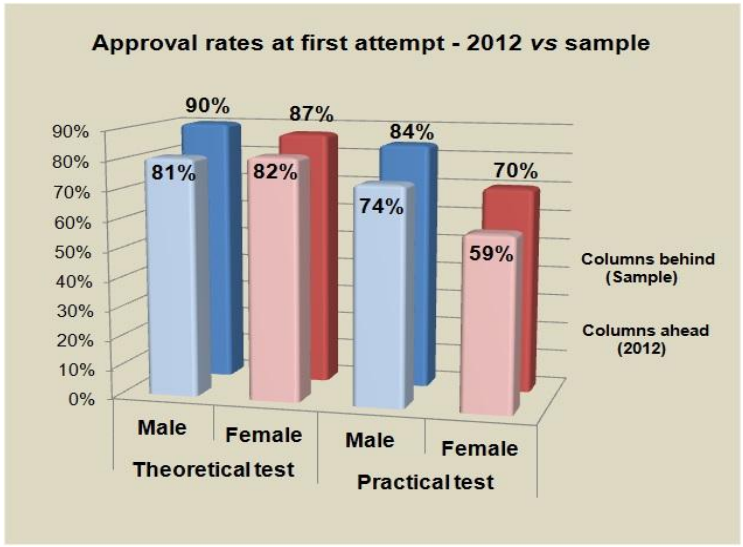


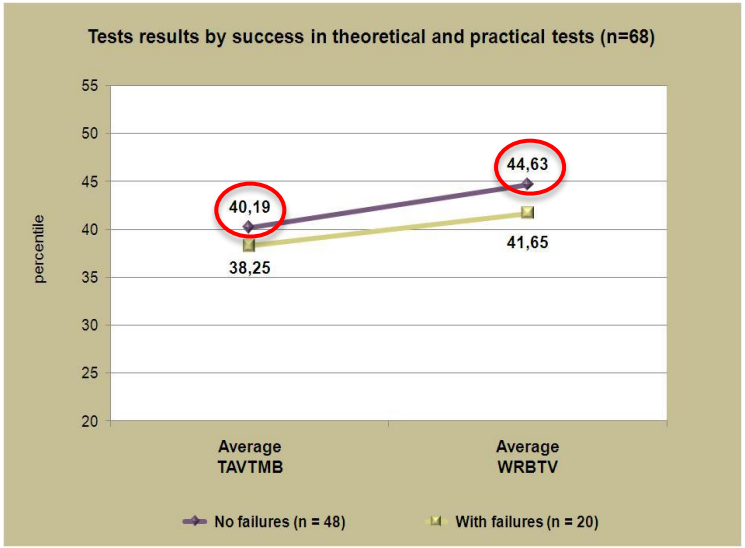


- ✓ Training tend to last longer for women than man
- ✓ It is not clear the relation between the duration of training and the tests results

Presentation of the main results and findings

Success in theoretical and practical tests



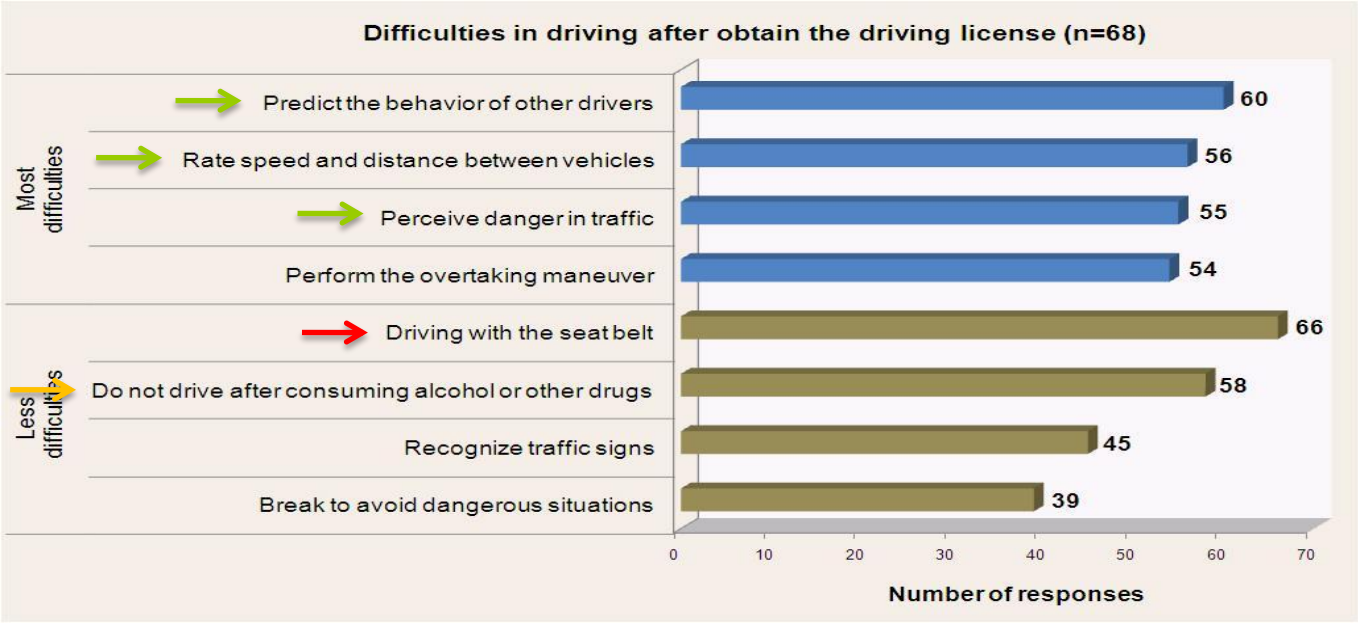


✓Men have higher % approval in both tests at first attempt

✓Participants who approve at first attempt (T+P tests) have better performance in TAVTMB and WRBTV

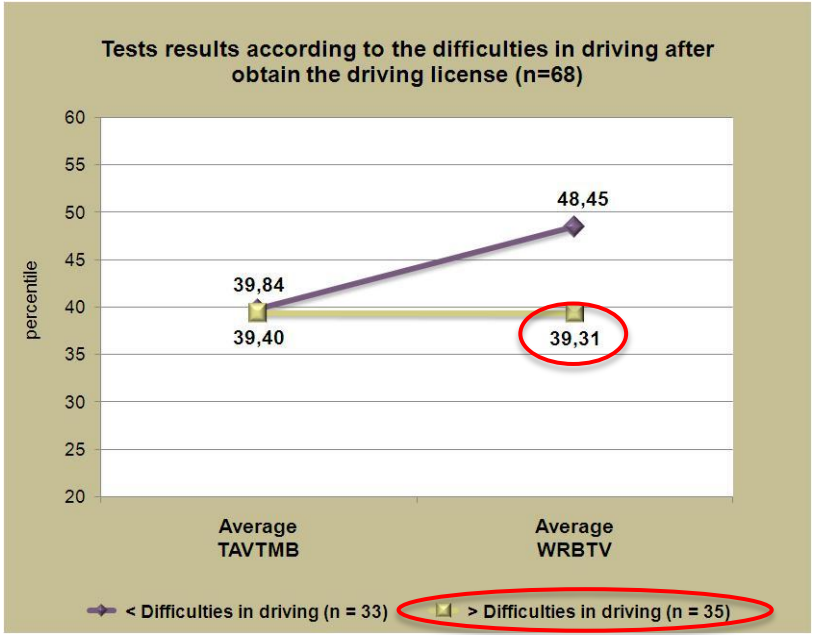
Specific difficulties after obtaining the driving license

✓ Most difficulties are related to risk perception



Specific difficulties after obtaining the driving license

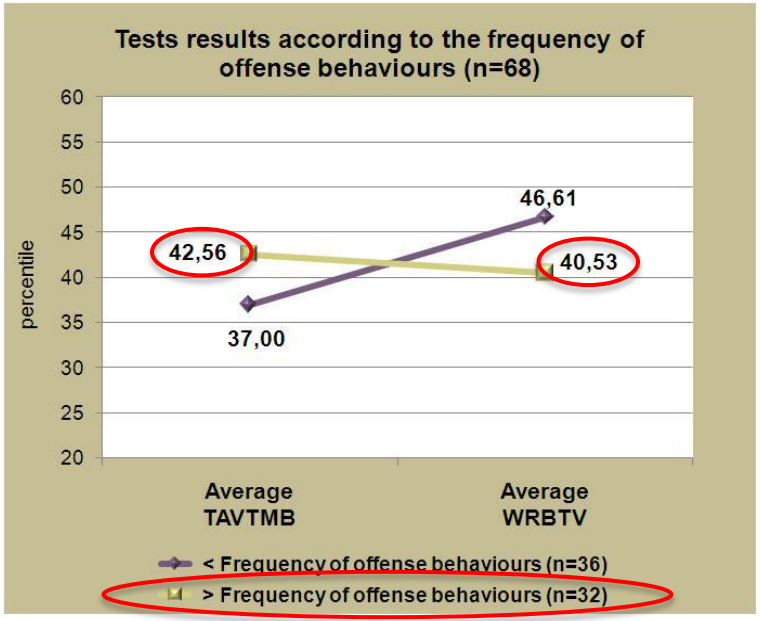
- ✓ Participants who report more difficulties in driving, have higher willingness to take risks (< WRBTV) and also report difficulties in skills related to vehicle control



Self-report behaviours of traffic offenses

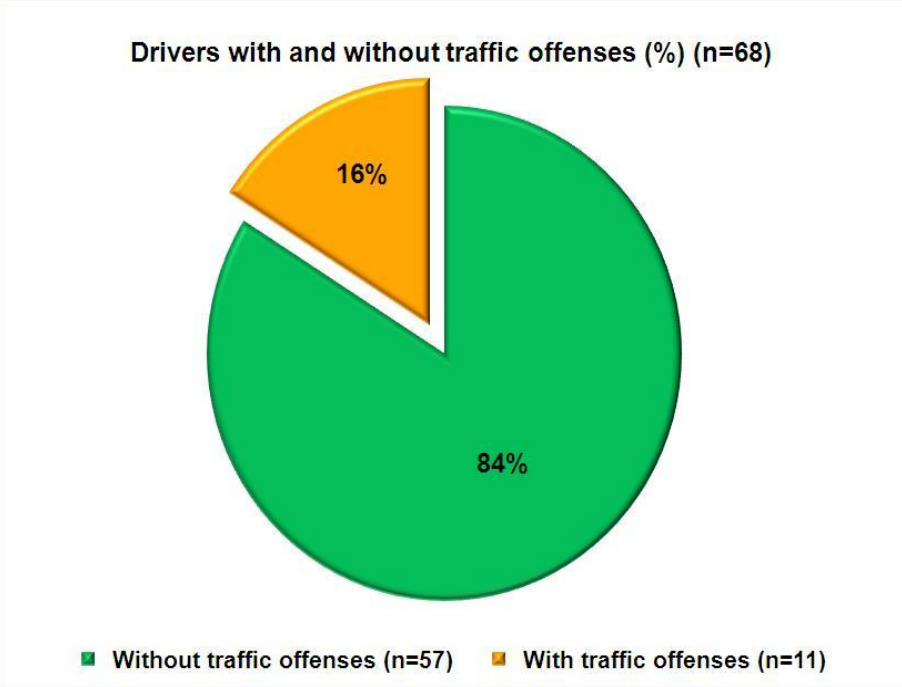
Self-report behaviours of traffic offenses

- ✓ Drivers that report more frequently offensive behaviours have higher ability to perceive traffic situations (> TAVTMB) and higher willingness to take risks (< WRBTV)



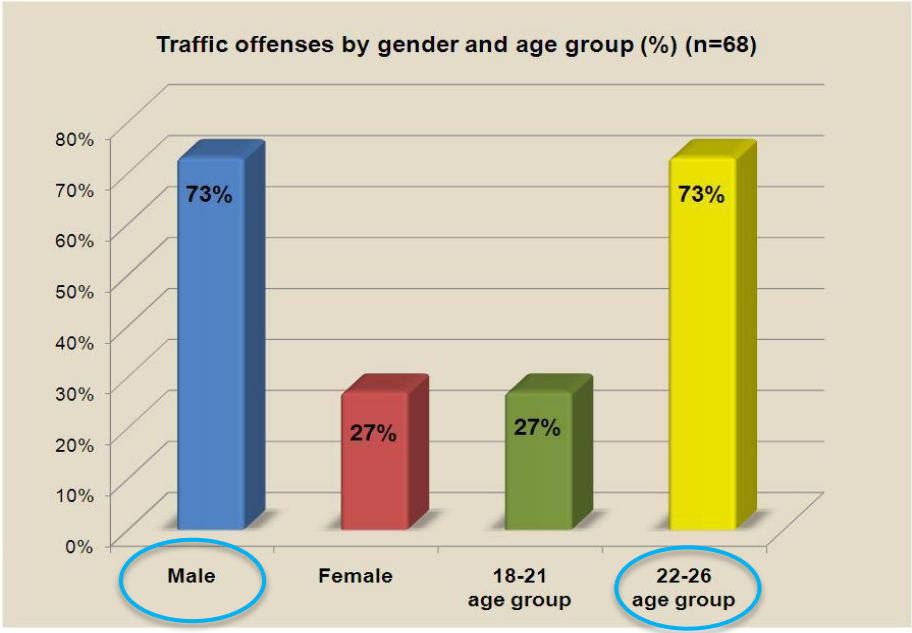
Register and report traffic offenses

- ✓ 16% (n=11) of the sample were involved in 23 traffic offenses (19 men; 4 women)



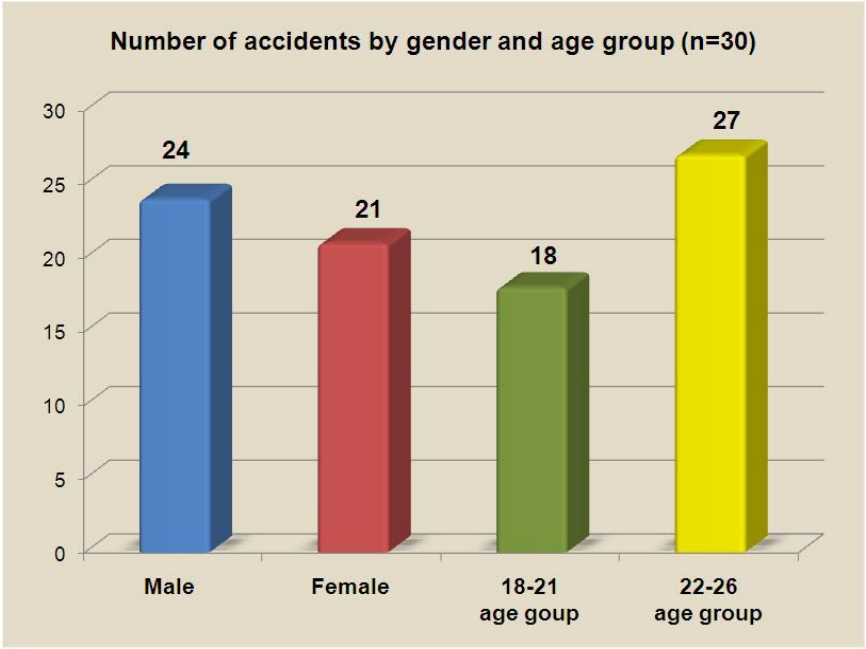
Register and report traffic offenses

✓ Traffic offenses are mainly committed by men and specially after the probationary period



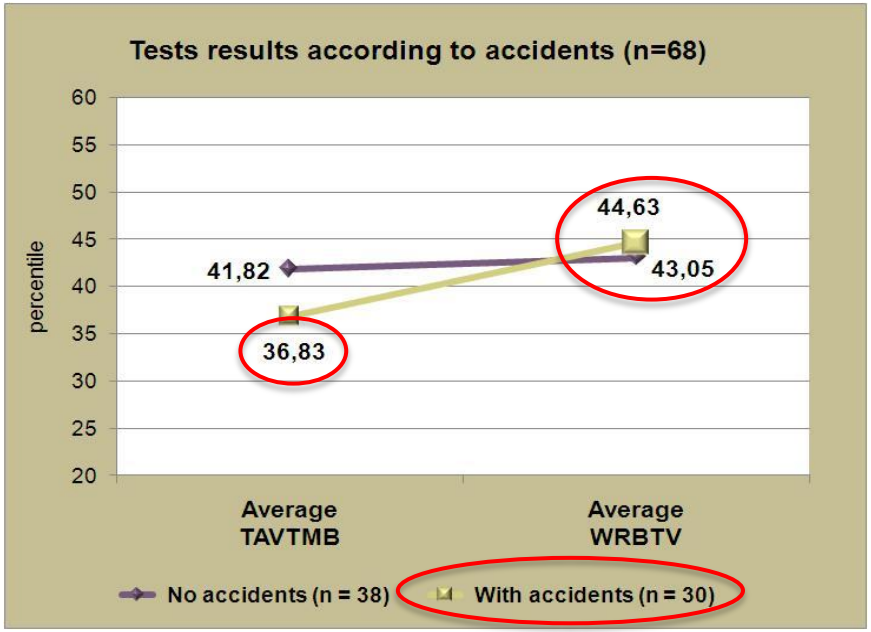
Involvement in self-reported road accidents

- ✓ Drivers with accidents (44%) are evenly distributed by gender and age groups and most accidents were due to collisions



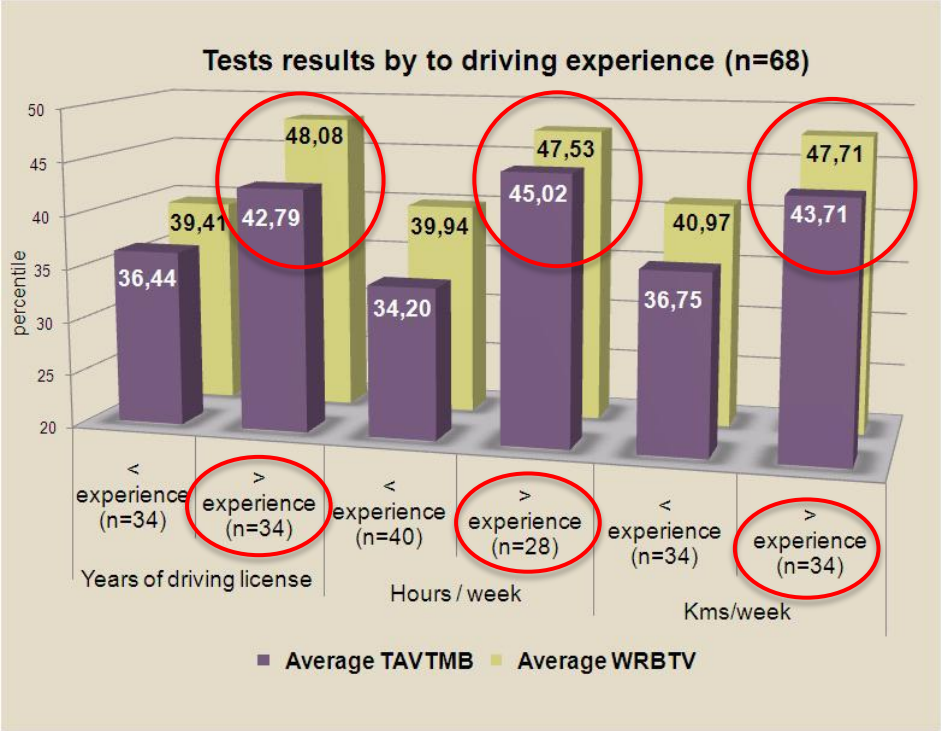
Involvement in self-reported road accidents

✓ Drivers with accidents have less accurate overview of traffic situations (< TAVTMB)



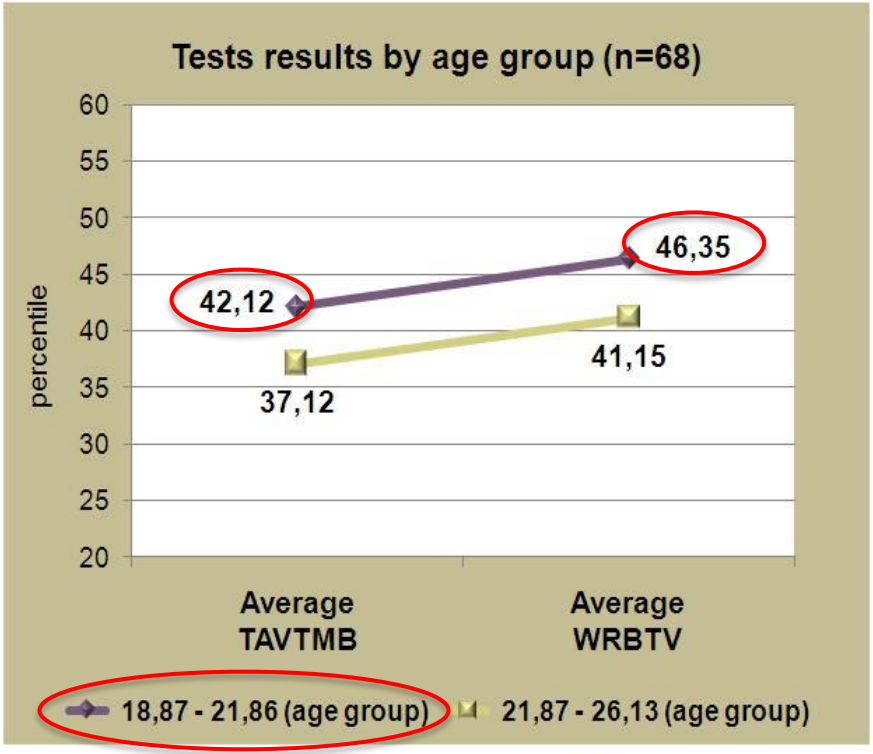
Driving experience

The higher the driving experience (measured in years of driving license, driving hours/week; km driving/week) the higher the performance in both tests (TAVTMB and WRBTV)



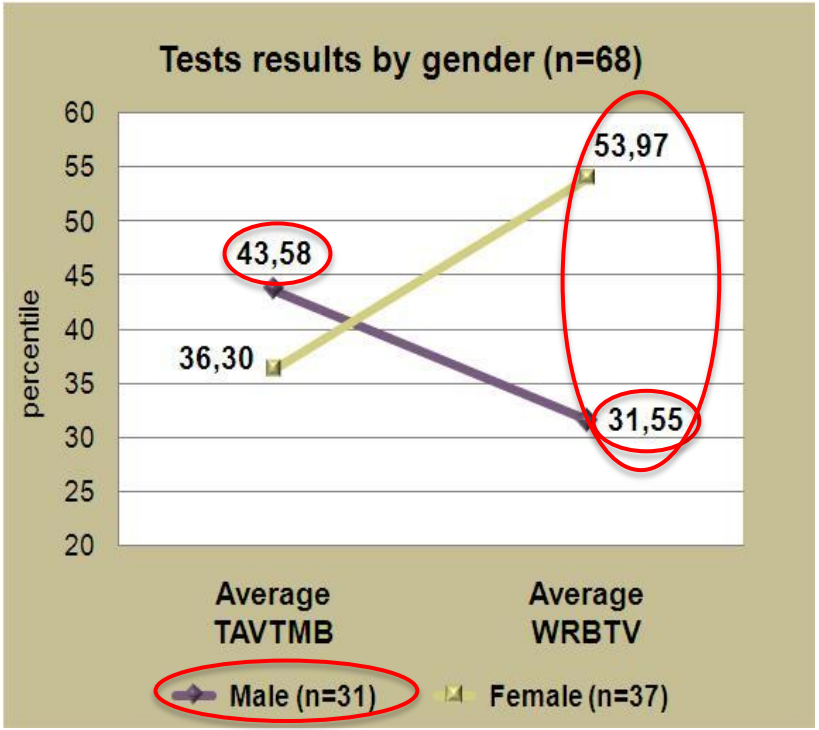
Age

- ✓ Drivers age range 18,87 to 21,86 years (n=34) shows higher performance in both tests (TAVTMB and WRVTB)
- ✓ Younger's have more accurate overview of traffic situations and less willingness to take risks, compared to the age group from 21,87 to 26,13 years



Gender

- ✓ Gender shows an ability to forecast Vienna risk-taking test traffic – WRBTV of 22,3% (Analysis of Categorical Regression – CATREG)
- ✓ The performance in WRBTV test was significantly lower in men than in women



Gender

- ✓ Men have higher willingness to take risks, while they have better performance in TAVTMB – more accurate overview of traffic situations

Preliminary conclusions and next steps

Results show that

- Participants have average levels in risk perception skills and, in general, feel that driving schools give importance to areas related to risk perception. However, after obtaining the license, most of them indicate difficulties in driving related to the acquisition and development of these higher skills
- The results do not permit to establish the influence of the training process on the acquisition and development of risk perception skills
- The results show that as the driving experience increases, the risk perception skills also increases, both in the ability to perceive a traffic situation accurately and quickly, or in the decrease of the accepted level of risk. The same is not true for the variable age

Preliminary conclusions and next steps

Results show that

- The results suggest that there is a bias in driving training, which benefits men, but does not seem to promote the acquisition and development of the higher skills of risk perception

- Male drivers, having more developed skills of visual perception and perceptive speed, may feel a sense of self control and self-confidence. This may explain a significant higher willingness to take risks in traffic situations, when compared to female drivers

Next steps

- Increase the sample to determine or confirm eventual correlations between independent variables and the psychological tests applied
- Study other populations and age groups
- Specific training and assessment of hazard perception in Portugal may be an asset

Acknowledgements

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Thank you for your attention

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