Effects of roadside distractors on performance of drivers with and without attention deficit tendencies

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Abstract

As roadway systems become more complex, with increased visual clutter, new automation technologies, and mixed modes of transportation, it is increasingly important to understand the effects of roadside distractors on driver performance. While driver distraction negatively impacts driver performance and crash rates for all drivers, it is especially important for vulnerable road users who may have an increased risk of distraction. This research was aimed at identifying the influence of roadside distractors on the performance of drivers with and without attention deficit tendencies, and it used a driving simulator to obtain performance metrics in the vicinity of distractors. Overall, the study found that roadside events have statistically significant effects on variability of lane position and speed, and drivers with attention deficit tendencies displayed more lane position variability than control group drivers for all roadway segments examined. Of the distractors tested, billboards and work zones were shown to have the most significant impacts on driver inattention, as evidenced by decreased detection time margins and error rates, respectively. This study is one of the first to examine the effects of roadside distractors on drivers with and without attention deficit disorders, and the results lend insight to the effects that external distractions can have on driver performance.