Car crashes rank among the leading causes of death in the United States.

Cell Phones and Driving: Research Update

December, 2008

AAA Foundation for Traffic Safety

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Overview

A growing body of research suggests that using a mobile telephone while driving increases a driver's risk of being involved in a crash. Studies that have analyzed the cell phone records of crash-involved drivers have reported that using a cell phone while driving is associated with roughly a quadrupling of crash risk. Studies using driving simulators have also found that cell phone use significantly impairs several aspects of driving performance, principally reaction time. Studies comparing the risks associated with using hand-held and hands-free cell phones while driving have found them indistinguishable—both increase risk. Meanwhile, available data shows that the number of cell phone subscribers, and the proportion of drivers using cell phones, is increasing.

This research update presents new data from the AAA Foundation's Traffic Safety Culture Index, a nationally-representative telephone survey of the American public, on drivers' cell phone use and their attitudes toward distracted driving, as well as data on driver cell phone use from a recent omnibus survey conducted for the AAA Foundation.

Results show that over half of U.S. drivers report having used a cell phone while driving in the past 30 days, and one in seven even admits to text messaging while driving. Young drivers were found to be overwhelmingly more likely than older drivers to text message, and somewhat more likely to talk on cell phones while driving; however, the proportion of drivers aged 35 to 44 who report talking on cell phones while driving is not significantly lower than the proportion of drivers aged 18 to 24 who report doing so. Higher levels of education were also found to be associated with higher levels of cell phone use and text messaging while driving.

A substantial proportion of the American public believes that drivers using cell phones are a serious traffic safety problem and that it is unacceptable to use a cell phone while driving. Respondents who express negative attitudes toward cell phone use while driving were found to be somewhat less likely to use cell phones while driving; however, a substantial proportion of respondents who express negative attitudes toward using a cell phone while driving still admit doing so at least occasionally. About two-thirds of drivers who use cell phones while driving believe that it is safer to talk on a hands-free cell phone than on a hand-held cell phone; however, the overwhelming majority of available evidence suggests that it is not.

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Background

Research has demonstrated that drivers are susceptible to virtually innumerable distractions that can contribute to the occurrence of a crash. For example, a study conducted in 2001 for the AAA Foundation for Traffic Safety analyzed a nationally-representative sample of crashes that occurred between 1995 and 1999 and resulted in one or more passenger vehicles having to be towed due to damage, and found that 8.3% of drivers in these crashes were reported to have been distracted (Stutts, Reinfurt, Staplin, & Rodgman, 2001). The most common sources of distraction cited in these crashes were an outside person, object, or event (29.4% of crash-involved drivers); adjusting the radio, cassette, or CD (11.4%), passengers (10.9%). Distraction related to the use of a cell phone was cited in 1.5% of crashes.

In a naturalistic study conducted in 2001 for the AAA Foundation, the driving of 70 volunteers was recorded using in-vehicle cameras to identify potential sources of distraction (Stutts, Feaganes, Rodgman, et al., 2003). The researchers reviewed 3 hours of data per subject and found that the potential distractions in which the greatest proportion of drivers engaged were manipulating the vehicle controls (100% of drivers), conversing with passengers (77% of drivers), eating or drinking (71% of drivers), and grooming (46% of drivers). Thirty-four percent of drivers used cell phones during the video samples that were reviewed, and did so for 3.8% of their total observed driving time.

In a more recent naturalistic driving study, 109 volunteers drove their own vehicle or a leased vehicle, with in-vehicle cameras and other sophisticated data collection equipment, for a period of 12 to 13 months. Researchers analyzed crashes (defined by the researchers as any contact between the vehicle and another vehicle or object; the great majority of crashes in this study were very minor and not police-reported) and near-crashes (events in which a rapid evasive maneuver was required to avoid crashing) in relation to drivers' behaviors and the traffic environment. In analysis focused specifically on driver inattention (Klauer, Dingus, Neale, Sudweeks, & Ramsey, 2006), the researchers reported that driver involvement in secondary tasks contributed to 22% of all crashes and near-crashes in the study. Comparing the frequency of specific secondary tasks at the time of crashes and near-crashes to their frequency during a random sample of periods of normal driving during which no crashes or near-crashes occurred, the researchers found that the secondary task that resulted in the greatest increase in the risk of being involved in a crash or near-crash was reaching for a moving object. Reading and applying makeup while driving were both associated with more than tripling of the odds of being involved in a crash or near-crash. Eating was associated with a 57% increase in the odds of being involved in a crash or near-crash. Dialing a hand-held device was associated with nearly triple the odds of being involved in a crash or near-crash, and talking or listening to a hand-held device was associated with about a 30% increase in the odds of being involved in a crash or near-crash. Dialing hand-held devices was found to have been a contributing factor in 3.58% of crashes and near-crashes, and talking/listening on hand-held devices was a contributing factor in 3.56% of crashes and near-crashes. Both dialing and talking/listening on handheld devices contributed to significantly greater percentages of crashes and near-crashes than did any of the other secondary tasks that were studied—even though some of the other secondary tasks were

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associated with higher risk—because drivers dialed and talked on cell phones much more frequently than they engaged in most other secondary tasks.

Driver cell phone use has become emblematic of driver distraction—or arguably even of traffic safety—in the eyes of the public. For example, in the AAA Foundation's Traffic Safety Culture Index (2008), a nationally-representative telephone survey of the American public, respondents were asked an open-ended question regarding what they believed was "the single most effective thing that could be done to prevent serious motor vehicle accidents." Over one out of every six responses included an explicit reference to cell phones. When asked to rate "how serious of a problem" drivers using cell phones are, 83% of respondents indicated said that they were a serious or extremely serious problem, and when asked whether or not it was acceptable to talk on a cell phone while driving, half said that it was never acceptable.

Driver cell phone use has become a major research area as well. For example, a bibliography of research reports and scientific articles published between the mid-1990's and 2005 addressing driver distraction associated with the use of cell phones contained over 150 references (Goodman, Barker, & Monk, 2005).

CTIA–The Wireless Association (CTIA) reports that as of December 2007 there were over 255 million wireless telephone subscribers in the United States, comprising 84% of the population, and they spent 2.1 trillion minutes talking on cell phones and transmitted 363 billion SMS messages over the course of the year (CTIA, 2008). These statistics represented a 23% increase in subscribers, a 40% increase in annual minutes of use, and a 348% increase in annual SMS messages ("text messages"), relative to statistics from December 2005, and a 133% increase in subscribers and nearly a 300% increase in annual minutes of use relative to statistics from December 2000, suggesting the possibility of increased cell phone use while driving since the dates of the studies cited previously.

The National Highway Traffic Safety Administration (NHTSA) estimated that 6% of drivers nationwide were holding a cell phone to their ear, 0.7% of drivers were talking on visible headsets, and 0.6% of drivers were manipulating visible hand-held devices at any given daylight moment in 2007 (NHTSA, 2008). These estimates are based on NHTSA's National Occupant Protection Use Survey (NOPUS), in which data collectors standing on the side of the road at a statistical sample of roadway locations observe driver seatbelt use, cell phone use, and several factors related to driver demographics and vehicle occupancy. Thus, estimates of electronic device use include only cases in which the data collectors are able to see drivers holding a cell phone, speaking into a visible headset, or manipulating a hand-held device. Many hands-free devices, such as speaker-phones and Bluetooth devices built into the vehicle, cannot be seen by external observers, thus these estimates based on visible hand-held device use and headset use are believed to underestimate overall levels of driver cell-phone use. NHTSA (2008) estimates based on telephone surveys that 45% of drivers who use cell phones while driving use hands-free devices, thus implying that if 6% of drivers were observed using hand-held cell phones while driving, an estimated additional 5% were likely using hands-free devices, implying that roughly 11% of

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drivers may have been using hand-held or hands-free phones while driving at any given daylight moment in 2007.

Two studies using epidemiological methods have reported that cell phone use while driving is associated with approximately a quadrupling of crash risk. In one study, Redelmeier & Tibshirani (1997) obtained cellular billing records for a sample of drivers in Toronto who had been involved in crashes that resulted in property damage but no injury, compared their cell phone use during a ten-minute window prior to the time of the crash and during a control period at the same time on the previous day, and estimated that cell phone use while driving was associated with slightly more than a fourfold increase in the risk of being involved in a crash (relative risk 4.3). In a similar study, McEvoy *et al*. (2005) analyzed the cell phone records of a sample of crash-involved drivers in Western Australia who were seen in the hospital emergency department due to injuries sustained in a crash, compared their cell phone use during a ten-minute window prior to the time of the crash and during up to three control periods (24 hours, 72 hours, and 7 days prior to the crash), and found similarly that cell phone use while driving was associated with slightly more than a fourfold increase in crash risk (odds ratio 4.1). The former study found slightly higher risk associated with using a hands-free phone than with using a hand-held phone, and the latter found the reverse; however, the difference in risk between phone types was not statistically significant in either case.

Several studies using driving simulators have also reported that cell phone use impairs various aspects of simulated driving performance. A systematic review of 84 studies of the impact of cell phone use on driving performance concluded that cell phone use has some small or moderate impact on driving performance measures such as driving speed, lane position, and various other measures of vehicle control; however, the performance measure most impacted by cell phone use was the speed of reaction to critical events (Caird, Scialfa, Ho, & Smiley, 2005). The researchers estimated, based on data from 18 studies that reported relevant data, that cell phone use increases the time required to react to critical events approximately 0.23 seconds. They also note that the best estimates of the reaction time decrements associated with hand-held phones and hands-free phones are virtually identical.

In one simulator-based study, researchers used a driving simulator to compare the driving performance of drivers using hands-free and hand-held cell phones to drivers not using cell phones who were given alcoholic beverages until their blood alcohol concentration (BAC) reached 0.08 g/dL, the threshold for a driving while intoxicated arrest in all U.S. states (Strayer, Drews, and Crouch, 2003). The study found that the reaction times of drivers using cell phones were slowed by 8.4% relative to drivers who neither had consumed alcohol nor were using phones, and that drivers using cell phones were actually more likely to have a rear-end crash than were drivers who had consumed alcohol after controlling for the difficulty and duration of the simulated driving task. The impact of using a hands-free phone on driving performance was not found to differ from the impact of using a hand-held phone, which the researchers suggest is due to, “withdrawal of attention from the processing of information in the driving environment” while engaging in cell phone conversation.

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The impact of cell phone conversation on reaction time is often explained with reference to a phenomenon referred to commonly as “inattentional blindness” or “perceptual blindness,” well-documented in the psychological literature, wherein a person who is focusing his or her attention on one particular task will fail to notice an unexpected stimulus (even if he or she looks at it). Simons & Chabris (1999), for example, provide a review of experiments in which research subjects focusing on visual tasks fail to notice unexpected visual stimuli, and present their own seminal demonstration of the phenomenon. Pizzighello and Bressan (2008) conducted an experiment involving both visual and auditory tasks, and found that research subjects who were listening to verbal information were as likely as were subjects engaged in a visual task to miss an unexpected visual object. Strayer, Drews, & Johnston (2003) found that drivers conversing on hands-free phones were more likely than drivers not using phones to fail to notice traffic signals, slower to respond to the brake light of the vehicle in front of them, more likely to cause rear-end crashes, and less likely to be able to recall detailed information about specific visual stimuli—even those on which they fixated their vision—suggesting that cell phone conversation can induce inattentional blindness in the context of driving.

As of the date of this publication, the states of California, Connecticut, New Jersey, New York, and Washington, plus the District of Columbia, have laws that prohibit the use of hand-held phones while driving. Alaska, Louisiana, Minnesota, New Jersey, Washington, and the District of Columbia have laws that prohibit all drivers from text messaging while driving. Seventeen states also have laws that prohibit young drivers—drivers under the age of 18 in some cases, drivers with learner’s permits or provisional licenses in other cases—from using any cell phone while driving, including a hands-free cell phone or device. Several states also have laws prohibiting drivers of school buses or transit buses from using cell phones or text messaging while driving (Insurance Institute for Highway Safety, 2008).

Although there are no published evaluations of most states’ driving laws related to cell phone use, the few that have been published have had mixed results that collectively suggest that the passage of legislation is not sufficient by itself to have a significant impact on drivers’ cell phone use. McCartt & Geary (2004) found that driver hand-held cell phone use decreased in four upstate New York communities immediately after the state’s hand-held cell phone ban became effective, but had returned to the levels prior to implementation of the law when assessed again one year later (McCartt & Geary, 2004). McCartt, Hellinga, and Geary (2006) reported that hand-held cell phone use by drivers decreased by 44% in the District of Columbia approximately four-months after the District’s law prohibiting drivers from using hand-held cell phones became effective; however, the authors note that sustained media coverage and enforcement may be necessary to sustain its effects, citing the absence of sustained effects despite initial short term effects in New York. Foss, Goodwin, McCartt, and Hellinga (2008) evaluated the immediate effects of a law prohibiting cell phone use by drivers younger than 18 in North Carolina, the proportion of teens using cell phones while driving did not change, and in surveys, only 22% of teens said that they thought the law was being enforced “fairly often” or “a lot.”

In summary, it is clear that driver distraction is a serious traffic safety problem, and that driver cell phone use represents a particularly salient form of distraction. A large body of research has demonstrated that cell phone use causes measurable decrements in driving performance as measured in

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laboratory settings and is associated with approximately a fourfold increase in crash involvement on the road. The best available evidence suggests that it is no less hazardous for a driver to use a hands-free phone than to use a hand-held phone. Several jurisdictions now have laws prohibiting some drivers (e.g., drivers under age 18 or drivers of buses) or all drivers from using cell phones while driving; however, the limited evaluations of these laws suggest that their long-term impact is likely to be low in the absence of sustained and publicized law enforcement. Data on cell phone ownership show that more than four of every five Americans now own a cell phone, surveys show that over half of drivers admit to using a cell phone while driving at least occasionally, and over one in ten drivers on the road is likely to be using one at any given moment.

Methodology

The data reported here were collected in two national telephone surveys conducted for the AAA Foundation for Traffic Safety: the AAA Foundation's 2008 Traffic Safety Culture Index (AAA Foundation for Traffic Safety, 2008), and Opinion Research Corporation's CARAVAN® omnibus survey (Opinion Research Corporation, 2008). The 2008 Traffic Safety Culture Index was a telephone survey of 2,509 U.S. adults 18 years of age and older, conducted via landline and cellular telephone, in English and in Spanish, by NuStats, LLC, from October 25, 2007 through January 10, 2008. This survey included questions on a number of various traffic safety issues including driver distraction and cell phone use. CARAVAN is a weekly cost-shared telephone omnibus survey of adults 18 years of age and older living in private households in the continental U.S. Two-thousand and nine CARAVAN telephone interviews conducted from September 4 through September 8, 2008 included questions on driving and cell phone use which were paid for by the AAA Foundation.

In the Traffic Safety Culture Index, all respondents who were drivers were asked to indicate how often they had used a cell phone while driving in the past 30 days. A randomly-selected sample of half of the drivers was also asked how often they had read or sent a text message or an email while driving. A randomly-selected sample of half of respondents were also asked several other questions related to their attitudes toward distracted driving in general and cell phone use while driving in particular. In the CARAVAN survey, respondents were asked similar questions regarding their cell phone use and text messaging behavior while driving, and were also asked whether they believed it was safer or less safe to talk on a hands-free cell phone while driving than on a hand-held cell phone.

Multivariate logistic regression models were estimated to assess the associations between various respondent characteristics and cell phone use and text messaging while driving. In these models, cell phone use and text messaging were dichotomized as any self-reported use while driving vs. none. The following respondent-level demographic characteristics were included in the models.

- Age (16–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75+)
- Sex (male, female)
- Race & ethnicity (Non-Hispanic white, Black or African-American, Hispanic [any race], and all other races)

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- Highest level of education completed (below high school, high school, some college/associate's degree/technical degree, bachelor's degree or higher)
- Marital status (never married, married, separated/divorced/widowed)
- Region (northeast, north central, northwest, southwest, southeast)

Variables not statistically significant at the 80% confidence level were removed from models one at a time, and the models were re-estimated subsequently. Variables significant at the 80% confidence level were retained in the models; however, statements that differences were statistically significant refer to significance at the 95% confidence level. Note that models are based only on data from the Traffic Safety Culture Index; subgroup analyses were not performed on the CARAVAN data due to differences between the two surveys in sample composition and data collection and weighting protocol. Logistic regression analyses were conducted using survey estimation commands in the statistical software package Stata (StataCorp, 2007).

The results of the logistic regression modeling are reported as odds ratios. An odds ratio larger than 1.0 indicates that the value of the variable being analyzed (e.g., variable: education, value: bachelor's degree) is associated with a higher probability of the outcome of interest (e.g., using a cell phone while driving), relative to the probability of the outcome in a specified reference group (e.g., respondents without a bachelor's degree). An odds ratio smaller than 1.0 indicates that the probability of the outcome of interest is lower in the group being analyzed than in the reference group. An odds ratio of 1.0 indicates that the probability of the outcome is the same in the group being analyzed as in the reference group. When an outcome measure is rare (e.g., when the outcome of interest occurs in fewer than approximately10% of cases), odds ratios are reasonably good approximations of relative risks. In such cases, an odds ratio of 2.0, for example, would suggest that the outcome was "twice as likely" in the group being analyzed as in the reference group. However, in the data analyzed here, the outcome measures (cell phone use and text messaging while driving) were not rare, thus the odds ratios reported here indicate the direction and the relative strengths of relationships, but they should not be interpreted as relative risks.

Note that whenever confidence intervals are reported, they reflect only the level of confidence that the responses of a random sample of respondents are statistically representative of the responses that would have been obtained if the entire population were to have been interviewed over the same time period. Confidence intervals do not reflect errors or biases related to systematic non-coverage of certain segments of the population, non-response due to certain individuals not being able to be contacted or refusing to participate, interviewer errors, or differences in understanding of survey questions or response options.

Also note that in the CARAVAN survey, respondents were asked whether or not they owned a cell phone. Questions regarding cell phone use and text messaging while driving were only asked of respondents who indicated that they did own a cell phone. It was assumed that respondents who reported not owning a cell phone did not talk on a cell phone or read or send text messages while driving. In the

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analyses that follow, these respondents were grouped with those who reported never using a cell phone while driving.

Finally, note that both surveys included non-drivers as well as drivers. When the word *respondents* is used in this report, it refers only to *respondents who were drivers*, and statements regarding percentages of respondents refer to percentages of respondents who were drivers, unless otherwise noted.

Results

Cell phone use and text messaging while driving

Respondents who were drivers were asked to report how often they had talked on a cell phone while they were driving in the past 30 days. Traffic Safety Culture Index respondents answered this question using a five-point scale on which *1* was defined to the respondent as *never* and *5* as *very often*. CARAVAN respondents reported their cell phone use while driving in the past 30 days by responding *regularly*, *sometimes*, *rarely*, or *never*. A total of 2,050 valid responses were obtained from Traffic Safety Culture Index respondents and 1,777 from CARAVAN respondents. Overall, 53% of Traffic Safety Culture Index respondents and 61% of CARAVAN respondents reported having talked on a cell phone while driving in the past 30 days. Interpreting responses of *4* as *often*, 17% of Traffic Safety Culture Index respondents reported talking on cell phones while driving often or very often; 16% of CARAVAN respondents reported talking on cell phones while driving regularly.

Half of Traffic Safety Culture Index respondents and all CARAVAN respondents were asked to report how often they had read or sent text messages or emails (hereafter referred to collectively as text messaging) while they were driving in the past 30 days, using the same response formats. A total of 979 valid responses were obtained from Traffic Safety Culture Index respondents and 1,778 from CARAVAN respondents. Overall, 14% of Traffic Safety Culture Index respondents and 17% of CARAVAN respondents reported text messaging while driving in the past 30 days. Interpreting responses of *4* as *often*, about 3% of Traffic Safety Culture Index respondents reported text messaging while driving often or very often; 3% of CARAVAN respondents reported text messaging while driving regularly.

Figure 1 shows reported cell phone use and text messaging while driving both overall and within categories of demographic variables, based on data from the Traffic Safety Culture Index. The total length of the bar represents the proportion of respondents who reported using a cell phone or text messaging while driving at all, and the shaded portion represents the proportion of respondents who reported using a cell phone or text messaging while driving often or very often.

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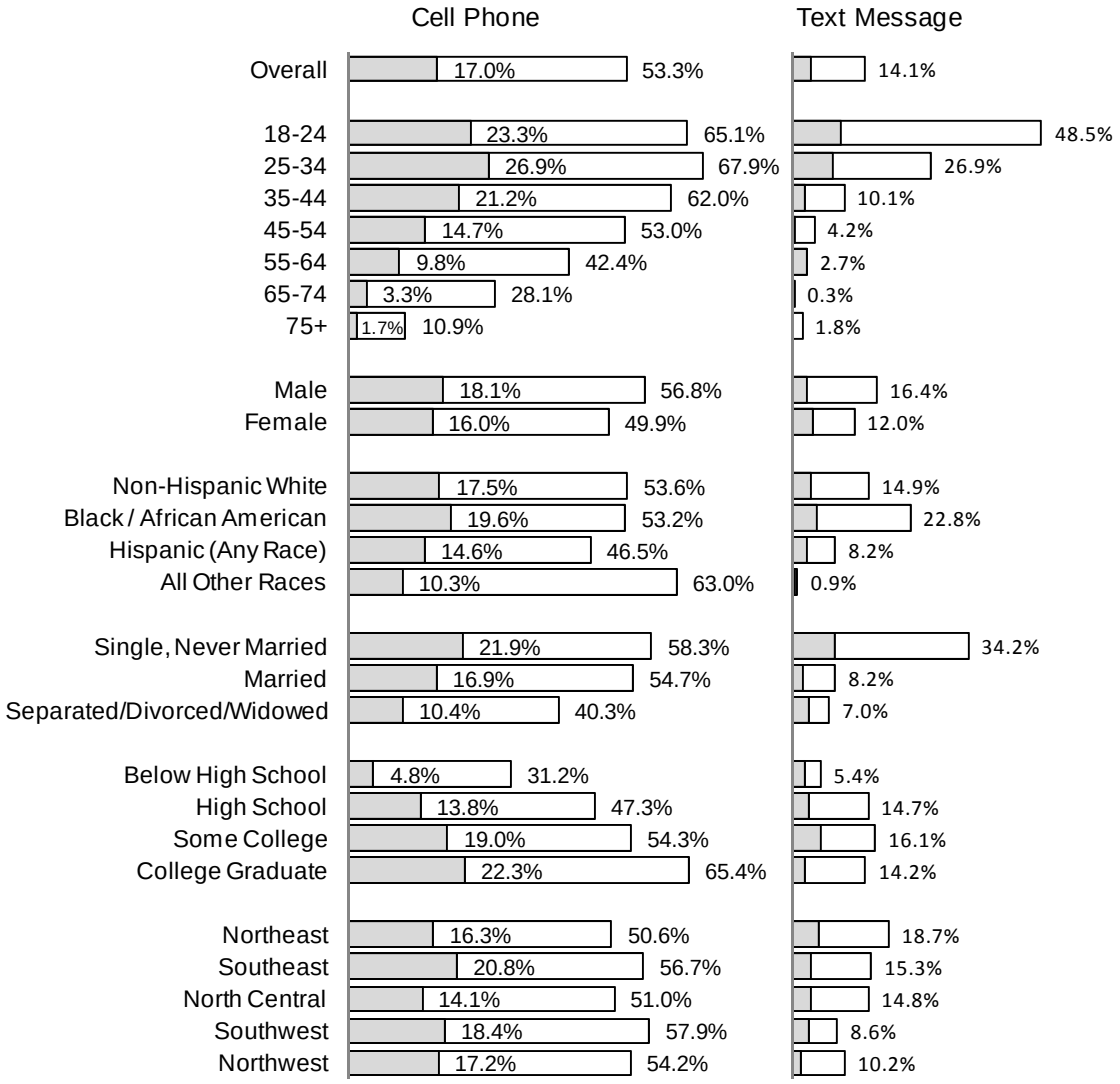

Figure 1. Percentage of drivers reporting cell phone use or text messaging in past 30 days. Full bar = any use, shaded portion = often or very often.

Multivariate logistic regression modeling of the odds of reporting using a cell phone while driving found that age, sex, and education were significantly associated with cell phone use. Marital status was retained in the model but was not significant at the 95% confidence level (p = .158). Region and race & ethnicity were not significant at the 80% confidence level and thus were removed from the model. The model showed that younger respondents, male respondents, and respondents with higher levels of education were more likely to report using a cell phone while driving. Odds ratios and 95% confidence intervals for cell phone use are shown in Table 1.

Modeling of the odds of text messaging while driving found that age, marital status, and race & ethnicity, were significantly associated with text messaging while driving; level of education as marginally significant (p = .054). Region and sex were not significant at the 80% confidence level and thus were removed from the model. The model showed that younger respondents, single respondents, non-Hispanic white respondents, and respondents with higher levels of education were more likely to

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report text messaging while driving. Odds ratios and 95% confidence intervals for text messaging are shown in Table 2.

Table 1. Odds ratios (OR) and 95% confidence intervals (CI) from logistic regression models of cell phone use while driving.

Variable (vs. Reference)	OR	95% CI
Age 25–34 (vs. 16–24)	0.82	0.46 – 1.43
Age 35–44 (vs. 16–24)	0.58	0.33 – 1.03
Age 45–54 (vs. 16–24)	0.40	0.23 – 0.72
Age 55–64 (vs. 16–24)	0.26	0.14 – 0.48
Age 65–74 (vs. 16–24)	0.14	0.07 – 0.28
Age 75+ (vs. 16–24)	0.05	0.02 – 0.13
Male (vs. Female)	1.36	1.03 – 1.80
Less than High School (vs. High School)	0.50	0.29 – 0.86
Some College (vs. High School)	1.29	0.92 – 1.82
College Graduate (vs. High School)	2.09	1.44 – 3.03
Married (vs. Single)	1.45	0.98 – 2.15
Separated/Divorced/Widowed (vs. Single)	1.21	0.71 – 2.06

Table 2. Odds ratios (OR) and 95% confidence intervals (CI) from logistic regression models of text messaging while driving.

Variable (vs. Reference)	OR	95% CI
Age 25–34 (vs. 16–24)	0.49	0.22 – 1.10
Age 35–44 (vs. 16–24)	0.13	0.05 – 0.35
Age 45–54 (vs. 16–24)	0.05	0.02 – 0.16
Age 55–64 (vs. 16–24)	0.03	0.00 – 0.29
Age 65–74 (vs. 16–24)	0.00	0.00 – 0.01
Age 75+ (vs. 16–24)	0.02	0.01 – 0.06
Less than High School (vs. High School)	0.29	0.05 – 1.67
Some College (vs. High School)	1.30	0.64 – 2.63
College Graduate (vs. High School)	2.27	1.02 – 5.06
Hispanic (vs. Non-Hispanic White)	0.45	0.23 – 0.88
African American (vs. Non-Hispanic White)	1.21	0.48 – 3.03
Married (vs. Single)	0.41	0.21 – 0.79
Separated/Divorced/Widowed (vs. Single)	0.56	0.19 – 1.64

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It is possible that some of these results are confounded by differences in cell phone ownership that are correlated with the variables under investigation. For example, if college graduates are more likely to have access to cell phones than are people who have not completed high school, then it is possible that future changes in cell phone ownership would attenuate the relationships observed here. Respondents interviewed via landline were not asked whether or not they owned a cell phone, thus the possibility of that these results are confounded by cell phone ownership could not be tested formally; however, an informal test was conducted by re-estimating the models described previously using only the data obtained respondents who were interviewed via cell phone. This reduced the number of observations in each model by more than two-thirds, thus most relationships that were statistically significant in the models based on the full sample were no longer statistically significant when analyzing only the cell phone sub-sample. However, the magnitudes of the estimated odds ratios generally were generally similar in both sets of models, suggesting that the relationships observed here are unlikely to be biased severely by differences in cell phone ownership.

Use of hand-held and hands-free phones while driving

Respondents in both the Traffic Safety Culture Index survey and the CARAVAN omnibus survey who reported any cell phone use while driving were asked whether they used a hand-held or hands-free cell phone while driving. A total of 1,020 valid responses were obtained from Traffic Safety Culture Index respondents and 989 from CARAVAN respondents. Overall, 56% of Traffic Safety Culture Index respondents and 60% of CARAVAN respondents reported using a hand-held phone, 35% of the Traffic Safety Culture Index respondents and 34% of the CARAVAN respondents reported using a hands-free phone, and 9% of the Traffic Safety Culture Index respondents and 5% of the CARAVAN respondents reported using both types.

CARAVAN respondents were also asked, “Do you think talking on a hands-free cell phone while driving is much less safe, a little bit less safe, a little bit safer, or much safer than talking on a hand-held cell phone while driving, or do you think they’re about the same?” Nearly one-third (30.3%) of all drivers and over one-third (36.2%) of drivers who report using a cell phone while driving responded that using a hands-free phone while driving is much safer than using a hand-held phone. Overall, nearly two-thirds (63.5%) of all drivers and over two-thirds (68.4%) of drivers who report using a cell phone while driving responded that using a hands-free phone is safer.

Attitudes toward cell phone use and distracted driving

A random sample of half of the Traffic Safety Culture Index respondents were asked to rate the seriousness of a number of different traffic safety issues, using a five-point scale on which the respondent was instructed to use *1* to indicate that the issue was *not a problem at all* and *5* to indicate that it was *an extremely serious problem*. Overall, 83% of drivers rated distracted drivers and drivers using cell phones both as serious (interpreting responses of *4* as *serious*) or extremely serious problems. Only drinking drivers were rated as serious problem by a greater proportion of drivers—88% rated drinking drivers as a serious or extremely serious problem. Distracted drivers and drivers using cell phones both rated above aggressive drivers, excessive speeding, and drivers running red lights in terms of public perceptions of their seriousness.

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Surprisingly, the relationship between drivers' ratings of the seriousness of distracted drivers and their self-reported cell phone use while driving was not statistically significant ($F[3.63, 3620.93] = 0.95$, $p = .43$); however, the relationship between respondents' ratings of the seriousness specifically of drivers using cell phones and their own self-reported cell phone use was stronger and statistically significant ($F[3.87, 3873.72] = 11.30$, $p < .001$). As expected, drivers who believe that drivers using cell phones are an extremely serious traffic safety problem are less likely to report that they themselves use their cell phone while driving; however, 46% of those who said that drivers using cell phones was an extremely serious problem still reported that they had used a cell phone while driving in the past 30 days.

Half of the Traffic Safety Culture Index respondents were also asked to rate how acceptable they considered talking on a cell phone while driving, using a five-point scale on which *1* was defined as *never acceptable* and *5* as *always acceptable*. There was substantial variation in responses, with 48% of drivers reporting that using a cell phone while driving was never acceptable, 49% providing a middle rating of 2, 3, or 4, and 2% reporting that using a cell phone while driving was always acceptable. Respondents' opinions regarding the acceptability of talking on a cell phone while driving were significantly associated with their self-reported cell phone use ($F[3.73, 3881.15] = 24.34$, $p < .001$). Drivers who said that it was never acceptable to talk on a cell phone while driving were much less likely to report that they themselves had used a cell phone while driving: 29% of drivers who said that it was never acceptable to talk on a cell phone while driving reported having done so in the past 30 days, as compared to 71% of drivers who gave any other rating for the acceptability of this behavior.

Finally, near the beginning of the Traffic Safety Culture Index survey, before respondents had been asked any questions about cell phones or any other specific traffic safety issues, respondents were asked to indicate in their own words what they believed was "the single most effective thing that could be done to prevent serious motor vehicle accidents." Sixteen percent of responses specifically mentioned cell phone use. A few examples of responses to this question include:

- "Do something about the cell phones"
- "Stop using cell phones while driving"
- "Drivers paying more attention rather than talking on their cell phones"
- "Making new laws to ban cell phone usage while in a car"
- "They should make it illegal to talk on the phone while driving"

Having specifically mentioned cell phones in response to this question was associated with significantly lower probability of reporting cell phone use while driving ($F[1, 1761] = 5.37$, $p = .021$); however, 45% of drivers who specifically mentioned cell phones still reported that they had used a cell phone while driving in the past 30 days. Even one of the respondents whose response is shown above reported often using a cell phone while driving.

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Key Points

- ✓ Studies using driving simulators have found that using a cell phone while driving significantly impairs several aspects of driving performance, principally reaction time.
- ✓ Studies of the cell phone records of crash-involved drivers suggest that using a cell phone while driving is associated with roughly a quadrupling of crash risk.
- ✓ Two out of every three drivers believe that using a hands-free cell phone while driving is safer than using a hand-held phone; however, the overwhelming majority of available evidence suggests that it is not.
- ✓ Over half of all drivers admit using a cell phone while driving at least occasionally; 16–17% report doing so regularly.
- ✓ Younger people report higher levels of cell phone use while driving than older people do; however, the proportion of drivers aged 35 to 44 who report using cell phones while driving is not significantly lower than the proportion of drivers ages 18 to 24 who report doing so.
- ✓ One in seven drivers admits to text messaging while driving.
- ✓ Younger people are overwhelmingly more likely than older people to text message while driving—nearly half of survey respondents aged 18 to 24 admit doing so, whereas fewer than 5% of drivers aged 45 and older admit doing so.
- ✓ More than four out of five drivers rate drivers using cell phones as a serious or extremely serious traffic safety problem, over half say that it is unacceptable, and one in seven even mention reducing or eliminating driver cell phone use in an open-ended question seeking ideas for ways to prevent motor vehicle crashes. Drivers who express these attitudes are less likely than average to report using a cell phone while driving; however between 29% and 46% of these same drivers report that they themselves have used a cell phone while driving at least occasionally in the past month.

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