

Driver mobile phone use: Results from an observational survey

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Abstract

Research indicates that mobile phone use while driving can impair a number of safety critical factors including reaction time, hazard perception, gaze shifting and vehicle control and is also associated with an increase in crash risk of up to four times. Given the serious implications for road safety and the rate of increase in mobile phone technology, it is important to conduct regular surveys of mobile phone use among drivers on our roads. An on-road observational survey of hand-held mobile phone use was undertaken in 2009 as part of a larger restraint use survey. The survey was conducted at 61 sites in metropolitan Adelaide and five rural regions. Results indicated that 0.56% of drivers observed during the survey were using hand-held phones. Hand-held phone usage rates ranged from 0.75% in metropolitan Adelaide to 0.34% in the Riverland. The rate for metropolitan Adelaide was slightly lower than a comparable mobile phone observational survey conducted in Melbourne during 2009. Of all the characteristics examined, the only statistically significant difference in hand-held phone usage was for the number of vehicle occupants. The odds of drivers using a hand-held phone while travelling alone were over four times higher than for drivers travelling with passengers. It is recommended that similar surveys should be undertaken regularly in South Australia to monitor trends in mobile phone usage over time.

Introduction

The negative impact of mobile phone use on driving performance is well documented in the literature. Experimental and real driving performance studies indicate that mobile phone use while driving results in impairment to many skills necessary for safe driving including reaction time, gaze and eye movements, visual perception and discrimination and vehicle control (e.g. Caird, Willness, Steel, & Scialfa, 2008; Charlton, 2009; Collet, Guillot, & Petit, 2010; Horrey & Wickens, 2006; Ishigami & Klein, 2009; McCartt, Hellinga, & Braitman, 2006). Such decrements in driving performance have been observed for both hand-held and hands-free phone use. In addition, drivers using phones have been associated with an increase in crash risk of two to four times, irrespective of the type of phone use (Backer-Grondahl & Sagberg, 2011; Klauer, Dingus, Neale, Sudweeks, & Ramsey, 2006; McEvoy et al., 2005).

In South Australia it is illegal for all drivers to use a hand-held mobile phone while driving. A number of observational surveys undertaken in jurisdictions where hand-held phone bans are in place have found varying rates of phone use for drivers. Hand-held phone usage rates based on observational surveys in Australia have ranged from 1.5% in Perth (Horberry, Bubnich, Hartley, & Lamble, 2001) to 3.4% in Melbourne (Young, Rudin-Brown, & Lenne, 2010). In jurisdictions outside of Australia observed levels of mobile phone use while driving have ranged from 0.94% in British Columbia, Canada (Nasvadi, 2010) to 4.2% in the District of Columbia, United States (McCartt, Hellinga, Strouse, & Farmer, 2010).

Given the serious consequences for road safety and the rapid increase in mobile phone technology, it is important to conduct roadside observational surveys of mobile phone use amongst drivers. The current study is the first comprehensive observational survey of hand-held mobile phone use while driving in South Australia, including a large number of sites in both metropolitan Adelaide and rural regions. This study provides an indication of the current levels of hand-held phone use and also

provides information on the characteristics of users to assist in developing and monitoring the effectiveness of mobile phone public education campaigns and police enforcement.

Method

The observational survey described in this paper was originally designed to record restraint usage as part of an on-going series of observational restraint use surveys in South Australia. Researchers used the opportunity to also observe hand-held mobile phone use by drivers. This included visibly holding a phone held to the ear or talking into a phone held in the hand, behaviours that are banned under mobile phone legislation in South Australia. Hands-free mobile phone use and texting were not recorded in the present study due to the more inconspicuous nature of these phone activities, the difficulty in making such observations given the short time frame to look into each vehicle and the priority of observing restraint use.

The observational survey was undertaken by the Centre for Automotive Safety Research (CASR) over a three-week period during March 2009 on weekdays and on a weekend. The survey was conducted at 61 sites in metropolitan Adelaide and five regional areas: Mount Gambier, the Riverland (Berri, Loxton, Renmark), Whyalla, Murray Bridge, and Clare. In order to observe stationary or slowed traffic, only sites at intersections controlled by traffic lights, stop signs, give way signs and large roundabouts were selected. Two observers spent approximately one hour at each site. For further details concerning the methodology, see Wundersitz and Anderson (2009).

The observations were conducted at times when traffic volumes were highest: weekdays 7.00am - 10.00am and 3.00pm - 6.00pm, and on weekends 10:00am - 2:00pm. The survey was restricted to cars and car derivatives including any car, station wagon, four-wheel-drive, van, utility, or taxi used for private or commercial purposes.

Results

A total of 64 (0.56%) of the 11,524 drivers observed during the survey were using hand-held mobile phones. Hand-held phone usage rates ranged from 0.75% in metropolitan Adelaide to 0.34% in the rural region of the Riverland. The proportion of phone users is lower than in comparable jurisdictions with similar phone laws both within and outside of Australia. While the prevalence of mobile phone use in South Australia may actually be lower than in other jurisdictions, it is possible that the variation in levels of use may be attributable to differences in the level of enforcement of phone laws between jurisdictions.

Of all the driver, site and vehicle characteristics examined, the only statistically significant difference in hand-held phone usage was for the number of vehicle occupants. The odds of drivers using a hand-held phone while travelling alone were over four times higher than for drivers travelling with passengers (OR = 4.1; 95% CI = 1.9 - 9.1, $p < .01$).

There were no other statistically significant differences for hand-held phone use but there were some noteworthy trends. Hand-held phone usage while driving was higher in metropolitan Adelaide (0.75%) than in rural regions (0.50%), male drivers (0.64%) were more likely than female drivers (0.45%) to use hand-held phones and drivers not wearing seatbelts (0.91%) had higher phone usage rates than drivers wearing seat belts (0.54%).

Conclusions

The present survey has provided an indication of the general level of compliance with mobile phone use laws when driving in South Australia. The data is useful for monitoring, targeting and evaluating mobile phone countermeasures and publicity campaigns. To obtain a better indication of

the trends in mobile phone usage rates over time, it is recommended that similar surveys be undertaken regularly in South Australia (e.g. every three years). These surveys could be combined with restraint use surveys in the future.

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