

THE IMPACT OF VISUAL AND COGNITIVE DISTRACTION ON OLDER DRIVERS' PERFORMANCE IN SIMULATED HIGHWAY DRIVING

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This paper presents the findings of a simulator study that explain potential risks induced by visual and auditory interaction while driving. The risk of inattentive driving is known vary with age. Normally, older drivers can drive safely with their own rules learned from experiences, but in situations producing very high momentary workload, they sometimes fail with severe consequences.

In this study, differences in subjective distraction and driving performance of younger and older drivers were compared while interacting with two different types of surrogate secondary tasks in a driving simulator. To assess the differences, 30 drivers, divided into younger (25–35) and older (60–69) age groups, drove through 37km of straight highway twice, one for visually distracted driving and the other for cognitive. Participants perform a secondary task, i.e. n-back task or arrow task while driving. The order in which secondary tasks were presented was counter-balanced.

Comparisons of younger and older drivers' subjective ratings, including secondary task difficulty and effect, and driving performance, including forward and lateral controllability measure, were conducted. As a result, it was found that the effect of interaction types, i.e. visual and auditory, on younger and older drivers' performance was significantly different.