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OBSERVATIONAL STUDY OF CELL PHONE AND TEXTING USE AMONG CALIFORNIA DRIVERS 2012 AND COMPARISON TO 2011 DATA

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ABSTRACT

This methodological report describes survey research and data collection methods employed for the second Observational Survey of Cell Phone and Texting Use among California Drivers study conducted in 2012. This study was conducted by Ewald & Wasserman Research Consultants (E&W) on behalf of the California Office of Traffic Safety and the Safe Transportation Research and Education Center at University of California at Berkeley. The survey's goal was to obtain a statewide statistically representative observational sample of California's cell phone use behaviors, focusing on mobile device use and compare it to 2011 survey data. Vehicle drivers were observed at controlled intersections, such as traffic lights and stop signs, using a protocol similar to the National Occupancy Protection Use Study methodology published by the National Highway Traffic Safety Administration. The sample frame included a total of 5,664 vehicle observations from 129 sites. The total percentage of distracted driving by electronic devices (holding a phone to the ear, manipulating a hand-held electronic device while driving, or talking on a hand-held device) observed increased to 6.2% in 2012 from 4.2% in 2011. California's baseline level of cell phone use and driving will be a critical metric over the years as traffic safety stakeholders mobilize to conduct high visibility enforcement campaigns, explore new policies, expand educational programs, and engineer countermeasures to increase safety on the roads.

INTRODUCTION

This methodological report describes Ewald & Wasserman Research Consultants' (E&W) survey research and data collection methods employed for the second wave of the "Observational Survey of Cell Phone and Texting Use among California Drivers Study." The study was conducted on behalf of the California Office of Traffic Safety (OTS) and the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley. The study objective was the second wave of a statewide statistically representative observational study of California drivers' distracted driving behaviors, including cell phone and other electronic device use.

The goal of this project was to observe vehicle drivers at controlled intersections-such as traffic lights and stop signs-using a data collection protocol similar to the National Occupancy Protection Use Study (NOPUS) methodology published by the National Highway Traffic Safety Administration (NHTSA) on electronic device use of drivers in their Traffic Safety Facts publications DOT HS 811 372 *(1)* and DOT HS 811 361 *(2).* Additionally employed was the methodological outline of the Seat Belt Survey Regulation for Section 157 Surveys: 23CRF Part 1340 published by NHTSA *(3).*

The final dataset includes a total of 5,664 vehicle observations from 129 sites in the State of California and includes observer-rated information on driver's age, gender, ethnicity, vehicle type, number of passengers in vehicle, and the presence of children less than eight (8) years of age. Additional observations on driver distractedness includes the driver holding a phone to the ear, talking on a Bluetooth or other headset, manipulation of a hand-held device, or talking on a hand-held device.

METHODS

Sample Methodology and Sample Site Selection

Replicating the data collection effort conducted in 2011, the overall sample frame was created using a multi-stage proportional random site selection based on the daily vehicle miles traveled (DVMT) on California roadways, determining DVMT by county as the primary sampling units.

The DVMT information was derived from the California Department of Transportation's Highway Performance Monitoring System (HPMS) 2009 California Public Road Data. Tables listing the maintained daily vehicle miles traveled by jurisdictions and by county were summarized to create the overall main sample frame for the site selection.

In the first step of sample preparation, all ineligible jurisdictions (not open to public, with limited access, or no roadways) were removed from the sample frame. All remaining jurisdictions were deemed eligible and included city jurisdictions as well as highways and unincorporated land by county and by the definitions of rural and suburban sites.

After the removal of ineligible jurisdictions, all counties in the State of California accounting for less than 1.0% each of the total DVMT in the State were excluded. In this process, ten counties of California's 58 counties were removed, leaving the sample frame with counties and jurisdictions accounting for 99.2% of the total CA DVMT. The ten excluded counties, which accounted for 0.8% of all DVMT in the State of California, were: Amador, Calaveras, Plumas, Mono, Del Norte, Modoc, Trinity, Mariposa, Sierra, and Alpine.

The next step involved the first random selection of counties in a proportional randomized design, where the proportion of inclusion was the DVMT per county. For the eligible 48 counties and jurisdictions, a sample interval was created based on a target of 17 counties, which served as the random value for the first stage site inclusion. All counties with a DVMT larger than the random value were automatically included in the sample frame due to their size and excluded from the subsequent random selection list. The five counties included by DVMT volume were: Los Angeles County, Riverside County, San Bernardino County, San Diego County, and Orange County. They accounted for 53.6% of all DVMT in the State of California.

The remaining 12 sites to be selected were pulled in a proportional randomized design which increased the probability of inclusion in the sample frame for counties with a higher DVMT volume. The final list of counties selected included: Alameda, Butte, El Dorado, Kern, Merced, Placer, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, Tulare, Los Angeles, Orange, San Bernardino, San Diego, and Riverside.

In the subsequent step of the proportional random selection, the actual sites within each selected county were determined. The secondary sampling unit consisted of either: city or town jurisdictions, unincorporated land, or State Highway jurisdictions. Using a proportional cell selection method, jurisdictions with higher volumes of DVMT had a higher probability to be included in the sample frame. This procedure resulted in 130 selected sites in the selected 17 counties.

Of the 130 included observation sites, 27 sites were highway sites and 25 were unincorporated land sites. For the highway sites, only controlled exit ramps with either a stop sign or a traffic light were included. For the unincorporated sites, the controlled intersection closest to the geographically determined random site was selected.

After the selection of jurisdictions within each county, each site was pinpointed geographically, using various mapping software. For jurisdiction sites with defined boundaries and where information on boundaries was available for the software, a random site selector was used to select a site within a defined area. For this process, the software created a random number stream based on the x- and y-axis of the jurisdiction boundaries, which were partitioned into polygons using a standard partitioning algorithm. Polygons were further geospatially partitioned into triangles of varying sizes and a number stream created two random numbers based on the axis length of the triangle, thus ensuring that the larger the target area, the higher the probability of selection. For geographic sites with limited geospatial information, a similar but manual process was employed, which determined the outer boundaries of the jurisdiction, the latitude and longitude of the area, and then randomly created a latitude and longitude number set for the target geographic area.. The electronic maps used for this purpose were overlaid with a meter grid reference system (MGRS) to produce a grid layer of 1,000 x 1,000 meters and all selected locations were placed in the exact middle of that square kilometer.

The final site selected was confirmed using Google Earth to ensure that a) an eligible roadway existed and b) it had an intersection or highway exit ramp that was controlled and eligible for data collection. Sites that did not qualify or those that could not be accessed safely by a field observer for their targeted 45-minute observation period, were re-selected by either selecting the opposite side of the intersection, or, for highway exit ramps, selecting the exit ramp for traffic from the opposite travel location.

Interview Locations, Times, and Durations

The data collection was conducted between February 20, 2012, and April 11, 2012, by Ewald & Wasserman Field Observer teams based out of the San Francisco Bay Area and a southern California (Los Angeles and San Diego) area. Data collection times ranged from 7:00 a.m. to 6:30 p.m. and included weekend days and weekdays. The field observers were rigorously trained in the methodology and protocols and assigned batches of location sites where they would conduct the 45-minute observation. The field observers were monitored and managed by the E&W Project Manager throughout the study period.

The team in southern California was responsible for visiting the sites located in San Bernardino, San Diego, Riverside, Orange, and Los Angeles counties. The Bay Area team in northern California was assigned Alameda, Butte, El Dorado, Kern, Merced, Placer, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and Tulare counties for their data collection routes. The teams were instructed to contact the Project Manager regarding site identification issues, weather, or safety concerns.

Staff Training

Training Procedures and Pre-Testing of Observation Form

The E&W Field Observer teams in northern and southern California were trained in a team meeting format, including a detailed review of data collection procedures and observation protocol, followed by a closely supervised on-site visit and a 45-minute round of test observations. E&W also conducted a round of observation form pilot tests in San Mateo County prior to the start of the actual data collection. As a result of the pre-test, the format of the form was modified to allow for more individual observations. The final version of the observation form is shown on the following page.

The northern California team was trained during the last week of February 2012. The team and field supervisor visited a selected test site together, practicing all aspects of the data collection, including site positioning, identifying the accurate lane to code, and swift and accurate markings in the coding selections on the observation form.

The southern California team was trained during the last week of February 2012 and they visited three training sites in the Los Angeles/Long Beach area to practice in a group setting, as well as individually. During the training, the E&W Project Manager monitored all staff for accuracy and quality control. All observers were instructed on the coding categories in advance of the data collection.

The field observers were provided with a packet of materials which included observation forms, specific site locations, a validation letter on UC Berkeley SafeTREC and OTS letterhead for respondents inquiring about the purpose of the observations, and guidelines for procedures while in the field.

ID of Location: ________________ **Alternate 1:** ______________________ **Alternate 2:** ________________ **Road: 1=HWY Exit Ramp 2=Surface Street 3=Other**

Data Collected by: ______________________________ **Weather condition:** _______________________ **Start Time:** ________________________________ **Notes:** _______

Data Collected on: ______________________________ **Area Type: 1=Rural 2=Urban 3=Suburban** **End Time:** ________________________________ **Notes:** _______

	DRIVER/VEHICLE CHARACTERISTICS						DRIVER BEHAVIOR			
Event #	Age A=16-24 B=25-69 C=70 and older	Gender M=Male F=Female	Ethnicity W=White AA=African American A=Asian H=Hispanic O=Other	Vehicle type 1=Passenger car 2=Van or SUV 3=Pickup truck	Passengers Number in car (If 1 - SKP next question)	Kids under age 8 Y=Yes N=No	Holding Phone to Ear with Hand √	Talking on Headset OR Bluetooth √	Manipulating Hand-Held Device √	Talking on Handheld Device √
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FIGURE 1 Observation Form

The field observers were provided with explicit instructions on: a) locating and ensuring the accurate assigned location; b) confirming that the position of the observation direction was as specified on the detailed map for that location; and c) implementing an exact procedure for time recording, lane selection, and coding accuracy.

Field Data Collection

After the training, all field observer staff was assigned a number of sites for traffic observations. Selection of sites for a staff member was guided by multiple factors, including the actual site location. A total of six field staff were deployed in California and the number of observations gathered per site ranged from zero to 165 vehicles. A single observer was positioned at the controlled intersection, whenever safe and possible on the driver's side of the road. After completing observation at the assigned sites, field observers submitted forms and all additional documentation to the E&W headquarters in San Francisco for a comprehensive data review and data entry into electronic format. The data from the observation forms were entered electronically using a data entry program specifically written for this project. This program was designed to eliminate data entry errors and ensure accuracy of the electronic data.

Time Frames of Data Collection and Comparison with 2011 Data

The observational data was collected between February 20, 2012 and April 11, 2012 by the E&W field teams.

Data collection times ranged from 7:00 a.m. to 6:06 p.m. and included weekend days and weekdays with a higher emphasis on data collection during morning and evening rush hours as described in the NOPUS methodology. About a third of all observations were completed during morning and evening rush hours, defined to be weekdays from 7:00 a.m. to 9:30 a.m. and from 3:30 p.m. to 5:00 p.m.

The distribution of data collection time frames by the definitions of rush hour, weekend, and in-between times was noted and compared with the 2011 values. Overall, 29.7% of all observations were made during rush hour, 22.4% were completed on a weekend day, and the remaining 47.9% were collected at all other times. The differences compared with the 2011 observations range between 0.6% and 3.3% per site.

E&W also gathered information on the actual time frame of the data collected so future analysis of the "rush hour" definition is possible. However, for the purpose of this study, analysis adhered to the NOPUS methodology definition.

Data Site Definitions and Comparison with 2011 Data

Roadway Type In total, 26.6% of all observations were made at highway exit ramps, including major California routes and freeways, and 72.8% were completed on surface streets. "Other" categorized streets included one surface street site at an intersection with an exit of a shopping mall. The difference in percentage compared with the 2011 data collection ranges between 0.2% and 2.3%.

Area Type The observation area type was coded into three categories: rural, urban, and suburban. The rural locations represented 21.0% of the sites observed, 49.6% were coded as urban, with the remaining 29.4% in suburban locations.

Demographic Characteristics of Drivers and Comparison with 2011 Data
Overall, the observed age and ethnicity of drivers are comparable to the 2011 data. For the age of drivers, the majority, or 87.2%, were coded as between the ages of 25 and 69, 7.6% were ages 16-24, and 5.2% were older than 70 years.

Gender The gender of the vehicle driver has shown a substantial shift with a 12.6% increase in female drivers, which is significant compared with that of the previous year (from 41.4% in 2011 to 54.0% in 2012).

Race/Ethnicity For the racial/ethnic coding of drivers, 55.9% were coded White and 26.1% were coded as Hispanic/Latino. About 10.6% of drivers observed were Asian and 4.4% African American. All were comparable to the distribution in 2011.

Number of Passengers The observed number of vehicle passengers ranged from 1 passenger (only the driver) to 6 passengers (the driver plus 5). The majority of drivers, 71.8%, drove alone, while 21.1% had two passengers (the driver plus one additional passenger) in the car. A total of 7.0% of all vehicles observed had more than two passengers in the vehicle. The number of single drivers increased from 2011 by 3.9% while the number of two-occupant vehicles dropped by 4.7%. That increase in single drivers between 2011 and 2012 is significant.

Child Passengers A total 7.0% of observed vehicles (394 vehicles) had a passenger under the age of eight, compared with 5.3% of all vehicles in 2011.

Vehicle Type Vehicles were coded according to type. A total of 51.3% of all vehicles were coded as passenger cars, 32.1% were vans or SUVs, and 16.6% were pickup trucks, very similar to the 2011 data.

RESULTS

Overall Electronic Device Use and Distracted Driving by Electronic Devices
The “distracted driving by electronic devices” (DD) variable was created from the observation of three behaviors:

- holding a phone to the ear
- manipulating a hand-held electronic device while driving
- talking on a hand-held device

The rationale for creating this category excluding Bluetooth or headset devices is that in 2008, a law was passed prohibiting all drivers from using a handheld wireless telephone while operating a motor vehicle and in 2009, a law prohibiting texting while operating a motor vehicle went into effect *(4).* Talking on a phone using a headset or Bluetooth device was not included in the “distracted driving by electronic devices” (DD) behavior variable created for this evaluation since the law in California bans hand-held use of cell phones; hence, the three “distracted driving” behaviors constitute illegal behavior in California.

A positive confirmation of any one of those three behaviors with an observed driver was coded as “distracted driving by electronic device” in a separate variable. The data collection on these three driver behaviors included every instance observed and was noted as an exclusive occurrence on the observation form. The “distracted driving by electronic device” variable created reflects the number of unique vehicles, in which the behavior was observed; the number of unique observations is higher.

Total Percentage of Distracted Driving by Electronic Devices

The total percentage of distracted driving by electronic devices observed increased to 6.4% in 2012 from 4.2% in 2011, an overall increase of 2.2% (Table 1). This 2.2 percentage point difference is significant at a 95% confidence level; the confidence interval for the true percentage difference lies between 1.4% and 3.1%. This means there is a significant increase in the observed rate of distracted driving by electronic devices (as defined by the protocol outlined above).

TABLE 1 Distracted Driving by Electronic Device Variable Created and Difference Compared with 2011

DD	2012 Frequency	2012 Percentage	2011 Percentage	Difference
Yes	364	6.4%	4.2%	+2.2%
No	5,300	93.6%	95.8%	-2.2%
Total	5,664	100.0%	100.0	

The frequency of all distracted behaviors, including using a headset or Bluetooth device is noted in Table 2 and has increased in all instances since 2011. The incidence of observed drivers manipulating a hand-held device increased by 1.6% between 2011 and 2012, which is significant.

TABLE 2 Frequencies of Behaviors and Difference Compared with 2011

DD Behavior	2012 Frequency	2012 Percentage	2011 Percentage	Difference
Phone to Ear	134	2.4%	2.1%	+0.3%
Talking w/headset or Bluetooth*	115	2.0%	1.5%	+0.5%
Manipulating hand-held	185	3.3%	1.7%	+1.6%
Talking on hand-held	49	0.9%	0.6%	+0.3%

* not part of the distracted driving variable

Distracted Driving and Gender, Area Type and Age of Driver

To evaluate any shifts in gender and distracted driving by electronic devices, the 2012 and 2011 data variables were compared. There is no significant difference between males and females in the rate of distracted driving.

Gender The comparison of gender and distracted driving by electronic device use increased between 2011 and 2012 for both males (2.5%) and females (2.0%). Both increases are statistically significant (Table 3).

TABLE 3 Gender Differences of Distracted Behaviors by Electronic Devices 2011-2012

Gender	2012 DD Rate	2011 DD Rate	Difference
Female	6.3%	4.3%	+2.0%
Male	6.6%	4.1%	+2.5%
Total	6.4%	4.2%	+2.2%

Area Type The comparison of distracted driving by electronic devices and area type-defined as rural, urban, or suburban-did not show any significant differences. There was no significant difference in area type and distracted driving observed in 2011 either. The comparison of area type and the observation of the driver talking on a headset or Bluetooth device showed a significant difference (p=0.001). A total of 3.1% of all drivers talking on a headset or Bluetooth device were observed in rural areas and in only 1.4% of the drivers in urban areas.

Age Group The comparison of distracted driving by electronic devices by age group from 2011 to 2012 is shown in Table 4. The age group of 16-24-year-old drivers had a significantly higher rate of distracted driving by electronic devices compared with older age groups (p=0.000). A similar difference by age group was found in the 2011, though not significant. There seems to be some indication of an increase of electronic device use while driving among younger drivers in particular, although there is a noted increase among the 25-69 year-old drivers as well. Distracted driving by electronic devices by age group was compared for 2011 and 2012. Among the 16- to 24-year-old drivers, the incidence of distracted driving by electronic device use rose from 5.3% in 2011 to 11.4% in 2012. This increase of 6.1% is significant at p=0.000.

TABLE 4 Age by Distracted Driving by Electronic Devices Comparison 2011 - 2012

Age	2012 DD %	2011 DD %	Difference
16-24	11.4%	5.3%	+6.1%
25-69	6.2%	4.2%	+2.0%
70 and older	3.4%	1.8%	+1.6%
Total	6.4%	4.2%	+2.2%

The comparison of male and female 16- to 24-year-old drivers and mobile device use did not show any significant differences. Both male and female drivers in this age group have a comparable rate of DD (10.4% and 12.3%, respectively).

Table 5 shows the breakdown of age by distracted driving type of electronic device use behavior and comparison to 2011 data. The comparison of age and use of headset or Bluetooth shows a higher rate of use among younger drivers, though that difference is not significant.

TABLE 5 Age by Distracted Driving by Electronic Devices Behavior 2011 - 2012

Age	Phone to ear 2012	Phone to ear 2011
16-24	4.7%	3.2%
25-69	2.2%	2.0%
70 and older	1.4%	0.6%
Total	2.4%	2.1%
Age	**Headset/Bluetooth 2012**	**Headset/Bluetooth 2011**
16-24	2.3%	2.3%
25-69	2.1%	1.5%
70 and older	1.0%	0.6%
Total	2.0%	1.5%
Age	**Manipulating hand-held 2012**	**Manipulating hand-held 2011**
16-24	6.3%	1.9%
25-69	3.1%	1.7%
70 and older	1.0%	1.2%
Total	3.3%	1.7%
Age	**Talking on hand-held 2012**	**Talking on hand-held 2011**
16-24	0.5%	0.2%
25-69	0.9%	0.7%
70 and older	1.0%	0.6%
Total	0.9%	0.6%

Distracted Driving by Electronic Devices by Time of Observation

The comparison of distracted driving by electronic devices by time of observation does not show any significant differences between the rush hour, weekend, or all other observation times. There is an overall lower incidence of mobile device use while driving on weekends (6.0%) and a higher incidence during rush hour (7.0%).

Use of Headsets and Bluetooth Devices

Of total rush hour drivers, 2.9% were seen talking on a headset or Bluetooth device. On the weekend, 1.6% of observed drivers talked on a headset or Bluetooth. This difference is significant at p=0.00).

Countywide and Regional Results on Distracted Driving

Distracted driving by electronic devices behaviors by region

For the purpose of geographic segmentation, three regions were delineated by county into “Northern California,” “Central California,” and “Southern California.” A total of 1,851 observations (32.7%) were completed in the northern California region, 397 (7.0%) in the central region, and 3,451 (60.3%) in the southern California region. There is no significant difference in the incidence of DD among the three defined regions.

Further comparisons looked at the region variable by the observed distracted driving behaviors “holding phone to ear” and “manipulating hand-held device while driving,” with neither showing a significant difference by California region. There is a significant relationship between the region variable and talking on a hand-held phone (p=0.00) and between region and talking on a headset or Bluetooth device (p=0.00). The Central California region (Tulare, Kern, and Merced counties) had a significantly higher rate of both talking on a hand-held as well as using a headset or Bluetooth device while driving.

Overall Electronic Device Use and Distracted Driving by Electronic Devices Variable by County

The comparison of observed DD by county is shown in the Table 6. There are noticeable differences between counties in the level of DD, but the number of observations in each county is too small in some cases to make be significant. Some more rural counties show a higher rate of DD, but not all of them.

TABLE 6 Distracted Driving by Electronic Devices by County

DD by County	DD-Yes	DD-No	Total
Alameda	24	459	483
	5.0%	95.0%	100.0%
Butte	4	22	26
	15.4%	84.6%	100.0%
El Dorado	5	69	74
	6.8%	93.2%	100.0%
Kern	4	130	134
	3.0%	97.0%	100.0%
Los Angeles	88	1249	1337
	6.6%	93.4%	100.0%
Merced	15	164	179
	8.4%	91.6%	100.0%
Orange	30	574	604
	5.0%	95.0%	100.0%
Placer	21	322	343
	6.1%	93.9%	100.0%
Riverside	5	176	181
	2.8%	97.2%	100.0%
San Bernardino	30	374	404
	7.4%	92.6%	100.0%
San Diego	70	820	890
	7.9%	92.1%	100.0%
San Joaquin	11	90	101
	10.9%	89.1%	100.0%
San Mateo	19	216	235
	8.1%	91.9%	100.0%
Santa Clara	20	439	459
	4.4%	95.6%	100.0%
Solano	11	91	102
	10.8%	89.2%	100.0%
Sonoma	1	27	28
	3.6%	96.4%	100.0%
Tulare	6	78	84
	7.1%	92.9%	100.0%
Total	364	5,300	5,664
	6.4%	93.6%	100.0%

Distracted driving by electronic devices by driver and vehicle characteristics

There is no significant difference between drivers with or without children under the age of eight in the car with respect to DD. Drivers with a child under age eight in the car show an even higher frequency (6.9%) of distracted driving compared to that among drivers without a child in the car (6.4%), though it is not significant. Overall, more male drivers had a child in the car (8.9% of male drivers versus 5.3% of female drivers had a child in car), but a higher percentage of male drivers compared to female drives showed DD while having a child in the car (8.7% for males versus 4.3% of females – difference is not significant and the number of observations is small).

There is also no significant difference of the distracted driving variable by vehicle type. There are no significant differences of DD by number of passengers in car. There are no significant differences between the race/ethnicity variable and DD behavior. The distracted driving variable by electronic devices by road type did not show any significant differences.

Notes on Limitations

As outlined in the Driver Electronic Device Use Protocol published by NHTSA (DOT HS 811 361), the methodology has two noteworthy limitations. First, the observation protocol only observes drivers during daylight hours. Secondly, it only observes them at controlled intersections, and not while driving. It is therefore plausible that the actual observed numbers on distracted driving might be either higher or lower than observed.

DISCUSSION

This is the second year the Observational Study of Cell Phone and Texting Use among California Drivers has been conducted. Several noteworthy changes have been recorded. First, the incidence of manipulation of a hand-held device almost doubled between 2011 and 2012. Manipulation of a hand-held device may include texting, emailing, navigation, and obtaining directions or information via voice activation, etc. This observation has also coincided with the rapid increase in market share of smart phones in the past year. Some sources estimate that almost half of the total U.S. population will be using mobile phones to access the Internet by 2015 *(5).* A Pew Internet survey found that 46% of adults in the U.S. owned smart phones in February 2012, as opposed to 35% who owned one as of May 2011 *(6).* With the growing market share of these phones, it is conceivable that increasing numbers of people will be using their features.

As the trend toward increased smart phone ownership increases, so do safety concerns. Given NHTSA’s 2009 report that 24,000 (5%) of people injured in distracted-driving-related crashes cited cell phones as the distraction and that 16% of fatal crashes in 2009 involved reports of distracted driving, this growth in phone use causes concern *(7).*

Young drivers, between the ages of 16-24, were also documented as having a statistically significant increase in hand-held manipulation of a mobile device. In 2011, 5.3% of drivers 16-24 were observed manipulating hand-held devices, while 11.4% were observed doing so in 2012. While the observation of younger drivers manipulating hand-held devices was not significant in 2011, it was in 2012. The Pew study found that, among the smart phone adopters, 18-35 year olds had among the highest market share of these electronic devices. Seniors, on the other hand, had among the lowest adoption of smart phones *(6).* It is sobering, then, to look at injury data. Among drivers under 20 involved in fatal crashes, 16 percent were reported to have been distracted while driving. This percentage is higher than any other age group *(7).* People driving alone, and people driving in rural areas had significantly higher use than others. It is likely that drivers use mobile devices to “pass the time” while driving, and that use of smart phones provides company.

IMPLICATIONS

The substantial and dramatic growth in those manipulating hand-held devices deserves attention. New research is documenting the impact of mobile device use, especially talking and texting while driving, and its relation to crashes. At the same time, states are developing programs and policies to address this concern. Research must continue to explore the impact on hand-held vs. hands-free mobile device use, and to explore the impact of different types of mobile phone use, using voice-activated controls, GPS, etc. in driving and safety.

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TABLES AND FIGURES

Tables

Figures

Figure 1. Observation Form