



Observational Study of Distracted Driving Due to Electronic Device Use Among California Drivers for 2019

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2019 Observational Study of Distracted Driving

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I. Executive Summary

The 2019 distracted driving survey followed the techniques first used during the 2018 survey. Three specific electronically-based distracted driving behaviors were measured in this survey. More specifically, speaking on a hand-held device, manipulating a hand-held device, and speaking on a phone via Bluetooth or a headset were recorded. This was consistent with the previous year.

The 2019 survey drew its sites from the same locations surveyed during 2018. A total of 204 sites across 17 California counties were observed during 2019. Two different data collections were conducted. The first took place during the Spring with the remainder of sites being observed during the Summer. These 204 locations are a statistically valid sampling of California roads based on the requirements described in Section 157 Surveys: 23CRF Part 1340. Observations were conducted for 50 minutes by trained observers who generally had previous law enforcement experience.

Distracted driving due to electronic devices decreased from the overall numbers reported in 2018. More specifically, a rate of 1.99% was found which was down from 4.52% in 2018 (the rate was 3.58% in 2017, 7.6% in 2016, 5.4% in 2015, and 3.8% in 2014).

Further analysis of the 2019 findings indicated that use was higher on highways (3.23% on highways versus 1.87% on secondary roads and 1.95% on local roads). When examining usage by vehicle type, pickup trucks had lower usage rates than did other vehicle types (1.20% for pickups and 2.13% for other vehicles).

Additional overall findings indicated that usage was higher when passengers were not present (2.16% when no passenger was present versus 1.18% when passengers were in the vehicle) and lower when children were present (0.12%) than when no children were present (2.00%).

When it comes to enforcement and public awareness campaigns, based on the findings of this survey, the focus should be on drivers who are without a passenger since this would be the most effective way of bringing down usage rates.

As an additional analysis, Bluetooth/headset usage was estimated using a NHTSA-approved method. When this calculation was included, the overall percentage of distracted driving due to electronic device use was 5.05% in 2019, which was down from the rates of 6.86% observed in 2018 and 6.80% in 2017.

II. Introduction

This report explains the methods and the results associated with the “Observational Study of Distracted Driving Due to Electronic Device Use Among California Drivers” conducted by California State University, Fresno Foundation for the California Office of Traffic Safety (OTS).

This report describes CSU Fresno Foundation's observational data collection procedures and compares these findings to the previous seven years of data collected for OTS. The goal of these surveys has been to collect observational data of a statistically valid, representative sample of drivers' distracted driving behaviors, including cell phone and other electronic device use.

The overall study design included the observation of drivers where traffic was controlled. Usually, this means that the observations occur at traffic lights, stop signs, or in other places where traffic is moving at relatively low speeds. Observing traffic at low speeds is necessary to make accurate observations and to ensure the safety of the observers. The data collection approach was designed to maximize comparability with previous observational surveys. These previous surveys used a data collection protocol similar to the National Occupancy Protection Use Study (NOPUS) methodology published by the National Highway Transportation Safety Administration (NHTSA) on electronic device use by drivers in their Traffic Safety Facts publications, DOT HS 811 372 and DOT HS 811 361. The data collection plan also incorporated sections of the methodological outline of the Seat Belt Survey Regulation for Section 157 Surveys: 23CRF Part 1340, published by NHTSA. As a result, the current observational data were collected using the same basic procedures.

III. Methods

A. Sample Methodology and Sample Site Selection

The sites for the Distracted Driving survey were the same as those selected for the annual restraint usage survey, which the National Highway Safety Administration (NHTSA) requires of all states and territories. The counties and sites for the 2017 California restraint use survey were new in 2017 due to a required resampling which ensures that the sites are representative of California's current road inventory (i.e., in this case the TIGER road database). Consistent with the restraint use survey, the current survey had 204 road sites located in 17 California counties, with each county having 12 sites. Data from each site were weighted by the likelihood of the county selection, the road site's selection, the number of lanes observed, and the number of vehicles observed during the observation period. For the 2019 survey, all 204 sites were surveyed.

B. Observation Locations, Times, and Duration

Field observations were conducted between February, 2019 and July, 2019, within a period that was consistent with previous collection efforts. More specifically, all data collection occurred between the hours of 7:30 am and 6:00 pm during non-rainy days and included all seven days of the week. This was the same time frame as previous years of data collection. Surveyors visited 204 road sites. All staff were rigorously trained in the methods and procedures and assigned defined location sites where they would conduct the 50-minute observation. All surveyors had previous law enforcement experience, and the vast majority of surveyors were recently retired California Highway Patrol officers.

C. Observational Study Outcomes

All 204 road sites across the 17 counties were included in the current study. This procedure yielded 32,199 observations. This large sample size serves to provide smaller standard errors for the findings and increase the statistical confidence of the conclusions reached.

Using the data collected, we were able to assess an overall “distracted driving” rate as well as individual usage rates for the specific types of electronic distractions observed.

IV. Results

A. Results on Distracted Driving Due to Electronic Device Use

Overall electronic device use and distracted driving due to electronic devices variable

The variable “distracted driving due to electronic devices (DD)” was created based on two behaviors observed by field staff and included:

1. manipulating a hand-held electronic device while driving, and
2. talking on a hand-held device.

It should be pointed out that previous surveys used a third category of distracted driving which was labeled “phone to ear”. For the 2018 and 2019 survey, this behavior was combined with the talking on a hand-held device because holding a phone to the ear certainly suggests that a person is talking on a hand-held device. Previous surveys used two separate categories to try to distinguish when a person was using a hand-held speakerphone versus using a phone physically pressed to the ear. This distinction, however, caused confusion and was difficult to distinguish from other forms of electronic distraction. As a result, we used a single category of “talking on a hand-held device” to include cases of people holding a phone to their ear or holding the phone and talking on a speakerphone.

The calculated percentage of driver behavior and electronic device use across the 204 observed road sites during 2019 is shown in Table 1. Talking on a phone using a headset or Bluetooth device was NOT included in the variable created for the purpose of this evaluation. Any observed instance of the two behaviors was coded as “distracted driving due to electronic device use” in a separate variable (labelled DD). The data collection on these driver behaviors included every instance observed and was noted as an exclusive occurrence on the observation form. The DD variable created reflects the number of unique vehicles in which the behavior was observed; the number of unique observations of distracted behavior is higher.

For a further analysis, we used estimates provided by the 2014-2016 distracted driving surveys to calculate a correction factor for an estimate of headset/Bluetooth usage. These numbers are not in the main body of the report, as they are estimates, but have been provided in Appendix A to allow for a direct comparison of this year’s results with other historically relevant findings.



Table 1. Distracted Driving Due to Electronic Devices

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 |
|-----------------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Total Usage | 1.99% | 4.52% | 3.58% | 7.6% | 5.4% | 3.8% | 4.6% | 6.4% |
| Manipulating Handheld | 1.60% | 2.74% | 1.51% | 4.5% | 3.3% | 2.2% | 2.5% | 3.3% |
| Talking on Handheld | 0.39% | 1.79% | 1.33% | 0.9% | 1.0% | 0.7% | 0.7% | 0.9% |
| Sample Size | 32,199 | 30,388 | 19,387 | 5,341 | 5,349 | 5,693 | 6,099 | 5,664 |

In addition to calculating an overall usage rate and examining the rates of specific types of electronic distractions, the observational survey is also designed to separate these usage figures by a set of other factors. These other factors included:

- Road type where the distracted driving was observed
- Vehicle type in which the behavior occurred
- Whether a passenger was present in the vehicle
- Whether a young child was a passenger in the vehicle
- The county in which the distracted driving was observed

The results of these analyses are presented in the subsequent tables.



Table 2. Distracted Driving Due to Electronic Devices by Road Type in 2019

| | Combined | Highways | Secondary | Local |
|-----------------------|---------------|--------------|---------------|--------------|
| Total Usage | 1.99% | 3.23% | 1.87% | 1.95% |
| Manipulating Handheld | 1.60% | 1.74% | 1.18% | 1.66% |
| Talking on Handheld | 0.39% | 1.48% | 0.70% | 0.29% |
| Sample Size | 32,199 | 9,901 | 15,489 | 6,809 |

Table 3. Distracted Driving Due to Electronic Devices by Vehicle Type in 2019

| | Combined | Car, Van, or SUV | Pickups |
|-----------------------|---------------|------------------|--------------|
| Total Usage | 1.99% | 2.13% | 1.20% |
| Manipulating Handheld | 1.60% | 1.73% | 0.82% |
| Talking on Handheld | 0.39% | 0.40% | 0.38% |
| Sample Size | 32,199 | 26,028 | 6,171 |

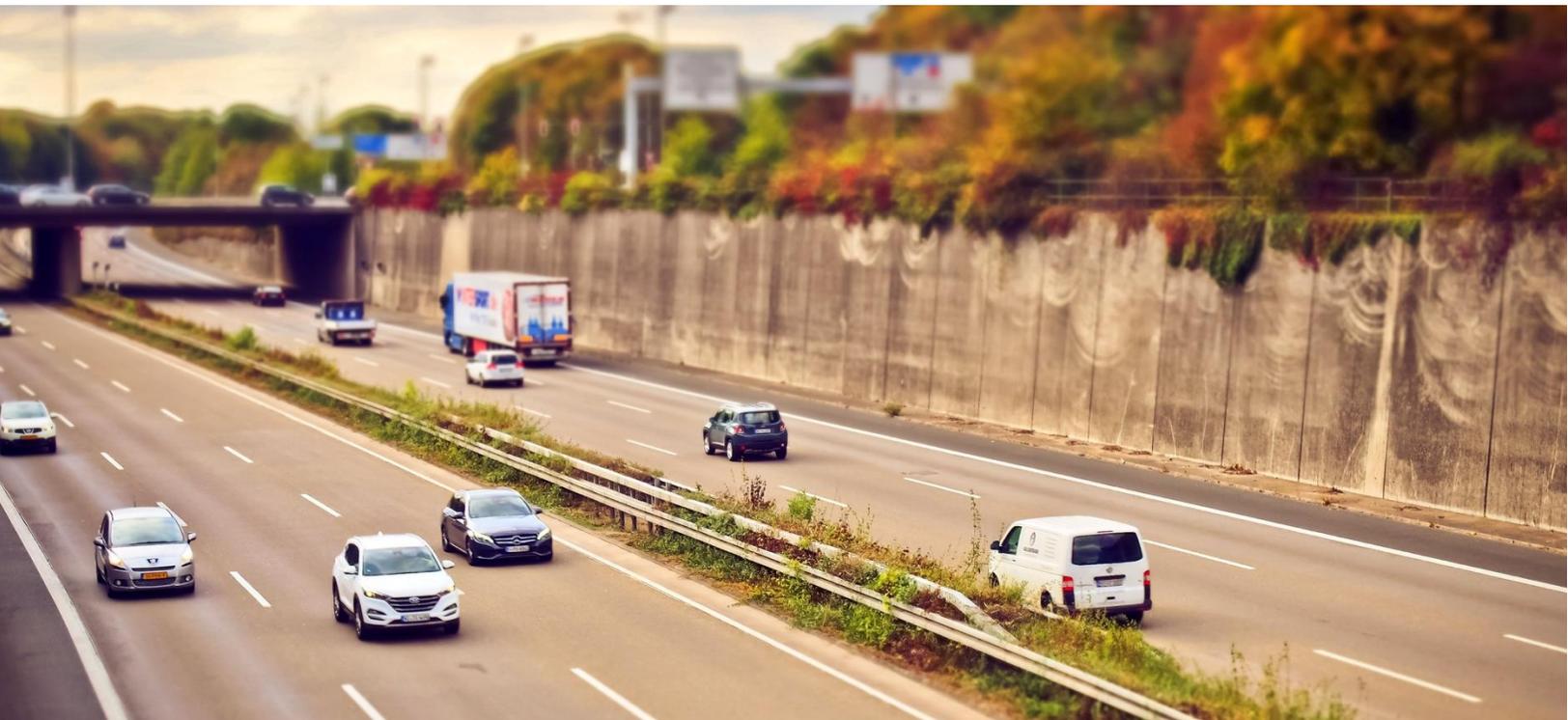


Table 4. Distracted Driving Due to Electronic Devices by Passenger Presence in 2019

| | Combined | Passenger is Present | No Passenger Present |
|-----------------------|---------------|----------------------|----------------------|
| Total Usage | 1.99% | 1.18% | 2.16% |
| Manipulating Handheld | 1.60% | 1.06% | 1.71% |
| Talking on Handheld | 0.39% | 0.13% | 0.45% |
| Sample Size | 32,199 | 8,694 | 23,505 |

Table 5. Distracted Driving Due to Electronic Devices by Whether a Child Under Age 8 is Present in 2019

| | Combined | Child is Present | No Child Present |
|-----------------------|---------------|------------------|------------------|
| Total Usage | 1.99% | 0.12% | 2.00% |
| Manipulating Handheld | 1.60% | 0.08% | 1.61% |
| Talking on Handheld | 0.39% | 0.03% | 0.40% |
| Sample Size | 32,199 | 380 | 31,819 |



Table 6. Distracted Driving Due to Electronic Devices by County

| | Sample Size | Combined Total Usage | Manipulating Handheld | Talking on Handheld |
|--------------------|---------------|----------------------|-----------------------|---------------------|
| Total Usage | 32,199 | 1.99 | 1.60% | 0.39% |
| Alameda | 2,924 | 0.91% | 0.49% | 0.42% |
| Contra Costa | 2,489 | 1.88% | 1.87% | 0.01% |
| Kern | 1,327 | 0.64% | 0.00% | 0.64% |
| Los Angeles | 1,512 | 2.67% | 2.36% | 0.31% |
| Monterey | 1,435 | 1.32% | 1.32% | 0.00% |
| Orange | 1,859 | 2.08% | 1.63% | 0.44% |
| Riverside | 2,688 | 3.45% | 1.49% | 1.96% |
| Sacramento | 1,828 | 0.01% | 0.00% | 0.01% |
| San Bernardino | 1,818 | 2.07% | 1.64% | 0.42% |
| San Diego | 1,875 | 5.55% | 4.65% | 0.90% |
| San Joaquin | 932 | 0.01% | 0.01% | 0.06% |
| San Luis Obispo | 1,843 | 2.39% | 1.39% | 1.00% |
| San Mateo | 2,381 | 3.19% | 0.90% | 2.30% |
| Santa Barbara | 1,327 | 2.49% | 1.50% | 1.00% |
| Solano | 2,497 | 2.02% | 1.00% | 1.02% |
| Sonoma | 1,415 | 2.84% | 2.32% | 0.53% |
| Ventura | 2,049 | 2.98% | 1.67% | 1.31% |

V. Interpretation of Results

A. Overall usage rates compared to previous years

As reported in Table 1, the rate of distracted driving showed a decrease in 2019 compared to 2018.

Overall, the distracted driving due to electronic devices was 1.99% in 2019 (versus 4.52% in 2018 and 3.58% in 2017). It is important to note that this value indicates that *at any one time*, the number of people distracted due to using an electronic device was 1.99%, but the number of people engaging in this behavior across their time on a given trip is likely *much higher*. In other words, a person may have been on a phone or sending a text five minutes before they were observed and these cases are not included in the distracted driving figures. In this way, distracted driving is significantly different from seat belt usage (i.e., another relevant safety-related behavior), which tends to be more stable across the time in a vehicle.

Of the types of behaviors observed most often, manipulating a hand-held device was the most common. This is generally “texting while driving”, although it could certainly be email checking, GPS usage, or other activities being carried out on a hand-held instrument (usually a phone). The other category of behavior involves actually speaking on a telephone. Talking on a hand-held (e.g., using the speakerphone while the phone is in the driver’s hand or holding the phone to the ear) directly involves talking to others while driving.

B. Distracted Driving by Road Type

The results of the 2019 survey (presented in Table 2) found that there was a higher usage rate for highway drivers than for drivers on other road types.

C. Distracted Driving by Vehicle Type

The results included in Table 3 showed that distracted driving due to electronic devices had very little variance based on vehicle type. This finding is notable, since in the previous year’s study the results indicated that drivers of pick-up trucks had higher rates of distracted driving. This is a positive development.

D. Distracted Driving by Whether a Passenger is Present

Table 4 includes data showing that across all types of electronic devices, being alone in a vehicle greatly increased the likelihood of engaging in electronics use. In fact, being alone was associated with an overall electronic usage rate that was almost 2 times the rate shown by people who had a passenger in the vehicle and over 3 times the rate of talking on a hand-held device.

The reasons for this would seem straightforward. When a passenger is present, the driver will be less likely to call another person as he or she already has a person in the vehicle with whom to communicate. Further, it is likely that in many cases, the passenger can place the call (or send the text) for the driver. On the downside, however, it is likely that the presence of the passenger also adds to the overall level of distraction of the driver due to conversations with the passenger and the tendency for drivers to look at their passengers while driving.

E. Distracted Driving by Whether a Child Under 8 Years of Age is Present

Table 5 presents data that specifically compares distracted driving due to electronic devices in cases where a young child is present versus when a young child is not present. Manipulating a hand-held device was much less likely when a child was present. Thus, it appears that more parents are heeding the advice regarding “texting”, while talking on a phone may be perceived to be “more acceptable” or “less dangerous”.

F. Distracted Driving by County

Table 6 shows the full results of the observational survey broken down by County. Overall, Southern California showed more distracted driving behavior than drivers in Northern or Central California. The five counties, which showed the most distracted driving due to electronic usage, were San Diego, Riverside, San Mateo, Ventura, and Sonoma counties. The three counties with the least electronic usage were Sacramento, San Joaquin, and Kern. Over the last two years, Riverside was one of the highest use counties, and Sacramento was one of the lowest use counties in both years.

Appendix A

Distracted Driving in California: Results Overview and Additional Analysis

Overall electronic device use and distracted driving due to electronic devices variable

The variable “distracted driving due to electronic devices (DD)” was created based on three behaviors observed by field staff and included:

1. talking on a hand-held device (either by holding the phone to the ear or holding it close to the mouth), and
2. manipulating a hand-held electronic device while driving

The third variable observed was NOT included in the DD behaviors:

3. Talking on a phone using a headset or Bluetooth device

Talking with headset/Bluetooth is likely to be underestimated via direct observation since it is very difficult to observe. This usage, however, can be estimated by using data from the California Traffic Safety Survey. This has been done by estimating the ratio between drivers who self-report talking with a hands-free device and drivers who self-report talking with a hand-held device. Using an average of these survey findings across the period of 2014-2016 provided us with a correction factor of 1.3. As a result, our observational findings of “talking on a hand-held device” was multiplied by 1.3 to provide an estimate for the actual headset/Bluetooth usage. These total values are reported in Table A1.

Table A1. Cellphone and Electronic Device Use Rates

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---------------------------------|---------------|---------------|---------------|--------------|--------------|--------------|
| Total Cellphone Use Rates | 5.05% | 6.86% | 6.80% | 12.8% | 9.2% | 6.6% |
| Manipulating Handheld | 1.60% | 2.74% | 1.51% | 4.5% | 3.3% | 2.2% |
| Talking on Handheld | 0.39% | 1.79% | 2.37% | 3.5% | 2.7% | 1.8% |
| *Talking with headset/Bluetooth | 3.06% | 2.33% | 2.92% | 4.8% | 3.3% | 2.5% |
| Sample Size | 32,199 | 30,388 | 19,387 | 5,341 | 5,349 | 5,693 |