

## Literature review on observational studies on cell phone use while driving

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Increased phone use while driving seems to cause an increase in distraction related accidents. In order to examine demographic and situational influences on phone use while driving, a literature review was conducted searching for observational studies concerned with driver secondary tasks. Forty-five publications were found containing 117 observation studies. One study used digital photographs for documentation of secondary tasks. All other relied on human observers.

In the US as well as in the United Kingdom yearly observations were made for a while. For the US, a steady increase in handheld phone use and in texting / manipulating devices while driving was found even though more and more states banned these activities in those years. Effects of gender were examined in twenty-seven studies. In Australia, New Zealand and in Europe mostly no gender differences were found. In the US, nine studies reported higher phone use for female drivers. Age effects on secondary task activities while driving were reported more often and were more consistently. The most common effect was that younger drivers used their phone more often than the other age groups. The presence of passengers decreases the frequency of secondary task activity. With regard to situational aspects, driver secondary task activity varied between weekdays and weekends, but the pattern was not consistent. Effects of the time of day were also frequently reported. However, again there was no consistent pattern. Only in two studies effects of weather were reported, indicating less phone use in non-clear weather. Street type and the area of observation were reported to have an influence on secondary task activity as well vehicle type. The movement status of the car (moving vs. stationary) was tested in one study, finding drivers to do more secondary tasks when standing except phoning, which was found to be more often while the vehicle was moving. Over all studies, about 2% of the drivers use a handheld phone. The percentage of hands-free phoning is somewhat smaller and lies below 2%. Texting on the smartphone lies at around 1%. The percentages for eating and drinking vary a lot with a median of about 2%.

Overall, the results from these observational studies show that this is a quite effective method to gather a large number of observations and to estimate the frequency of different, observable distractions. Moreover, quite a large number of possible influences regarding the drivers and the circumstances of the trip can be easily examined in order to better understand which drivers engage in secondary tasks under which circumstances. The large differences between different regions and studies show that it is necessary to obtain the information in the regions of interest, for example, for safety-related countermeasures.

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