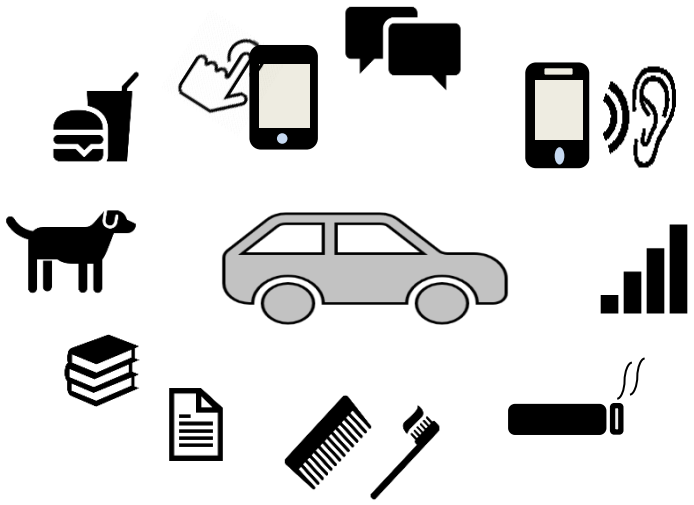
Prevalence of Driver Behaviors Secondary to Driving:
2018 Louisiana Observational Survey

LHSC Project No. 2018-20-10



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I. INTRODUCTION

Distraction is a common occurrence for drivers and can have serious consequences on performance. A distracting event is anything that takes the driver's attention away from the primary (i.e. driving) task and results in a delay in recognition of information necessary for optimum driving performance (Stutts et al., 2001; Treat, 1980). Potential sources of distractions are many, such as using a cell phone, adjusting the radio or climate control devices, manipulating an on-board navigation system, eating or drinking, presence of passengers, outside person/object, etc. NHTSA estimates that 10 percent of fatal crashes, 15 percent of injury crashes, and 15 percent of all motor vehicle crashes in 2015 were reported as distraction-affected (NCSA, 2017).

Cell phone use is the most common example of distracted driving. Using a cell phone while driving can divert attention aurally, cognitively, and even visually and physically (Young, Regan, & Hammer, 2003). Dialing and receiving calls are especially distracting since multiple modalities are involved (i.e. hands and eyes). Hand-held cell phone use is currently banned in 16 States and the District of Columbia, text messaging is banned in 47 States and the District of Columbia (IIHS, 2018), and novice drivers are restricted from use of all cellphones in 38 States and D.C. When compared to hand-held phones, hands free devices show a slight advantage in driving performance but the conversation itself can be quite distracting, especially if emotionally charged or cognitively demanding (e.g. high information content) (Eby & Kostyniuk, 2003).

Distracted driving issues are further complicated by the fact that cell phones are not limited to receiving and/or making phone calls, but are also used for activities such as texting, and in the case of smart phones, reading/writing emails, searching the web, using a phone-based navigation system, etc. With a reported 61 percent of cell phone users owning a smart phone, the frequency of such distracting behaviors may be hard to suppress. Smith (2013) reports that the percentage of cell phone users engaging in texting has increased from 58 to 80 percent between 2007 and 2012. Forty-seven States and the District of Columbia currently have a texting ban for all drivers (IIHS, 2017).

The effect of these bans on behavior, however, is not as would have been expected. The National Survey on Distracted Driving Attitudes and Behaviors indicated that close to half of drivers answer their cell phones while driving at least some of the time; close to a quarter are willing to make a call at least some of the time. Texting is less common, but still 10 percent report sending text messages or email at least sometimes, and 14 percent read messages at least sometimes. Despite the bans and frequent publicity campaigns informing the driving public of the dangers of cell phone use while driving, half of the drivers who do talk while driving report no change in the quality and nature of their driving while on the phone. Moreover, one-third of those admitting to texting while driving report that their driving is unaffected by the distraction (Schroeder, Meyers, & Kostyniuk, 2013). Some suggest that drivers using their cell phone may

engage in compensatory behaviors such as increasing headway (i.e. distancing themselves from lead vehicles) and decreasing speed but a meta-analysis of the effects of texting on driving confirm that these adaptations do not reduce risk. Indeed, by taking their eyes off the road for reading or typing a text, divers tend to show lower lateral control, which often results in overcorrection maneuvers once drivers get their eyes back on the road (Caird, Johnston, Willness, Asbridge, & Steel, 2014). A status report published by IIHS (2010) also suggests that drivers have reacted to the bans, not by ceasing to use their cell phones, but rather by moving their phones out of sight when manipulating them.

Cell phone use represents only one category of distracting agent among a myriad of additional in-vehicle activities which may also distract drivers from their primary driving task. Eating, drinking, smoking, and interacting with passengers and the like are further examples of behaviors potentially diverting attention from the driving task. A prior observational study conducted in Virginia showed that roughly 23 percent of drivers observed were involved in some sort of secondary behavior while driving (Kidd, Tison, Chaudhary, McCartt, & Casanova-Powell, 2015). The methodology developed by PRG in that project was used in the current study investigating the frequency and nature of potentially distracting behaviors across the State of Louisiana.

II. METHODOLOGY

Preusser Research Group, Inc. (PRG), under contract with the Louisiana Highway Safety Commission (LHSC), developed a survey measure designed to document various driver secondary behaviors to identify which were most prevalent, how often they occurred, and under what conditions. LHSC requested an observational survey using approximately 80 sites that could provide statewide representation and some ability to make general judgments about these behaviors regionally across all SHSP Coalitions. An effort of this size prevents some details from being analyzed completely on a coalition level. Overall comparisons of findings can be made between regions but digging deeper into the data will be limited.

Observations occurred within the dates of May 7th - and May 18th, 2018 on weekdays only. PRG observed a mix of moving and stopped traffic each day in each coalition, with observations taking place from morning rush hour through evening rush hour, roughly 7 a.m. - 6 p.m. Observers stood roadside and typically observed vehicle occupants in the nearest lane.

Observers coded the following secondary, potentially distracting behaviors for drivers:

- Phone-to-ear
- Texting/surfing/phone manipulation
- Phone in hand (not using)
- Blue-tooth device or ear buds visible
- Manipulating other device (stereo, dashboard, mounted GPS devices, etc.)
- Talking/singing
- Eating/drinking
- Smoking
- Grooming (applying makeup/shaving, combing hair)
- Reading
- Pet in vehicle

Observers also coded:

- Sex of driver
- Race of driver
- Estimated age of driver (<25, 26 to 59, 60+)
- Vehicle type (Car, SUV, Pickup Truck, or Van)
- Passenger presence (any, including specifically any child 12 and under)

Further descriptions of secondary behaviors coded can be found in Appendix B.

Site Selection and Determining Site Location

To achieve balance across all nine SHSP Regional Coalitions, PRG selected 81 sites from Louisiana's daytime Statewide Seat Belt Survey to obtain an equal distribution of nine sites per Coalition. Low travelled local roadways were excluded from possible selection due to lack of volume. Interstates and high-speed roads, where standalone observational data would be difficult

to capture, were also excluded from selection. PRG assigned each site to one of two "site types;" defined as either "low-speed moving traffic" or "stoplight controlled."

Observational sites were chosen randomly out of "qualified" Statewide Survey segments. Only arterial roadways were considered for potential inclusion. A database of eligible segments was compiled and grouped by Safety Coalition. Final sites were chosen at random, and the designation of each site as a "moving" or "stoplight" observation was determined by information gathered from previous site visits and/or mapping – with an effort to achieve site type balance in so far as possible (4 to 5 per type, per Safety Coalition).

Observers had discretion to move any site along the roadway segment to a spot fitting for the type of observation required. In the event a site type had to be changed in the field (usually from stopped to moving), another site within the Coalition was adjusted so as not to disrupt the type balance.

Data Collection Protocol

PRG utilized four experienced observers for data collection. Our observers have collected distracted driving information for NHTSA, the Insurance Institute for Highway Safety (IIHS) and for several states. PRG observers have experience collecting observational data on distraction in many locations, including in the states of California, Connecticut, Delaware, Virginia, New York and Oregon.

Data collection procedures differed slightly depending on whether moving or stopped traffic was measured, and each observation period lasted 60 minutes for all site locations. Observers collected data using pen and paper forms. The same data collection form was used in all instances, and can be found in Appendix C.

For moving traffic observations, observers chose ideal spots on arterial locations with traffic speed between 35-45 MPH. Observers only captured information on vehicles travelling in the nearest lane. Vehicle and driver information was collected on the first four columns of the data collection sheet (vehicle type, sex, race, age category), and then observers proceeded to record information in the subsequent columns if the driver was engaged in secondary behaviors. Multiple secondary behaviors or events provided on the form could be checked per driver or vehicle. The number of passengers present and also if a child 12 or under was present, was also documented, regardless of driver behavior.

For stoplight observations, observers were tasked to find intersections ***without*** a right turn lane or to observe only the next closest lane - if drivers in that lane were visible. Observers waited for a stopped cycle to begin their observations and counted to seven before recording their first vehicle/driver. Observers were instructed to spend only a couple of seconds per vehicle (just as they would for moving traffic). Information for each vehicle was recorded in the same manner as moving traffic however, after each vehicle's information was recorded, observers moved up the line to record subsequent drivers until the stoplight changed and traffic began to move. The last column, which numbers the drivers/vehicles in the queue that was recorded, was then filled out. Numbering started over the next stopped cycle.

Data Entry and Analyses

PRG staff input the written data into a Microsoft Excel electronic database and performed at 10% percent check on all entered data to ensure stability. PRG used the Statistical Package for the Social Sciences (SPSS) software for statistical analyses.

III. RESULTS

Observers recorded information on 13,087 drivers. Thirsty-six percent (36.2%) of the data were collected on drivers stopped at lighted intersections and 63.8 percent were collected on drivers in free-flowing traffic. Distribution of observations across coalitions likely reflected differences in traffic volume, with more populous agglomerations accounting for a larger percentage of data: Acadiana (12.1%), Capital Region (18.5%), Central Louisiana (6.5%), New Orleans (15.5%), Northeast (4.6%), North Shore (15.5%), Northwest (8.6%), South Central (11.1%), and Southwest (7.7%).

A slight majority of drivers observed were male (54.5%, 45.5% female). Approximately two thirds (67.1%) of observed drivers were judged to be between the ages of 26 and 59 (17.0% between the ages of 16 and 25, and 15.9% 60 and over). Seventy-one percent (71.2%) of drivers observed were White, 24.6 percent were African-American, and 4.2 percent were "Other". Most drivers travelled alone (77.1%), 20.4 percent had one passenger, 1.8 percent had two passengers, and less than one percent had three or more passengers. Less than 3 percent (2.7%) had children in the car. Forty-two percent (41.9%) of vehicles observed were passenger cars, 29.9 percent were pickup trucks, 23.1 percent were SUVs, and 5.1 percent were vans.

Analyses

Although rates for all behaviors are presented in the following tables, statistical analyses were conducted only on the four most common secondary tasks (i.e. behaviors observed in at least 4% of drivers) and the combined *any secondary task* variable. The remaining behaviors recorded are too infrequent to lend themselves to a proper statistical analysis. The impact of seven variables on rates of the four most common secondary driving tasks as well the combined behaviors *any secondary task* variables were analyzed using binary logistic regressions. The seven independent variables included in the analyses were Coalition, Vehicle Type, Sex, Race, Age, Passenger Presence, and Traffic Situation. Main effects terms for all variables were entered. The regression treated Southwest, Car, Male, White, Age 16-25, No Passenger Present, and Free Flowing, respectively, as the comparison values (i.e. bases). The dependent variables were: *any* secondary task, *phone to ear*, phone *manipulation*, *talking or singing*, and *eating or drinking*.

Thus, five binary logistic regressions were computed, one for each of the common behaviors listed above. Each of these regressions includes the same set of seven independent variables. Full results, including odd ratios for each comparison, are reported in Appendix A.

Observed Overall Rates

Overall, 31.3 percent of all observed drivers engaged in at least one secondary task while driving; 1.7 percent were involved in more than one secondary task. Among the most common behaviors were: manipulating a phone (7.0%), talking/singing (6.8%), holding a phone to the ear

(6.0%), eating or drinking (4.0%), smoking (2.7%), and holding a phone (2.2%). A complete list of secondary tasks and their observed rates appears in Table 1.

Table 1. Rates of Observed Secondary Tasks*

Observed Secondary Tasks	Frequency (n observed)	Percent of Drivers (%)
Manipulating a Cell Phone	914	7.0%
Talking/Singing	890	6.8%
Holding phone to ear	787	6.0%
Eating/Drinking	529	4.0%
Smoking	348	2.7%
Phone in Hand	287	2.2%
Touching the Dashboard	192	1.5%
Grooming	176	1.3%
Wearing a Bluetooth Device	117	0.9%
Pet in Vehicle	61	0.5%
Reading	35	0.3%
Any Secondary Task	4,101	31.3%
Total N Observations	*13,087*	*100.0%*

*Multiple secondary tasks could be coded for each driver (e.g. talking and smoking).

Passenger Presence

Table 2 shows the prevalence of secondary tasks by passenger presence. In all but two categories, rates of secondary task were higher in the absence of a passenger. The exceptions were *talking or singing* (23.4% with passengers, 1.9% without) and *pet in vehicle* (0.5% in both cases). Note that the prevalence of *any secondary task* was also higher with passengers present (36.9%) than without passengers (29.7%).

Results of the regression analyses showed that the presence of a passenger significantly increased the likelihood of *any secondary behavior* (+48%) and *talking or singing* (more than 17 times higher than when alone, or +1,718%) compared to no passenger present. Conversely, driving alone significantly increased the likelihood of *phone to ear* (+138%) and *manipulating a phone* (+145%) compared to passenger being present. Passenger presence or absence was not predictive of likelihood of *eating or drinking*.

One supplemental analysis was conducted looking at impact of having child passenger(s) in the vehicle. Less than 3 percent (2.7%) of vehicles observed had a child passenger. Given the potential confound with the *passenger presence* variable, child passenger was not included in the logistic regressions. Instead impact of child presence was assessed with chi-square analyses, comparing rates of secondary behaviors between *child passenger* and *no child passenger*. Only one of the main behaviors showed a significant difference. Rates of *talking or singing* were significantly higher with a child present (15.8%) compared to no child present (6.6%), X^2 (1, N = 13,087) = 45.40, p <.0001). Rates of *any secondary behavior* were also significantly higher with a child present (39.5%) compared to no child present (31.1%), X^2 (1, N = 13,087) = 11.22, p = 0.001).

Table 2. Rates of Observed Secondary Tasks by Passenger Presence

Observed Secondary Tasks	Passenger Present		No Passenger	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	99	3.3%	815	8.1%
Talking/Singing	700	23.4%	190	1.9%
Holding phone to ear	88	2.9%	699	6.9%
Eating/Drinking	106	3.5%	423	4.2%
Smoking	67	2.2%	281	2.8%
Phone in Hand	48	1.6%	239	2.4%
Touching the Dashboard	32	1.1%	160	1.6%
Grooming	21	0.7%	155	1.5%
Wearing a Bluetooth Device	15	0.5%	102	1.0%
Pet in Vehicle	14	0.5%	47	0.5%
Reading	2	0.1%	33	0.3%
Any Secondary Task	1,104	36.9%	2,997	29.7%
Total N Observations	*2,992*	*100.0%*	*10,095*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus total may not match the sum of individual behaviors.

Traffic Situation

Two traffic situations were examined: *stopped* at a signalized intersection, and *free-flowing* traffic. Rates of secondary tasks tended to be lower in free-flowing conditions. This was the case for 9 of the 11 categories listed in Table 3, noting that most differences are quite small. Rates of *any secondary task* were 26.9 percent in free-flow traffic, and 39.2 percent at signalized intersections. The binary logistic regressions indicate that being *stopped* at an intersection was associated with a significantly higher likelihood of *any secondary task* (+ 72%), *manipulating a cell phone* (+ 83%), *talking or singing* (+136%), and *eating or drinking* (+79%). Conversely, moving in free-flowing traffic was associated with significantly higher probability of observing drivers holding a *phone to ear* (+21%) when compared to drivers stopped at an intersection.

Table 3. Observed Secondary Tasks by Traffic Situation

Observed Secondary Tasks	Intersection		Free Flowing	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	468	9.9%	446	5.3%
Talking/Singing	454	9.6%	436	5.2%
Holding phone to ear	262	5.5%	525	6.3%
Eating/Drinking	268	5.7%	261	3.1%
Smoking	138	2.9%	210	2.5%
Phone in Hand	101	2.1%	186	2.2%
Touching the Dashboard	83	1.8%	109	1.3%
Grooming	100	2.1%	76	0.9%
Wearing a Bluetooth Device	72	1.5%	45	0.5%
Pet in Vehicle	32	0.7%	29	0.3%
Reading	25	0.5%	10	0.1%
Any Secondary Task	1,856	39.2%	2,245	26.9%
Total N Observations	*4,732*	*100.0%*	*8,355*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus total may not match the sum of individual behaviors.

Coalition

Observations were carried out in nine safety coalitions within the State of Louisiana: Acadiana, Capital region, Central, New Orleans, Northeast, North Shore, Northwest, Southeast, and Southwest. Rates of observed secondary tasks by Coalition are presented in Table 4. Occurrence of *any secondary task* was lowest in South Central (each at 25.8%) and highest in the Capital Region (37.8%). Note that, given the smaller sample size when split by coalition, only the most prevalent secondary behaviors are reviewed in this table. Rates of *phone to ear* were highest in the Capital and New Orleans regions (each at 6.8%) and lowest in Northeast Louisiana (4.8%); rates of *phone manipulation* were highest in the Capital region (11.8%) and lowest in Southwest Louisiana (4.7%); rates of *talking/singing* were highest in Northeast Louisiana (12.5%) and lowest in the North Shore (4.2%); rates of *eating/drinking* were highest in the Capital region (5.0%) and lowest in South Central Louisiana (2.9%).

Southwest served as the base in the binary logistic regressions (i.e., all coalitions were compared to Southwest). Compared to Southwest, the likelihood of engaging in *any secondary behavior* was significantly higher in Acadiana (+24%), Capital region (+45%), Northeast (+47%), and Northwest (+38%). Likelihood of drivers holding *phone to ear* did not show any significant difference across regions. Compared to Southwest, probability of engaging in *phone manipulation* was significantly higher in Acadiana (+47%), New Orleans (+67%), and the Capital region (+144%, or more than 2 times the rate of Southwest). Drivers in Southwest showed a significantly higher probability of being observed *talking or singing* (+90%) compared to drivers in North Shore. Compared to Southwest, drivers in Northeast and Northwest had a higher likelihood of being observed *talking or singing* (+145% and +163%, respectively or more than 2 times the rates of Southwest). Likelihood of being observed *eating or drinking* did not differ significantly across regions.

Table 4. Observed Secondary Tasks by Safety Coalition

Observed Secondary Tasks	Acadiana	Capital Region	Central LA	New Orleans	Northeast	North Shore	Northwest	South Central	Southwest
Manipulate Cell Phone	6.5%	11.8%	5.6%	7.3%	5.4%	5.0%	5.5%	6.1%	4.7%
Talking/Singing	7.4%	6.0%	8.9%	5.8%	12.5%	4.2%	10.9%	5.4%	7.2%
Holding phone to ear	5.5%	6.8%	5.4%	6.8%	4.8%	6.3%	5.5%	5.2%	5.9%
Eating/Drinking	4.0%	5.0%	3.5%	3.8%	4.6%	4.3%	3.7%	2.9%	4.1%
Any Secondary Task	30.9%	37.8%	28.7%	29.9%	35.2%	30.2%	32.6%	25.8%	28.3%
Total N Observations	*1,588*	*2,416*	*855*	*2,023*	*608*	*2,023*	*1,119*	*1,450*	*1,005*

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%.

Sex of Driver

Table 5 shows the rates of secondary task by sex of driver. Ten of the 11 categories of secondary task showed higher incidence for female drivers and one (smoking) showed higher incidence for male drivers. Overall, occurrence of *any secondary task* was higher in female drivers (34.5%) than male drivers (28.7%). The four most commonly observed behaviors and *any secondary task* were investigated further: 1) *phone to ear*, 2) *phone manipulation,* 3) *talking or singing*, and 4) *eating or drinking*. The binary logistic regressions indicated that *female* drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+31%), *manipulating* a cell phone (+25%), *talking or singing* (+34%), and *eating or drinking* (+34%). The main effect of sex was not significant for *phone to ear*.

Table 5. Observed Secondary Tasks by Sex of Driver

Secondary Task	Male		Female	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	416	5.8%	498	8.4%
Talking/Singing	448	6.3%	442	7.4%
Holding phone to ear	416	5.8%	371	6.2%
Eating/Drinking	260	3.6%	269	4.5%
Smoking	205	2.9%	143	2.4%
Phone in Hand	136	1.9%	151	2.5%
Touching the Dashboard	100	1.4%	92	1.5%
Grooming	61	0.9%	115	1.9%
Wearing a Bluetooth Device	60	0.8%	57	1.0%
Pet in Vehicle	31	0.4%	30	0.5%
Reading	15	0.2%	20	0.3%
Any Secondary Task	2,050	28.7%	2,051	34.5%
Total N Observations	*7,137*	*100.0%*	*5,950*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%.

Estimated Driver Age

Observers recorded estimated driver age based on three age groups: 16 to 25, 26 to 59, and 60 and over. Overall rates of secondary task by age group are shown in Table 6. Four of the 11 categories of secondary task showed higher incidence for drivers aged 16 to 25; four showed higher incidence for drivers 26 to 59. Overall, the occurrence of *any secondary* task was higher among drivers with an estimated age of 16-25 (37.5%), followed by drivers with an estimated age of 26-59 (33.1%), and estimated age of 60 or older (17.2%).

As was the case in previous sections, only the 4 most commonly observed behaviors were investigated further. Analyses also included comparisons for *any secondary task*.

Table 6. Observed Secondary Tasks by Age of Driver

Secondary Task	16-25		26-59		60+	
	N obs.	% obs.	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	278	12.5%	615	7.0%	20	1.0%
Talking/Singing	152	6.8%	596	6.8%	141	6.8%
Holding phone to ear	157	7.0%	580	6.6%	50	2.4%
Eating/Drinking	83	3.7%	401	4.6%	45	2.2%
Smoking	40	1.8%	264	3.0%	43	2.1%
Phone in Hand	64	2.9%	207	2.4%	16	0.8%
Touching the Dashboard	29	1.3%	147	1.7%	15	0.7%
Grooming	36	1.6%	122	1.4%	18	0.9%
Wearing a Bluetooth Device	22	1.0%	90	1.0%	5	0.2%
Pet in Vehicle	9	0.4%	41	0.5%	11	0.5%
Reading	5	0.2%	26	0.3%	4	0.2%
Any Secondary Task	835	37.5%	2,905	33.1%	358	17.2%
Total N Observations	*2,227*	*100.0%*	*8,778*	*100.0%*	*2,076*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%.

The youngest age group (16-25) served as the base in the binary logistic regressions. Compared to drivers aged 26-59, drivers 16-25 showed significantly higher probability of being observed engaging in secondary tasks for three behaviors: *any secondary* task (+28%), *phone manipulation* (+92%), and *talking or singing* (+24%). Compared to drivers 60+, drivers aged 16-25 had a higher probability of being observed engaging in each one of the most common secondary behavior: *any secondary task* (+199%), *phone to ear* (+204%), *manipulating* a cell phone (more than 12 times the rate, +1,208%), (+48%), and *eating or drinking* (+67%).

Eating or drinking showed no difference across the two youngest age groups and talking or singing showed no significant difference across any age groups.

Driver Race

Observers recorded the race of drivers (White, Black, Other). Overall rates of secondary task by driver race are shown in Table 7. White served as the base in the binary logistic regression. Overall, occurrence of *any secondary* task was higher in African-American drivers (35.2%) than in White drivers (30.2%) and Other drivers (27.4%). The four most commonly observed behaviors and *any secondary task* were investigated further: 1) *phone to ear*, 2) *phone manipulation, 3) talking or singing*, and 4) *eating or drinking*. The binary logistic regressions indicated that White drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+31%) and *phone manipulation* (+58%) than Other drivers. Compared to White drivers, African-American drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+14%), *manipulating* a cell phone (+20%), and *eating or drinking* (+29%). The main effect of race was not significant for *talking or singing* or *phone to ear*.

Table 7. Observed Secondary Tasks by Race of Driver

Secondary Task	White		Black		Other	
	N obs.	% obs.	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	590	6.3%	296	9.2%	28	5.1%
Talking/Singing	633	6.8%	220	6.8%	37	6.8%
Holding phone to ear	551	5.9%	199	6.2%	37	6.8%
Eating/Drinking	354	3.8%	160	5.0%	15	2.7%
Smoking	273	2.9%	68	2.1%	7	1.3%
Phone in Hand	175	1.9%	104	3.2%	8	1.5%
Touching the Dashboard	127	1.4%	55	1.7%	10	1.8%
Grooming	131	1.4%	37	1.1%	8	1.5%
Wearing a Bluetooth Device	68	0.7%	46	1.4%	3	0.5%
Pet in Vehicle	53	0.6%	6	0.2%	2	0.4%
Reading	17	0.2%	17	0.5%	1	0.2%
Any Secondary Task	2,817	30.2%	1,134	35.2%	150	27.4%
Total N Observations	*9,320*	*100.0%*	*3,219*	*100.0%*	*548*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%.

Vehicle Type

Overall rates of secondary task by vehicle type are shown in Table 8. Overall, occurrence of *any secondary* task was highest in van drivers (35.0%), followed by SUV drivers (33.2%), car drivers (31.3%), and pickup truck drivers (29.3%). The four most commonly observed behaviors were investigated further: 1) *phone to ear*, 2) *phone manipulation*, 3) *talking or singing*, and 4) *eating or drinking*. Analyses also included comparisons for *any secondary task.*

Table 8. Observed Secondary Tasks by Vehicle Type

Secondary Task	Car		Pickup		SUV		Van	
	N obs.	%	N obs.	%	N obs.	%	N obs.	%
Manipulating a Cell Phone	453	8.3%	207	5.3%	217	7.2%	37	5.6%
Talking/Singing	350	6.4%	233	6.0%	245	8.1%	62	9.3%
Holding phone to ear	298	5.4%	246	6.3%	197	6.5%	46	6.9%
Eating/Drinking	212	3.9%	155	4.0%	124	4.1%	38	5.7%
Smoking	150	2.7%	119	3.0%	68	2.2%	11	1.7%
Phone in Hand	130	2.4%	71	1.8%	72	2.4%	14	2.1%
Touching the Dashboard	68	1.2%	65	1.7%	46	1.5%	13	2.0%
Grooming	73	1.3%	45	1.2%	53	1.7%	5	0.8%
Wearing a Bluetooth Device	50	0.9%	26	0.7%	32	1.1%	9	1.4%
Pet in Vehicle	23	0.4%	27	0.7%	8	0.3%	3	0.5%
Reading	18	0.3%	8	0.2%	4	0.1%	5	0.8%
Any Secondary Task	1,716	31.3%	1,146	29.3%	1,006	33.2%	233	35.0%
Total N Observations	5,480	100.0%	3,912	100.0%	3,029	100.0%	666	100.0%

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%

Drivers of cars served as the base in the binary logistic regressions. Three of the five analyses showed a significant effect of vehicle type (*any secondary behavior*, *phone to ear*, and *eat or drink*). Compared to cars, drivers of vans had a significantly higher probability of being observed engaging in *any secondary behavior* (+35%), as did SUV drivers (+19%) and drivers of

pickup trucks (+18%). Drivers of vans, SUVs, and pickup trucks also had a significantly higher likelihood of being observed holding a *phone to ear* compared to drivers in cars (vans, +44%; SUVs, +27%; pickup trucks, +26%). Drivers of vans also had a significantly higher likelihood of being observed *eating or drinking* (+69%) compared to drivers of cars.

IV. DISCUSSION

The main objective of this project was to assess the presence of a variety of secondary behaviors. Overall results suggest that close to a third of Louisiana drivers engage in some sort of secondary task while driving. The behaviors are more prevalent when drivers are stopped at an intersection than when they are in free-flowing traffic. This suggests that drivers may adjust their behavior to the demands of the roadway situation, perhaps "saving" the distraction to the safer condition (i.e. stopped at an intersection). The higher prevalence of distracting behavior at intersections was observed for *any secondary behavior, phone manipulation, talking or singing,* and *eating or drinking*. However, rates of *holding phone to ear* were higher for moving drivers than for stopped drivers.

Overall, the presence of a passenger was associated with higher prevalence of secondary behaviors, but looking at specific behaviors suggests that this effect was largely driven by the *talking/singing* behavior. Indeed, binary logistic regression indicated *talking/singing* was up to seventeen times higher with the presence of a passenger. In contrast, rates of holding a *phone to* ear or *manipulating* a phone were elevated when a driver was alone in the vehicle.

Perhaps not surprisingly, younger drivers (age 16 to 25) were more likely to engage in secondary behaviors than their older counterparts. Analyses on specific behaviors showed this to be the case for *any secondary behavior, phone manipulation* and *talking/singing*. Younger drivers also showed significantly higher likelihood of *any secondary behavior, eating/drinking* and holding a *phone to ear* than drivers ages 60 and older.

Results indicate that female drivers are more likely to engage in secondary behaviors than male drivers. Specific behaviors showed this to be the case for *any secondary* behavior, *phone* manipulation, *talking/singing* and *eating or drinking*. Male and female drivers were equally likely to be observed holding a phone to ear.

Observations of driver race further showed that overall occurrences of *any secondary task* were higher among African-American drivers. They also showed that White drivers had a significantly higher probability of *any secondary behavior* and *phone manipulation* than those drivers marked Other. African-American drivers then had a higher probability than White drivers of *any secondary behavior, manipulating* a cell phone, and *eating or drinking*.

Appendix. A. Logistic Regressions Table of Results

	Any Secondary Task	Phone Manipulation	Talking or Singing	Phone to Ear	Eating or Drinking
Coalition	χ^2=55.18, p<0.0001	χ^2=78.92, p< 0.001	χ^2=148.92, p< 0.001	No main effect	No main effect
Acadiana vs. Southwest	1.24 [1.04, 1.48]	1.47 [1.03, 2.11]			
Capital Region vs. Southwest	1.45 [1.23, 1.72]	2.44 [1.76, 3.37]			
Central vs. Southwest					
New Orleans vs. Southwest		1.67 [1.18, 2.37]			
Northeast vs. Southwest	1.47 [1.18, 1.84]		2.45 [1.67, 3.60]		
North Shore vs. Southwest			0.53 [0.37, 0.75]		
Northwest vs. Southwest	1.38 [1.14, 1.67]		2.63 [1.87, 3.70]		
South Central vs. Southwest					
Sex	χ^2=36.47, p<0.0001	χ^2=7.62, p=0.006	χ^2=11.62, p=0.001	No main effect	χ^2=7.92, p=0.005
Female vs. Male	1.31 [1.20, 1.43]	1.25 [1.07, 1.46]	1.34 [1.13, 1.59]		1.34 [1.09, 1.64]
Age	χ^2=226.18, p<0.0001	χ^2=151.12, p<0.0001	No main effect	χ^2=48.27, p<0.0001	χ^2=18.29, p<0.0001
26-59 vs. 16-25	0.78 [0.71, 0.87]	0.52 [0.45, 0.61]			
60+ vs. 16-25	0.34 [0.29, 0.39]	0.76 [0.48, 0.12]		0.33 [0.24, 0.46]	0.60 [0.41, 0.87]
Race	χ^2=17.26, p<0.0001	χ^2=11.95, p=0.003	No main effect	No main effect	χ^2=9.10, p=0.011
Black vs. White	1.14 [1.04. 1.25]	1.20 [1.02, 1.40]			1.29 [1.05, 1.57]
Other vs. White	0.77 [0.63, 0.93]	0.63 [0.42, 0.94]			
Vehicle Type	χ^2=20.87, p<0.0001	No main effect	No main effect	χ^2=10.02, p=0.018	χ^2=9.35, p=0.025
Pickup vs. Car	1.18 [1.06, 1.31]			1.26 [1.03, 1.54]	
SUV vs. Car	1.19 [1.08, 1.32]			1.27 [1.05, 1.54]	
Van vs. Car	1.35 [1.13, 1.61]			1.44 [1.04, 2.00]	1.69 [1.18, 2.43]
Passenger Presence	χ^2=75.84, p=0.0001	χ^2=66.08, p<0.0001	χ^2=1,084.05 , p<0.0001	χ^2=55.93, p<0.0001	No main effect
Passenger vs. No Passenger	1.48 [1.36, 1.62]	0.41 [0.33,0.51]	18.18 [15.30, 21.61]	0.42 [0.34, 0.53]	
Traffic Situation	χ^2=177.4, p<0.0001	χ^2=68.94, p<.0001	χ^2=116.08, p<0.0001	χ^2=5.53, p=0.019	χ^2=39.72, p<0.0001
Intersection vs. Free-flowing	1.72 [1.59, 1.86]	1.83 [1.59, 2.11]	2.36 [2.02. 2.76]	0.83 [0.71, 0.97]	1.79 [1.49, 2.14]

Note: only significant effects are reported

Appendix B. Operational Definitions of Observed Driver Secondary Behaviors

Secondary behavior	Operational definition
Talking on phone (Phone to Ear)	Holding cellphone to ear or between head and shoulder, or talking while holding cellphone at or above steering wheel midline.
Manipulating hand-held cellphone (Text/Surf/Dial)	Manually interacting with cellphone. Excludes looking at cellphone in mount or other storage location.
Holding cellphone (In hand, not using)	Holding but not manually interacting with cellphone in hand. Excludes holding related to conversation or when device is resting on lap out of driver's hand.
Wearing Bluetooth earpiece or headset with microphone	Wearing headset with microphone or visible earpiece.
Manipulating in-vehicle system (Dashboard Touch)	Touching radio, climate control, embedded touchscreen display, or other controls located in center console. Excludes operating stalks or buttons on steering wheel.
Talking or singing	Driver's lips moving and appearing to form words.
Eating or drinking	Holding or consuming food or beverage.
Smoking	Lighting/extinguishing/holding/smoking cigarette, cigar, or other smoking implement.
Grooming	Shaving, brushing, or flossing teeth; combing hair; applying makeup; nose picking. Excludes stroking face or hair twirling (i.e., casual/habitual behaviors).
Reading	Reading print material (looking at newspaper, map, book, etc.), adjusting sun visor, putting on sunglasses, holding other non-electronic objects in hand (e.g., spray bottle), and all other observable secondary behaviors.
Pet In Vehicle	Any animal seen inside the vehicle.
Number of Passengers	Number of passengers present in vehicle.
Child (< 12) present	Presence of any child 12 or under inside vehicle.
Number in line	Relative position of vehicle in observed lane at a red light.

Appendix C. Louisiana Distracted Driving Observation Data Collection Form

SITE ID NUMBER: _____ **PARISH**: _____ **OBSERVER NAME**_____

LOCATION: _____
(Street) **(Cross Street or other landmark)**

DATE: _____- _____ - _____ **DAY OF WEEK:** _____

Weather:
1 Clear / Sunny **4 Fog**
2 Light Rain **5 Clear- Wet**
3 Cloudy

TRAFFIC Type (Circle one): 1-Lighted Intersection 2-Free-flowing

START TIME: _____ **(military time)**

					Phone Related Distractions				**Other Distractions**							**Passengers**		
	Veh. Type C T S V	**Driver Sex** M F U	**Driver Race** W B H (isp) O U	**Driver Age** 1=16-25 2=26-59 3 = 60+	**Phone to Ear**	**Text / Surf / Dial/Manipulation**	**In hand (not using)**	**Bluetooth**	**Dashboard Touch**	**Talking / Singing**	**Eating / Drinking**	**Smoking**	**Grooming**	**Reading**	**Pet in Vehicle**	**Num. Passengers**	**Child (< 12) present**	**Number in line**
1																		
2																		
3																		
4																		
5																		
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