

The ROADS Project: Road Observational Assessment of Driving distractions

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Purpose: Motor vehicle collisions cause more than 78 million injuries every year, and a large percentage of them are due to distracted driving. As the vast majority of these injuries affect the musculoskeletal system, understanding and minimizing distracted driving is the first step toward reducing the trauma burden resulting from this pervasive behavior. The purpose of the ROADS project was to discretely determine the proportion of distracted drivers in live traffic using covert methods.

Methods: We covertly observed drivers on the highways and urban streets between Hamilton and Toronto, Ontario, Canada. The research team drove in traffic while observing drivers of moving vehicles and collecting data. Observational variables included demographics (estimated age, sex), safety practices (seat-belt usage, 2-handed driving), driving distractions (in-vehicle, outer-vehicle, mobile phones), and driving errors (lane drift, evasive maneuvers, near-crash/crash). We analyzed associations between demographic and situational variables (weekday/weekend, urban/highway, presence/absence of passenger) and distracted driving, as well as association between driving errors and distracted driving.

Results: We observed 1105 drivers, with 609 (55.1%) of them being distracted. Average observation time was 21.2 seconds (standard deviation [SD] 11.1, range 6-97). In-vehicle distractions (521/1105, 47.1%) were the most common, with talking with a passenger (225/1105, 20.4%) being the most prevalent specific distraction. There were 151 drivers (13.7%) using mobile phones, of whom 92 (8.3%) used a hands-free device, and 63 drivers (5.7%) used a handheld device (visibly manipulating [38/1105, 3.4%], actively talking [25/1105, 2.3%]). Of the 24 drivers (2.2%) who exhibited driving errors, 23 (95.8%) were distracted. Younger estimated age (under 30 years old: odds ratio [OR] 2.0, confidence interval [CI] 1.320-3.105; 30-50 years old: OR 1.5, CI 1.090-1.925) and driver errors were significantly associated with distracted driving ($P < 0.005$).

Conclusion: Distracted driving is exceedingly prevalent, as more than half of drivers in live traffic were distracted. It is even more concerning considering that 1 in 17 drivers were using handheld phones despite being illegal, and almost all drivers who exhibited unsafe driving errors were distracted. Behavioral modification and likely passive restraints are needed to reduce distracted driving, as the current counter measures are not working. These data can be used for driver education programs and developing action plans and policies toward injury prevention due to distracted driving.