

Developing a research protocol to investigate stress, workload, and driving apprehension during driving lessons in young adults with an autism spectrum disorder: a feasibility study.

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Introduction

Driver's license → independence and autonomy

Controlling a vehicle → multi-task

Autism spectrum disorder (ASD) characteristics may interfere with (safe) driving

Potential problems when learning to drive (e.g., multitasking, need for repetition, increased workload and stress, Ross et al. -, 2015)

Elevated risk for anxiety

Driving apprehension (Ross et al., 2018)

Anxious arousal (e.g., Reimer et al. 2013)

Driver instructors → key players in development of (safe) driving skills

Development of educational modules for instructors

Lack of effect evaluations

Research protocols often too demanding

GOAL: Feasibility study with wearable technology & questionnaires to determine levels of stress, workload, & driving apprehension during driving lessons

→ Developed a research protocol & asked a pilot sample to evaluate the procedure

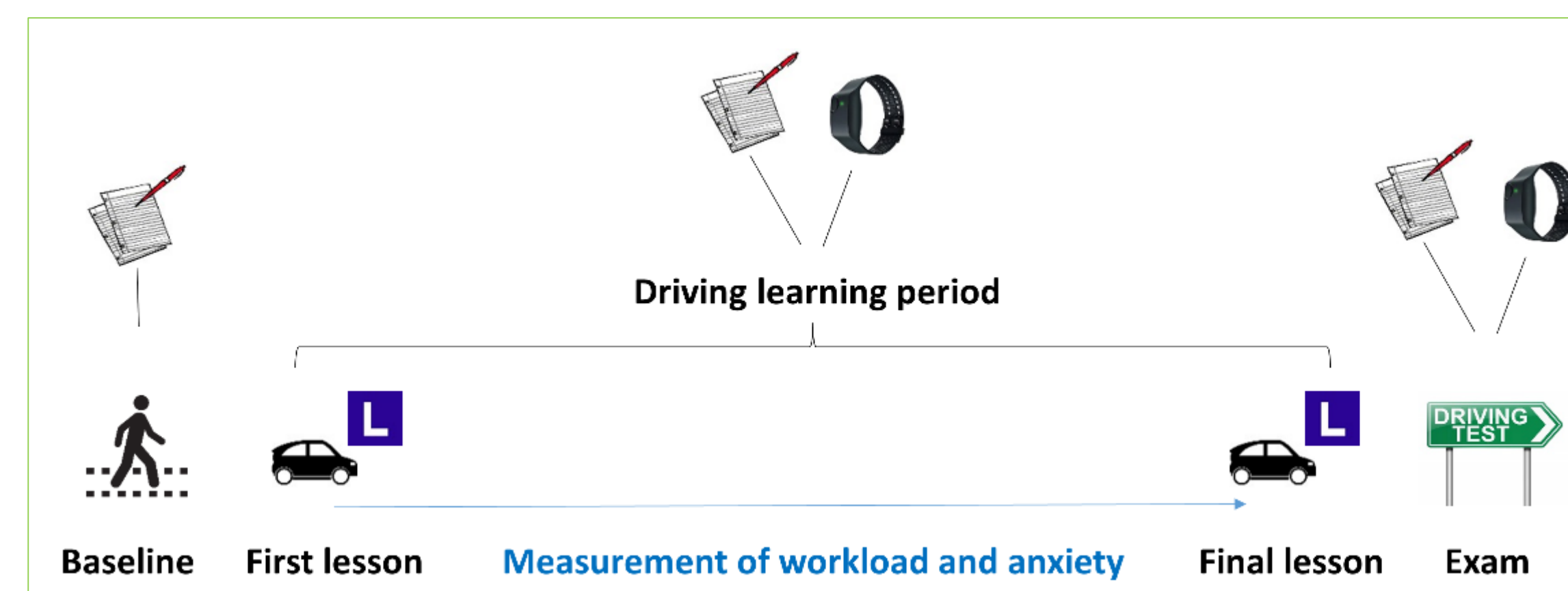
Methods

Q-sensor wristbands → levels of stress & workload via measurement of electrodermal activity

Rating Scale of Mental Effort (RSME)

Driving Attitude Scale Parent-Report (DAS-PR) & Self-Report (DAS-SR) → signs of apprehensive driving

Participants: 4 ASD diagnosed (1 male) & 2 control (1 male) learner drivers, age 18-25



Results

Procedures and measures were evaluated positively.

To avoid incomplete or unusable data, attention should go to clear enough instruction of the correct procedure

E.g., two wore sensors on the upper instead of the lower wrist, leading to unusable data.

Questionnaires not always consistently completed

Non-parametric group comparison tests were not significant, probably due to the limited sample size

Only one ASD learner driver completed the driving exam during the study (i.e., one academic year)

Conclusions

1. The developed protocol was evaluated positively

Can be used to investigate levels of stress, workload, & apprehension during driving lessons

2. Sufficient attention to the instructions is warranted (e.g., inclusion of practice sessions and reminders)

3. Sufficient time allocation to the study is required to include the driving exam

References

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