

Macrocategoria: Geometria e Sicurezza

Titolo articolo: Older Drivers' Performance at Intersections: An Experimental Study in Italy

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Abstract: Longer life expectancy is leading to an increase in the average age of the European population. In 2018, 20% of the population was over 65 years old. In 2070, 30.3% of the population will be over 65. Older people prefer to walk in their neighborhoods but they rely on cars as their primary mode of transportation, which allows them to maintain their autonomy over long distances. However, age-related physical impairments can have a significant impact on driving skills, including the ability to properly visualize driving scenarios. Numerous studies have shown that older drivers have significant safety problems at standard intersections rather than roundabouts (40% of fatal crashes occur at standard intersections among drivers 70 years and older). In this work, it was decided to study a specific parameter representative of the behavior of all road users when preparing for the typical maneuvers at stop-controlled intersections (crossing, right-turn and left-turn). This parameter is the gap accepted by elderly road users at different stop-controlled intersections and under homogeneous traffic conditions. For this purpose, a research campaign was organized with 37 elderly drivers performing all possible maneuvers at 9 intersections in Italy (Eastern Sicily). The experimentally determined values of the critical gap for left-turn and crossing maneuvers were found to be compatible with those of the main internationally used reference manuals for road design. The value of the critical 50th percentile gap (G50) for the right-turn maneuver was similar to that for the left-turn maneuver. This is an indication of a very similar level of difficulty for older drivers in performing both turning maneuvers. The results of this study have highlighted the need to take into account the different operational difficulties associated with the possible maneuvers at intersections. The theoretical approaches of the Italian legislation are carried out, based on a criterion that does not distinguish according to the way in which the three maneuvers, which proves to be totally inadequate. This suggests a complete revision of the criteria for checking sight distances at stop-controlled intersections.

Keywords: Older Drivers, Road Safety, Stop-controlled Intersections, Logistic Regression, Critical Gap, HCM, Green Book

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