

Driving Scenarios and Factors affecting Safe Mobility for Older Drivers

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I. INTRODUCTION

With a growing population of older drivers questions regarding possible negative implications for road traffic safety are constantly raised. Even though chronological age as such may not be an indicator of safe driving, researching and understanding the factors influencing older drivers both from a safety as well as a mobility perspective are required to meet future demographic changes. Leaving pure medical states aside, when looking at the ever so healthy older population it is evident that with age both physiological as well as cognitive performance is changing. However, with age driver experience increases and attitudes and social attributes may play a different role in life as well as in driving. The objective of this study is to understand scenarios and factors influencing older drivers' safety and mobility that could have implications on Advanced Driver Assistance Systems (ADAS).

II. METHODS

The method comprised on-road driving, in-depth individual interviews and focus group discussions. In total 40 volunteers (19 women and 21 men) aged 72-94 drove a 45-minute predetermined route supervised by a driver instructor and monitored by an occupational therapist. Preceding the on-road driving, the volunteers were exposed to a number of tests regarding their visual and cognitive ability. Scenarios and factors influencing older drivers' safe mobility were revealed through the on-road driving assessment in combination with semi-structured in-depth interviews. Based on these results, different driver categories were identified. In addition, focus groups were used to further understand both factors influencing safe mobility and the needs of older drivers.

III. INITIAL FINDINGS

General findings for the group of drivers in the study include difficulties in seeking attention to other road users in intersection and roundabout situations as well as adapting speed, driving too fast especially on straight roads. In the study 90%, of the drivers drove too fast for the situation at one or more times. The results also show a difference in how drivers rate themselves in relation to their actual driving performance. Some drivers have a mismatch being either over or under confident as to their driving skill. This aspect may need consideration in the design of in-vehicle technology and the infrastructure as well as driver training.

IV. DISCUSSION

Understanding older drivers' safety and mobility is essential when designing future vehicle technology for driver assistance, e.g. ADAS. In this ongoing research project some road scenarios and factors influencing older drivers are found. The driver assistance considerations are based on road traffic scenarios which older drivers in this study found difficult as well as the fact that attitudes and general behavior may play an important role. Further to this, self-awareness of performance may be an issue that is of concern for different categories of drivers and this is also essential to take into account.

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