

DRIVER BEHAVIOR & PERFORMANCE  
**TECHNICAL REPORT**



# 2023 Traffic Safety Culture Index

**DEC 2024**

607 14th Street, NW, Suite 701  
Washington, DC 20005  
202-638-5944  
AAAFoundation.org

© 2024 AAA Foundation for Traffic Safety

**Title**

---

2023 Traffic Safety Culture Index

**Authors**

---

AAA Foundation for Traffic Safety

## Foreword

---

The AAA Foundation for Traffic Safety has consistently demonstrated its commitment to improve traffic safety through work such as the one presented in this report, the 16<sup>th</sup> annual *Traffic Safety Culture Index*. Results presented in this report are based on a nationally representative survey conducted in 2023 of 2,700 licensed U.S. motorists.

This year, the report provides an overview of the cultural environment of driving in America, including an in-depth examination of risky driving styles, associated demographic factors, and attitudes and beliefs. Similar to previous *Traffic Safety Culture Index* reports, the 2023 version should be a useful reference for researchers, practitioners, and traffic safety advocates to gain better understanding of people's perceptions and attitudes towards risky driving behaviors, to identify relevant issues, and to develop corresponding countermeasures.

C. Y. David Yang, Ph.D.

President and Executive Director  
AAA Foundation for Traffic Safety

## About the Sponsor

---

AAA Foundation for Traffic Safety  
607 14th Street, NW, Suite 701  
Washington, D.C. 20005  
202-638-5944  
[www.aaafoundation.org](http://www.aaafoundation.org)

Founded in 1947, the AAA Foundation for Traffic Safety in Washington, D.C., is a nonprofit, publicly supported charitable research and education organization dedicated to saving lives by preventing traffic crashes and reducing injuries when crashes occur. Funding for this report was provided by voluntary contributions from AAA/CAA and their affiliated motor clubs, individual members, AAA-affiliated insurance companies, and other organizations or sources.

This publication is distributed by the AAA Foundation for Traffic Safety at no charge, as a public service. It may not be resold or used for commercial purposes without the explicit permission of the Foundation. It may, however, be copied in whole or in part and distributed for free via any medium, provided the Foundation is given appropriate credit as the source of the material. The AAA Foundation for Traffic Safety assumes no liability for the use or misuse of any information, opinions, findings, conclusions, or recommendations contained in this report.

If trade or manufacturers' names are mentioned, it is only because they are considered essential to the object of this report and their mention should not be construed as an endorsement. The AAA Foundation for Traffic Safety does not endorse products or manufacturers.

## Table of Contents

---

<b>Introduction</b> .....	5
<b>Summary of Major Findings</b> .....	6
Results from 2023 Traffic Safety Culture Index.....	6
Distracted Driving Behaviors .....	6
Aggressive Driving Behaviors .....	6
Drowsy Driving Behaviors .....	6
Impaired Driving Behaviors .....	7
Identifying Profiles of Risky Driving Behavior Engagement .....	7
<b>Data Collection Methodology and Limitations</b> .....	10
Survey Instrument .....	10
Sampling .....	10
Weighting.....	10
Limitations .....	11
<b>Results</b> .....	12
Overall Results.....	12
Perceived Danger of Driving Behaviors .....	12
Perceived Risk of Apprehension.....	15
Social Disapproval.....	17
Driving Behaviors in Past 30 Days .....	19
Support for Safety Countermeasures .....	21
Identifying Profiles of Risky Driving Behavior Engagement .....	23
<b>Discussion</b> .....	36
<b>References</b> .....	38
<b>Appendix A: Drivers’ attitudes, perceptions, and behaviors in relation to age and sex</b> .....	40
Distracted Driving Behaviors .....	40
Aggressive Driving Behaviors .....	42
Drowsy and Impaired Driving Behaviors .....	44
<b>Appendix B: Latent Class Analysis</b> .....	46

## Introduction

---

The National Highway Safety Administration (NHTSA) estimates that 40,990 people died in motor vehicle crashes in the United States in 2023 (National Center for Statistics and Analysis, 2024a). Although this perilously high number represents a small decline in motor vehicle related fatalities compared to 2022 (3.6%), each death represents an unacceptable human, societal, and economic cost. While causes of motor vehicle fatalities are complex, NHTSA reports risky driving behaviors such as speeding, alcohol involvement, and non-seat belt use are linked to tens of thousands of traffic deaths each year (National Center for Statistics and Analysis, 2024b; National Center for Statistics and Analysis, 2023a; National Center for Statistics and Analysis, 2023b).

Indeed “Safer People” is a key dimension of the Safe System Approach, the holistic guiding paradigm adopted by the U.S Department of Transportation to reduce injuries and fatalities on American roads (U.S. Department of Transportation, 2022). While drivers are expected to stay alert, adhere to traffic laws, and refrain from driving distracted or intoxicated, a core principle of the approach recognizes that humans will make mistakes and sets up systems to minimize the impact of those mistakes. Reducing risky driving behavior and conversely encouraging safe driving behavior are important contributions to “Safer People.” However, changing behavior is challenging, as driving styles develop into habits over people’s lives, guided by a variety of factors including personality, demographics, driving experiences, vehicle characteristics, and both the physical and cultural environments (Sagberg et al, 2015).

This report provides an in-depth examination of the cultural environment of driving in America, specifically, Traffic Safety Culture: the underlying assumptions, beliefs, values, and attitudes that help to shape how Americans drive. A deeper understanding of this crucial influence of driver behavior can help inform countermeasures to encourage “Safer People” on the roads and ultimately reduce road traffic crashes and resulting injuries and fatalities.

For more than a decade, the AAA Foundation for Traffic Safety has been committed to measuring America’s traffic safety culture through the annual *Traffic Safety Culture Index* (TSCI) survey. While levels of traffic fatalities in America remain unacceptably high, responses from the 2023 *Traffic Safety Culture Index* can provide insights into understanding public perceptions, attitudes toward, and engagement in unsafe driving behaviors and aspects that should be considered when developing countermeasures.

As in previous years, this report details the data collection methodology and summarizes major national-level results of the 16<sup>th</sup> annual *Traffic Safety Culture Index*. In addition, this report includes an in-depth analysis to identify risky driving styles, explore associations with demographic factors, and examine differences in attitudes and beliefs.

## **Summary of Major Findings**

---

### **Results from 2023 Traffic Safety Culture Index**

#### ***Distracted Driving Behaviors***

- Roughly 93% of drivers identify both texting/emailing and reading on a hand-held cell phone as very or extremely dangerous. Fewer drivers perceived holding and talking on a cell phone (78%) or using hands-free technology (16%) as very or extremely dangerous.
- Just over one third of respondents perceived drivers would be apprehended for texting/emailing, reading a text/email, and holding and talking on a cell phone while driving.
- Drivers predominantly agreed that people important to them would disapprove of distracted driving behaviors (85%–96% depending on the behavior).
- Nevertheless, many drivers reported sending a text/email (27%), reading a text/email (37%), or holding and talking on a phone (36%) while driving. The majority of drivers (59%) indicated they used a hands-free technology to talk/text/email while driving.
- Eight out of ten drivers supported a law against holding and talking on a phone while driving, while only 42% supported a law against using hands-free technologies to read/text/email while driving.

#### ***Aggressive Driving Behaviors***

- Most respondents believed driving through a red light (81%) or aggressive driving including switching lanes quickly and driving closely behind other vehicles (89%) was very or extremely dangerous.
- Fewer drivers perceived speeding as a dangerous behavior. The speeding behaviors had the lowest social disapproval of all the examined unsafe driving behaviors.
- About 59% of drivers believed police would apprehend them for traveling 15 mph over the speed limit on a freeway, yet approximately half reported having engaged in the behavior in the past 30 days before the survey.

- Fewer than half (45%) of respondents supported a policy using cameras to automatically ticket drivers driving more than 10 mph over the speed limit on residential streets.

### ***Drowsy Driving Behaviors***

- Drivers predominantly perceived drowsy driving to be very or extremely dangerous (96%); however, 20% of drivers reported having engaged in the behavior in the past 30 days.
- Almost 3 in 10 drivers believed the police would apprehend them for drowsy driving.

### ***Impaired Driving Behaviors***

- Drivers overwhelmingly perceived driving after drinking (95%) as very or extremely dangerous and 67% believed such a driver would be likely to be apprehended by police. Only 7% of respondents reported having engaged in this behavior in the past 30 days.
- By comparison, only 70% of drivers felt driving (within an hour) of using marijuana to be very or extremely dangerous and 26% believed such a driver would be likely to be apprehended by police. Only 6% of respondents reported having engaged in this behavior in the past 30 days.
- Most respondents (88%) considered driving when using potentially impairing prescription drugs to be very or extremely dangerous. Very few respondents reported driving when using potentially impairing prescription drugs (3%).

### ***Identifying Profiles of Risky Driving Behavior Engagement***

- Based on the patterns of reported risky driving behavior engagement, the following five unique groups were identified using a latent class analysis and were interpreted as follows:
  - **Safe Drivers (34.9%):** Rarely engaged in any risky driving behavior
  - **Distracted Drivers (19.0%):** Predominantly engaged in all distracted driving behaviors
  - **Speeding Drivers (32.6%):** Predominantly engaged in speeding behaviors
  - **Distracted and Aggressive Drivers (11.0%):** Predominantly engaged in both distracted driving and aggressive driving behaviors
  - **Most Dangerous Drivers (2.5%):** Engaged in all risky driving behaviors



- Comparing the distribution of demographic, geographic, vehicle-related, and driving-habit characteristics between the driving population as a whole and each risky driving profile helped to paint a detailed picture of who these drivers were, beyond their risk tendencies. Compared to the driving population as a whole drivers were more likely to fall into the following categories:
  - Safe Drivers were more likely to be the following:
    - Aged 60–74
    - Female
    - Not working
    - Usually drive 0–2 days per week
  - Distracted Drivers were more likely to be the following:
    - Aged 40–59
    - Female
    - Working
    - Living with children 0–17 in the household
    - Living in non-metro areas
    - Living in the South region of the U.S.
    - Usually drive 6 or 7 days per week
  - Speeding Drivers were more likely to be the following:
    - Aged 40–59
    - Male
    - Have a bachelor’s degree
    - Married
    - Living without children aged 0–17 in the household
    - Living in the Northeast region of the U.S.
  - Distracted and Aggressive Drivers were more likely to be the following:
    - Aged 25–39
    - Never married
    - Working
    - Living with children aged 0–17 in the household
    - Living in metropolitan areas
    - Drive cars 0–4 years old
    - Drive cars with 7 or more safety features
    - Usually drive 6 or 7 days per week
    - Report at least one crash in the past two years

- Most Dangerous Drivers were more likely to be the following:
  - Aged 16–18
  - Male
  - Have lower levels of education (no High School or High School/GED)
  - Never married
  - Living in non-metropolitan areas
  - Living in the Southern region of the U.S.
  - Drive vehicles 15 years old or older
  - Drive vehicles with no safety features
  - Usually drive 6 or 7 days per week
  
- Overall, there was good evidence that perceptions of danger differed by driving profile for all driving behaviors and evidence that perceptions of social disapproval differed for some of the behaviors. However, there was less evidence that perceptions of the risk of apprehension differed by driving profile.
  - Across all risky driving behaviors examined, more Safe Drivers perceived the behaviors to be dangerous and socially disapproved of, compared to all other driving profiles, though differences were not always statistically significant.
  - The estimated proportion of Safe Drivers who perceived a driver would be likely to be caught by the police for a particular driving behavior was not significantly different than any other driving profile across all the driving behaviors examined.
  - A smaller proportion of Distracted Drivers perceived both driving while holding and talking on a cell phone and speeding on the freeway as dangerous and socially disapproved of compared to Safe Drivers.
  - A smaller proportion of Speeding Drivers perceived speeding on freeway as dangerous or socially disapproved of compared to Safe Drivers.
  - A smaller proportion of Distracted and Aggressive Drivers perceived both driving while holding and talking on a cell phone and speeding on a freeway as dangerous compared to Safe Drivers. A greater proportion of Distracted and Aggressive Drivers perceived a driver would be likely to be caught for distracted driving compared to Distracted Drivers.
  - A relatively high proportion of Most Dangerous Drivers perceived a driver would be likely to be caught for most behaviors examined compared to the other driving profiles; however, the difference was only statistically significant for driving without wearing a seat belt.

## **Data Collection Methodology and Limitations**

---

### **Survey Instrument**

The 2023 TSCI instrument was identical to the instrument used in previous years (2019, 2020, 2021, and 2022). This year's TSCI continued to survey the five core questions pertaining to people's perceived danger, perceived risk of apprehension, social disapproval, self-reported behaviors, and support for safety countermeasures.

### **Sampling**

The study used a sample from KnowledgePanel®, a probability-based web panel maintained by Ipsos, to collect data. The panel was designed to be representative of households in the United States by using standard probability-based random digit dial (RDD) and address-based sampling (ABS) methods. The sampling frame includes all U.S. households reachable by telephone or regular mail regardless of telephone or internet access or use. If a sampled household did not have an internet connection or an internet-capable computer, a web-enabled device and/or free internet service were provided. To achieve the representation of the U.S. adult population, a broad set of geodemographic indicators as well as hard-to-reach adult subgroups were used for the panel recruitment process. Individuals not sampled could not volunteer to join the panel.

For respondents ages 19 and older, eligible adults across the nine Census geographical divisions were sampled to ensure a minimum of 200 completed interviews per division. The questionnaire was sent to 4,494 panelists ages 19 and older, with 2,630 qualified respondents completing the questionnaire. For the 16- to 18-year-old sample, random households were sampled with at least one 15- to 18-year-old present from KnowledgePanel®. The survey was also sent to parents who had at least one age-eligible teen in their household. If there was more than one teen in this age range, one of the eligible teens was randomly selected. Parents were asked to provide consent for the selected teen and ask their teen to complete the remainder of the survey. Invitations were sent to 3,491 parents of teens ages 15 to 18, and 944 qualified teens completed the questionnaire. A total of 3,574 respondents ages 16 and older completed the survey. Among them, 2,739 were active licensed drivers (who drove in the past 30 days before the survey with valid driver's license). The survey was administered in English and Spanish between August 1 and August 21, 2023. After collection, data underwent a rigorous cleaning and quality assurance process.

### **Weighting**

The data were weighted to account for probability of selection for recruitment into KnowledgePanel®, probability of selection for the survey, and non-response at both

stages. Further, they were weighted to align the characteristics of respondents to those of the population of residents aged 16 years or older, from which the sample was drawn with respect to gender, age, race/Hispanic ethnicity, education, census region, metropolitan/non-metro status, number of people aged 16 and older in the household, and household income using data from the U.S. Census Bureau’s Current Population Survey (2022). All analyses included in this report have been conducted using weighted data.

## Limitations

This survey aims to estimate the prevalence of specific attitudes and behaviors among all *drivers* in the United States. However, the results of this survey may differ from true population values due to sampling error and possible sources of bias.

Sampling error measures the extent to which estimates from a sample may reflect the population from which the sample is drawn. In this survey, the sampling error reflects the range in which estimates from the sample of 2,739 drivers might be expected to differ from the results that would be obtained if the same data were collected from all drivers in the United States. In this particular survey, a 95% confidence level is set for the margin of error. This means that the range of estimates is expected to include the actual population values 95 times out of 100 when estimated from a sample of the same size and with the same survey design. Additionally, the margin of error varies depending on the number of responses for a survey question and the distribution of responses. The table below shows the approximate margin of error derived from the entire sample. The margin of error is larger for items asked of fewer respondents.

*Table 1. Approximate margin of error (in percentage points) for selected percentages, at the 95% confidence level*

Percentages near	Approx. margin of error
90 or 10	± 1.3
80 or 20	± 1.8
70 or 30	± 2.0
60 or 40	± 2.2
50	± 2.2

This survey has a larger margin of error than a simple random sample of the same size because of the design of the panel and the stratification by census division and oversampling of respondents aged 16 to 18. The margin of error reflects only the statistical variability associated with using the survey sample to draw inferences about the entire population. It does not reflect errors due to bias. For instance, potential sources of bias in surveys include systematic non-coverage of certain segments of the

population (e.g., people who cannot read in English or Spanish), non-response (i.e., eligible respondents who either cannot be contacted or refuse to participate), differences in respondents' understanding of survey questions or response options, or deliberate misreporting of information (e.g., underreporting of behaviors that may be perceived as undesirable).

## **Results**

---

Results of the 2023 TSCI are presented in two sections. The first section includes the overall results regarding perceived danger, perceived risk of apprehension, social disapproval, self-reporting of behaviors, and support of safety laws related to various risky driving behaviors. The second section uses a latent class approach to characterize respondents into driver profiles according to their reported risky driving behaviors. The analysis then considers associations between different driver profiles and demographic, geographic, vehicle-related, and driving habit characteristics and explores differences in attitudes and beliefs.

### **Overall Results**

#### ***Perceived Danger of Driving Behaviors***

The survey asks drivers about their perceived level of danger for various driving behaviors. Results are reported in Table 2. The majority of drivers perceived the unsafe driving behaviors as very or extremely dangerous with two exceptions—driving using a technology allowing hands-free use of their phone and driving 15 miles per hour (mph) over the posted speed limit on freeways.

Respondents predominantly agreed that most distracted driving behaviors were very or extremely dangerous: 93% of respondents indicated that both driving while manually texting or emailing on a cell phone and driving while reading on a cell phone are extremely or very dangerous, and 78% of drivers perceived that driving while holding and talking on cell phones was extremely or very dangerous. However, responses on perceptions of hands-free technology followed a different pattern: only 16% of respondents perceived using a technology that allows for hands-free use of their phones as being very or extremely dangerous and 15% perceived this behavior was not dangerous at all.

With regard to aggressive driving behaviors, approximately 89% of drivers believed aggressive driving, including switching lanes quickly and driving closely behind other vehicles was very or extremely dangerous. Driving through a red light was reported as being very or extremely dangerous by 81% of drivers. Fewer drivers

perceived speeding as a dangerous activity: 61% of respondents perceived driving 10 mph over the posted speed limit on residential streets as very or extremely dangerous and 49% of respondents reported speeding 15 mph over the posted speed limit on freeways as very or extremely dangerous.

In terms of drowsy or impaired driving, nearly all respondents perceived both driving tired/drowsy (96%) and driving after drinking enough alcohol that one may be over the legal limit (95%) to be very or extremely dangerous activities. Additionally, 88% of respondents reported driving after using potentially impairing prescription drugs as very or extremely dangerous. However, a smaller proportion of respondents perceived driving within an hour after using marijuana as extremely or very dangerous (70%).

Table 2. How dangerous do you feel the following driving behaviors are?

Driving Behaviors		Extremely dangerous (%)	Very dangerous (%)	Moderately dangerous (%)	Slightly dangerous (%)	Not dangerous at all (%)
Distracted	Drivers holding and talking on cell phones	43.5	34.2	17.6	4.6	0.0
	Drivers reading on cell phones	65.9	27.4	5.4	0.5	0.8
	Drivers manually texting or emailing on cell phones	69.3	23.9	5.5	0.5	0.8
	Drivers using technology that allows hands-free use of their phone (Bluetooth, CarPlay, Android Auto, etc.)*	8.0	7.8	30.2	39.5	14.5
Aggressive	Drivers speeding 15 mph over the speed limit on freeways	21.7	27.0	31.1	15.8	4.5
	Drivers speeding 10 mph over the speed limit on residential streets (neighborhood)	28.4	33.0	25.9	10.3	2.5
	Driving through a light that had just turned red when they could have stopped safely	52.7	28.0	15.2	3.6	0.6
	Driving aggressively (switching lanes quickly, driving very closely behind another car)	57.4	31.1	8.8	2.7	0.0
Drowsy & Impaired	Driving when they were so tired that they had a hard time keeping your eyes open	70.6	25.4	3.6	0.5	0.0
	Driving after drinking enough alcohol that they may be over the legal limit	73.9	20.6	4.2	0.7	0.6
	Driving shortly (within an hour) after using marijuana	43.1	26.6	17.8	9.0	3.6
	Driving after using potentially impairing prescription drugs	59.0	28.5	8.4	3.4	0.7
Other	Driving without wearing a seatbelt	50.0	26.0	15.2	6.1	2.8

\* The survey did not specify talking or typing using hands-free technology to ask how dangerous people feel distracted driving is.

### ***Perceived Risk of Apprehension***

Table 3 presents the results of respondents' perceptions on how likely a driver is to be caught by the police for certain behaviors. A minority of drivers reported that a driver would be somewhat or very likely to be caught by the police for distracted driving behaviors, including driving while holding and talking on a cell phone (36%), driving while reading a text or an email on a cell phone (35%), and manually typing or sending a text message/email on a phone (37%).

Compared to perceptions of the risk of apprehension of distracted driving behaviors, a larger proportion of respondents believed drivers engaging in aggressive driving behaviors would be caught by police. For instance, 59% of respondents thought that driving 15 mph over the posted speed limit on a freeway would likely result in apprehension. Similarly, 51% of drivers believed that driving through a red light would likely result in the same.

In terms of driver impairment behaviors, the perceived risk of apprehension varied by the source of impairment. The perceived risk of apprehension was highest for driving after drinking enough alcohol to be over the legal limit, where 67% of respondents perceived a driver was somewhat or very likely to be caught by the police. A much smaller proportion of respondents believed that someone driving within an hour after using marijuana (26%) or driving while being so tired that they had a hard time keeping their eyes open (29%) would be apprehended by the police.



Table 3. How likely is a driver to be caught by the police for the following behaviors?

Driving Behaviors		Very likely (%)	Somewhat likely (%)	Somewhat unlikely (%)	Very unlikely (%)
Distracted	Driving while holding and talking on a cell phone	8.8	27.2	41.4	22.6
	Driving while reading a text or an email on a cell phone	8.7	25.8	38.4	27.1
	Driving while manually typing or sending a text message or email on a cell phone	8.2	29.0	35.9	26.9
Aggressive	Driving 15 mph over the speed limit on a freeway	18.0	40.9	28.0	13.1
	Driving 10 mph over the speed limit on a residential street (neighborhood)	9.7	33.1	35.7	21.6
	Driving through a light that had just turned red when they could have stopped safely	14.3	37.0	29.0	19.6
	Driving aggressively (switching lanes quickly, driving very closely behind another car)	17.3	34.2	33.2	15.3
Drowsy & Impaired	Driving while being so tired that they had a hard time keeping their eyes open	8.1	20.9	41.9	29.1
	Driving after drinking enough alcohol that they may be over the legal limit	21.0	45.9	21.1	12.0
	Driving shortly (within an hour) after using marijuana	5.9	20.4	38.4	35.3
	Driving after using potentially impairing prescription drugs	9.9	32.0	35.7	22.5
Other	Driving without wearing a seatbelt	9.8	29.3	32.3	28.6

## ***Social Disapproval***

Table 4 presents results from questions related to social disapproval. Respondents were asked: “How much do you believe people who are important to you would approve of each of the following behaviors?” Drivers overwhelmingly reported that the people important to them would somewhat or completely disapprove of all examined driving behaviors.

Among the distracted driving behaviors, 96% of respondents felt people important to them would somewhat or completely disapprove of driving while manually sending a text/email on a phone, while 94% of respondents reported that people important to them would disapprove of driving while reading a text/email on a phone. Fewer respondents reported that people important to them would disapprove of driving while holding and talking on a phone (85%).

The speeding behaviors had the lowest social disapproval of all the examined unsafe driving behaviors. Specifically, 77% of respondents believed people important to them would disapprove of driving 15 mph over the posted speed limit on a freeway and 89% thought people would disapprove of driving 10 mph over the posted speed limit on a residential street. Respondents reported higher levels of social disapproval for aggressive driving: 95% of respondents indicated that driving through a red light and driving aggressively would be disapproved of by people important to them.

There were very high levels of social disapproval for impaired driving behaviors. Nearly all respondents (97%) believed riding in a car driven by someone who has had too much alcohol or driving a car after drinking enough alcohol to be over the legal limit would be socially disapproved. Slightly fewer respondents (95%) felt that the people important to them would disapprove of driving within an hour after using marijuana.

Table 4. How much do you believe people who are important to you would approve of each of the following behaviors?

Driving Behaviors		Completely approve (%)	Somewhat approve (%)	Somewhat disapprove (%)	Completely disapprove (%)
Distracted	Driving while holding and talking on a cell phone	2.3	12.4	42.9	42.3
	Driving while reading a text or an email on a cell phone	1.9	4.3	34.8	59.0
	Driving while manually typing or sending a text message or email on a cell phone	0.5	3.7	30.6	65.2
Aggressive	Drivers speeding 15 mph over the speed limit on freeways	5.4	17.9	43.2	33.6
	Drivers speeding 10 mph over the speed limit on residential streets (neighborhood)	2.6	8.4	42.0	47.1
	Driving through a light that had just turned red when they could have stopped safely	0.7	4.5	34.2	60.5
	Driving aggressively (switching lanes quickly, driving very closely behind another car)	1.5	3.8	30.5	64.2
Drowsy & Impaired	Driving while being so tired that they had a hard time keeping their eyes open	1.3	2.4	21.6	74.8
	Driving after drinking enough alcohol to be over the legal limit	1.7	1.3	10.0	87.1
	Riding in a car driven by someone who has had too much alcohol	1.5	1.1	7.6	89.8
	Driving shortly (within an hour) after using marijuana	1.3	3.9	18.1	76.7
	Driving after using potentially impairing prescription drugs	1.4	2.1	17.6	78.9
Other	Driving without wearing a seatbelt	1.3	1.7	22.2	74.8

### ***Driving Behaviors in Past 30 Days***

Respondents were asked, “In the past 30 days, how often have you done any of the following behaviors?” Table 5 shows that many respondents reported having engaged in each of the behaviors to varying degrees.

For the distracted driving behaviors, 36% of drivers reported they drove while holding and talking on a phone at least once in the past 30 days before the survey, and 37% drove while reading a text/email on a phone. Fewer drivers manually typed or sent a text/email on a phone while driving (27%), while more drivers indicated they had used a hands-free technology to talk/text/email while driving at least once in the past 30 days (59%).

With respect to speeding, almost half of respondents indicated having driven 15 mph over the posted speed limit on a freeway at least once in the past 30 days before the survey (49%). Additionally, 36% of drivers reported having driven 10 mph over the posted speed limit on a residential street. In contrast, fewer reported having driven through a red light (27%) or driven aggressively by switching lanes quickly and/or following very closely behind another vehicle (22%) in the past 30 days.

Compared to distracted or aggressive driving, the prevalence of reported impaired driving was less frequent and varied by the source of impairment. For example, 7% of drivers admitted to having driven when they had enough alcohol that they may have been over the legal limit. Similarly, 6% admitted to having driven shortly (within an hour) after using marijuana at least once in the past 30 days, whereas fewer reported having driven when using potentially impairing prescription drugs (3%). Meanwhile, 20% of drivers reported having driven when they were so tired that they had a hard time keeping their eyes open.

Table 5. In the past 30 days, how often have you...?

Driving Behaviors		Regularly (%)	Fairly often (%)	A few times (%)	Just once (%)	Never (%)
Distractions	Driven while holding and talking on a cell phone	1.6	3.5	20.0	10.4	64.5
	Driven while reading a text or an email on a cell phone	0.9	3.4	22.5	10.2	63.0
	Driven while manually typing or sending a text message or an email	0.8	2.4	15.5	7.9	73.3
	Talked/texted/emailed on a cell phone using hands-free technology (Bluetooth, CarPlay etc.)	9.7	13.4	30.2	5.9	40.8
Aggressive	Driven 15 mph over the speed limit on a freeway	5.0	8.2	28.1	7.9	50.8
	Driven 10 mph over the speed limit on a residential street	2.6	4.2	22.9	6.6	63.7
	Driven through a light that had just turned red when you could have stopped safely	0.2	0.7	10.1	15.9	73.0
	Driven aggressively by switching lanes quickly and/or very close behind another car	0.4	1.4	12.5	7.5	78.3
Drowsy & Impaired	Driven when you were so tired that you had a hard time keeping your eyes open	0.1	0.7	8.4	10.3	80.5
	Driven when you had enough alcohol that you thought you might be over the legal limit	0.0	0.2	3.0	4.2	92.6
	Ridden in a car driven by someone who has had too much alcohol	0.0	0.1	3.1	3.2	93.6
	Driven shortly (within an hour) after using marijuana	1.0	0.5	2.7	0.8	95.0
	Driven when using potentially impairing prescription drugs	0.2	0.4	1.5	0.7	97.2
Other	Driven without wearing a seatbelt	2.1	1.7	6.2	2.4	87.6

### ***Support for Safety Countermeasures***

Respondents were asked how strongly they support or oppose various traffic safety countermeasures. As shown in Table 6, many drivers were in favor of most examined countermeasures. Over 90% of the respondents were in support of requiring autonomous vehicle developers to share safety information and testing results with the public before these vehicles are allowed on public roads. Eight in ten drivers were supportive of a law against holding and talking on a phone while driving, regardless of the driver's age. Additionally, more than three quarters of drivers were supportive of a law requiring all new drivers under the age of 21 years to go through training, practice time, and a restriction period. In contrast, fewer were in support of a law against using hands-free technologies for reading, typing, and sending a text message/email (42%). Likewise, 45% of drivers were in favor of using cameras to automatically ticket drivers who drive more than 10 mph over the speed limit on residential streets.

With respect to impaired driving, respondents' support for countermeasures varied by the type of countermeasure and source of impairment involved. Just over half of drivers supported lowering the legal limit for a driver's blood alcohol concentration from 0.08 to 0.05 (53%), while seven in ten drivers supported lowering the legal limit for a driver's blood alcohol concentration to 0.05 for people transporting young children. More drivers were supportive of making it illegal to drive with more than a certain amount of marijuana in one's system (81%). Similarly, 71% of drivers supported making it illegal to drive with any drug (not legally prescribed) in one's system.

Table 6. How strongly do you support or oppose...?

Driving Behaviors		Support strongly (%)	Support somewhat (%)	Oppose somewhat (%)	Oppose strongly (%)
Distracted	Having a law against holding and talking on a cell phone while driving, for all drivers regardless of their age	49.2	31.0	13.2	6.6
	Having a law against using hands-free technology to read, type, or send a text message/email while driving	18.7	23.5	31.6	26.2
Aggressive	Using cameras to automatically ticket drivers who drive more than 10 mph over speed limit on residential streets	16.6	28.1	24.0	31.4
Impaired	Requiring all new cars to have a built-in technology that will not let the car start if the driver's alcohol level is over the legal limit	39.0	29.7	16.3	15.0
	Having a law lowering the legal limit for a driver's blood alcohol concentration from 0.08 to 0.05	25.2	27.9	23.4	23.5
	Lowering the legal limit for a driver's blood alcohol concentration to 0.05 for people transporting young children	40.7	28.8	13.5	17.0
	Making it illegal to drive with more than a certain amount of marijuana in your system	51.7	29.2	11.2	7.9
	Making it illegal to drive with any drug (not legally prescribed) in your system	43.0	28.0	18.8	10.2
Other	Requiring all new drivers under the age of 21 years to go through training, practice time, and a restriction period	42.2	34.7	15.4	7.8
	Require developers of self-driving car technologies to share safety information and testing results with the public before the vehicles are allowed on public roads	68.2	22.4	5.2	4.2

## Identifying Profiles of Risky Driving Behavior Engagement

Similar to last year's TSCI report (AAA Foundation for Traffic Safety, 2023), this section describes driving profiles in our sample of drivers using a statistical assessment called latent class analysis (LCA). LCA uses patterns of responses to uncover hidden subgroups in the data, called classes, based on a predetermined set of variables (Sinha, Calfee, and Delucchi, 2021). After classes are determined, the analysis then calculates the probability that an individual respondent will belong to each class. Finally, each individual is assigned to their most-probable class. See Appendix B for a general overview of the LCA approach. The current analysis applied a survey-weighted LCA using each of the 14 risky driving-related behavior engagement questions. These driving-related behavior engagement questions were dichotomized (0 – Never; 1 – Just Once to Regularly) for this analysis. A sensitivity analysis tested whether results were robust to an alternative dichotomization (0 – Never or Once; 1 – A few times or more).

Based on several model fit indices, five unique groups (i.e., risky driving profiles) were identified in the data. Each respondent was then assigned to their most-likely group. Based on patterns of risky driving-related behavior engagement (see Table 7), these groups are interpreted as representing the following:

- Safe Drivers (34.9%)
- Distracted Drivers (19.0%)
- Speeding Drivers (32.6%)
- Distracted and Aggressive Drivers (11.0%)
- Most Dangerous Drivers (2.5%).

The largest proportion of respondents were assigned to the Safe Drivers group (34.9% of the weighted sample) and very few in this group reported engaging in any of the risky driving-related behaviors. The majority of respondents in the Distracted Drivers group (19.0% of the weighted sample) reported engaging in distracted driving behaviors, such as reading text messages and texting while driving. Those interpreted as Speeding Drivers (32.6% of the weighted sample) composed the second largest group. These drivers reported driving 15 mph over the posted speed limit on freeways and 10 mph over on residential streets, but few other risky behaviors. Approximately 11.0% of respondents were classified into a group interpreted as Distracted and Aggressive Drivers. These respondents engaged in both distracted driving behaviors (e.g., texting while driving) and aggressive behaviors, such as speeding and switching lanes quickly. Persons included in the Most Dangerous Drivers group (2.5% of the weighted sample) tended to engage in nearly every risky driving-related behavior.

The Sensitivity Analysis examining an alternative dichotomization (0 – Never or Once; 1 – A few times or more) of the behavior engagement questions found broadly



similar results. Model fit indices identified five unique groups with similar interpretations as the dichotomization (0 – Never; 1 – Once or more) used in the main analysis; however, the assignment of respondents to their most likely group revealed different proportions.

It is not possible to directly compare results from this year’s driving profile analysis to results from last year’s analysis (AAA Foundation for Traffic Safety, 2023) because of limitations of the technical approach. Broadly, however, the identified profiles this year have similar interpretations to the profiles identified last year with one exception: the small Impaired Drivers profile (1.3% of drivers in 2022) was not identified this year. Notably, it is not valid to compare proportions of risky driving profiles between this year and the 2022 report. For example, it is not appropriate to conclude that the proportion of drivers who fall into the Speeding Driving group this year (32.6% of drivers) has increased relative to last year (where the Speeding Drivers group made up 22.7% of drivers in 2022), because what constitutes a Speeding Driver has changed based on the patterns of responses in 2023 relative to 2022. Understanding how driving profiles have changed over time is an interesting research question and may be considered in a future report.

While comparisons over time are not possible, road safety research does need a better understanding of the drivers that fall into each of these risk profiles in order to facilitate countermeasure development. The Traffic Safety Culture Index collects a lot of rich information on respondents that following sections use to paint a detailed picture of who these drivers are, beyond their risk tendencies. This analysis first investigated driving profiles by respondent characteristics, followed by attitudes and beliefs

Many different types of characteristics were examined, broadly classified as demographic, geographic, characteristics of the vehicle driven most often by respondents, and driving habits and performance.

Demographic characteristics considered included the following:

- Age group
- Sex
- Education (for adults 19+ years of age)
- Marital status (for adults 19+ years of age)
- Presence of children in the household
- Employment status

Geographic variables considered included the following:

- Region

- Whether the respondent lived in a metropolitan area (i.e., an urban area inhabited by 50,000 or more persons)

Vehicle characteristics included the following:

- Vehicle age
- Self-reported presence of safety features

The TSCI asks respondents about the presence of 13 safety characteristics on the vehicles they drive most often: adaptive cruise control, adaptive (or active) headlights, backup/parking assist, blind spot warning, (rear) cross traffic detection, fatigue/drowsy driver alert, forward collision warning, integrated Bluetooth cell phone, lane departure warning, lane centering/keeping assist, navigation assistance, night vision enhancement, and voice control.

Driving habits and performance characteristics include the following:

- The number of days per week usually driven by the respondent
- Whether a respondent reported being involved in a crash, regardless of fault, in the previous two years.

Analyses of the association between driving profiles and respondent characteristics applied an adjustment (the Bolck, Croon, and Hagenaars [BCH] correction) to account for any potential misclassification bias due to using probabilities to assign individuals to their most-likely group (Bolck, Croon, and Hagenaars, 2004). Notable group differences were found on each examined characteristic as shown in Tables 8 through 11.

Demographic differences (Table 8):

- A greater proportion of respondents classified as Safe Drivers were aged 60–74 (34.5%), compared to the driving population as a whole (24.7%). A greater proportion of Safe Drivers were female (57.8%), compared to the driving population as a whole (50.7%). A greater proportion of Safe Drivers were not working (44.8%), compared to the driving population as a whole (32.6%).
- A greater proportion of Distracted Drivers were aged 40–59 (46.0%), female (56.6%), were working (80.7%), and had children 0–17 in the household (46.8%) compared to the population as a whole (36.5%, 50.7%, 67.5%, and 33.2%, respectively).
- A greater proportion of Speeding Drivers were aged 40–59 (40.9%), male (58.7%), had a bachelor’s degree (41.8%), were married (63.8%), and were living without children aged 0–17 in the household (72.9%) compared to the driving population as whole (36.5%, 49.3%, 36.8%, 59.9%, and 66.8%, respectively).

- A greater proportion of Distracted and Aggressive Drivers were aged 25–39 (38.8%), never married (40.2%), were working (83.1%), and lived with children aged 0–17 in the household (42.9%) compared to the driving population as a whole (22.6%, 23.8%, 67.5%, and 33.2%, respectively).
- A greater proportion of Most Dangerous Drivers were teens (5.9%), male (61.0%), had lower levels of education (no High School (21.0%) or High School/GED (33.5%)) and had never been married (56.1%) compared to all other risky driving profiles.

#### Geographic differences (Table 9):

- A larger proportion of respondents classified as Distracted and Aggressive Drivers (91.6%) lived in metropolitan areas compared to the driving population as a whole (87.0%).
- A larger proportion of Distracted Drivers (19.2%) and Most Dangerous Drivers (20.1%) lived outside metropolitan areas compared to the driving population as a whole (13.0%)
- A smaller proportion of Most Dangerous Drivers (9.0%) and Distracted Drivers (5.0%) lived in the Northeast, while a greater proportion of Speeding Drivers (24.3%) lived in the Northeast compared to the driving population as a whole (16.9%).
- A greater proportion of Most Dangerous Drivers (58.8%) and Distracted Drivers (46.9%) lived in the South compared to the driving population as a whole (38.2%).

#### Vehicle characteristics differences (Table 10):

- A larger proportion of respondents classified as Most Dangerous Drivers drove vehicles 15+ years old (42.1%) compared to the driving population as a whole (21.5%), while a smaller proportion of Most Dangerous Drivers drove vehicles less than 4 years old (12.4%) compared to the population as a whole (21.6%).
- A larger proportion of Distracted and Aggressive Drivers drove vehicles less than 4 years old (25.6%) compared to the population as a whole (21.6%).
- Compared to the population as a whole (27.4%), a greater proportion of Speeding Drivers (30.3%) and Distracted and Aggressive Drivers (32.1%) drove vehicles with seven or more safety features.

#### Driving habits/performance differences (Table 11):

- A larger proportion of respondents classified as Distracted and Aggressive Drivers (17.8%) reported involvement of at least one crash in the previous two years compared to the driving population as a whole (11.0%).
- A larger proportion of Safe Drivers (17.3%) reported driving less than two days per week compared to the driving population as a whole (9.8%), while a larger proportion of Most Dangerous Drivers (77.0%), Distracted Drivers (67.6%) and

Distracted and Aggressive Drivers (65.9%) reported driving 6 or 7 days per week compared to the driving population as a whole (57.8%).

Characterizations of driver profiles based on demographics characteristics, geographic characteristics, vehicle characteristics, and driving habits and performance using the alternative dichotomization (0 – Never or Once; 1 – A few times or more) of the behavior engagement questions revealed analogous findings to the main analysis.

Finally, this section compares the attitudes and beliefs of respondents in each risky driving profile. Findings on a selection of behaviors are shown in Figures 1 through 3. Dots show estimated proportions of drivers in each group who hold each attitude, while bars indicate 95% confidence intervals around those estimates. When confidence intervals do not overlap, it can be concluded that there is a significant difference between the attitudes of respondents in particular driving profiles. For instance, in Figure 1, there is evidence that a significantly larger proportion of Safe Drivers perceive driving and talking on a cell phone to be very or extremely dangerous compared to Distracted Drivers, but no evidence that perceptions of danger for this behavior differ between Safe Drivers and Speeding Drivers. Similar to the analysis of respondent characteristics presented above, a BCH correction was applied to account for any potential misclassification bias due to using probabilities to assign individuals to their most-likely group (Bolck, Croon, and Hagenaars, 2004).

Overall, there was good evidence that perceptions of danger differed by driving profile for all driving behaviors (Figure 1) and evidence that perceptions of social disapproval differed for some of the behaviors (Figure 2). However, there was less evidence that perceptions of the risk of apprehension differed by driving profile, apart from driving while holding and talking on a cell phone (Figure 3).

- Across all risky driving behaviors examined, more Safe Drivers perceived the behaviors to be dangerous and socially disapproved of, compared to all other driving profiles, though differences were not always statistically significant. The estimated proportion of Safe Drivers who perceived a driver would be likely to be caught by the police for a particular driving behavior was not significantly different than any other driving profile across all the driving behaviors examined.
- Fewer Distracted Drivers perceived driving while holding and talking on a cell phone to be very or extremely dangerous compared to Safe Drivers. Likewise, fewer Distracted Drivers perceive the behavior would be socially disapproved of as compared to Safe Drivers.
- A smaller proportion of Speeding Drivers perceived speeding on freeway as dangerous or socially disapproved of as compared to Safe Drivers.
- A smaller proportion of Distracted and Aggressive Drivers perceived both driving while holding and talking on a cell phone and speeding on a freeway as dangerous compared to Safe Drivers. A greater proportion of Distracted and

Aggressive Drivers perceived a driver would be likely to be caught for distracted driving compared to Distracted Drivers.

- Compared to Safe Drivers, a smaller proportion of Most Dangerous Drivers perceived both speeding on a freeway and driving shortly after using marijuana as dangerous. Significantly fewer Most Dangerous Drivers thought people important to them would disapprove of driving without a seatbelt compared to Safe Drivers and Speeding Drivers. A relatively high proportion of Most Dangerous Drivers perceived a driver would be likely to be caught for most behaviors examined compared to the other driving profiles; however, the difference was only statistically significant for driving without wearing a seat belt.

Table 7. Proportion of Risky Driving Profiles Engaging in Risky Driving Behaviors

Driving Behaviors		Safe Drivers n <sub>w</sub> %=34.9 (%)	Distracted Drivers n <sub>w</sub> %=19.0 (%)	Speeding Drivers n <sub>w</sub> %=32.6 (%)	Distracted and Aggressive Drivers n <sub>w</sub> %=11.0 (%)	Most Dangerous Drivers n <sub>w</sub> %=2.5 (%)	Total n <sub>w</sub> =2,727 (%)
Distracted	Drivers holding and talking on cell phones	11.3%	<b>63.8%</b>	32.6%	<b>77.3%</b>	<b>86.5%</b>	35.5%
	Drivers reading on cell phones	1.0%	<b>95.4%</b>	26.9%	<b>97.0%</b>	<b>71.5%</b>	36.9%
	Drivers manually texting or emailing on cell phones	0.6%	<b>71.3%</b>	18.3%	<b>97.1%</b>	<b>56.2%</b>	26.6%
	Drivers using technology that allows hands-free use of their phone (Bluetooth, CarPlay, Android Auto, etc.)*	31.9%	<b>78.0%</b>	2.5%	<b>90.1%</b>	<b>64.4%</b>	59.2%
Aggressive	Drivers speeding 15 mph over the speed limit on freeways	7.8%	38.6%	<b>66.6%</b>	<b>95.7%</b>	<b>87.3%</b>	49.2%
	Drivers speeding 10 mph over the speed limit on residential streets (neighborhood)	8.0%	11.5%	<b>81.1%</b>	<b>95.8%</b>	<b>81.3%</b>	36.2%
	Driving through a light that had just turned red when they could have stopped safely	5.2%	23.8%	<b>57.1%</b>	<b>63.3%</b>	<b>92.3%</b>	26.9%
	Driving aggressively (switching lanes quickly, driving very closely behind another car)	0.5%	17.5%	34.6%	<b>66.4%</b>	<b>76.9%</b>	21.6%
Drowsy & Impaired	Driving when they were so tired that they had a hard time keeping your eyes open	3.3%	25.0%	27.3%	47.8%	<b>90.9%</b>	19.5%
	Driving after drinking enough alcohol that they may be over the legal limit	0.0%	3.8%	18.5%	14.0%	<b>80.1%</b>	7.5%
	Ridden in a car driven by someone who has had too much alcohol	1.1%	4.3%	9.7%	16.0%	<b>56.1%</b>	6.5%
	Driving shortly (within an hour) after using marijuana	0.6%	4.0%	6.4%	7.3%	<b>71.3%</b>	5.0%
	Driving after using potentially impairing prescription drugs	0.7%	0.3%	4.4%	2.3%	<b>61.8%</b>	2.8%
Other	Driving without wearing a seatbelt	2.7%	14.6%	2.1%	23.2%	<b>61.5%</b>	12.2%

Note: n<sub>w</sub>=weighted sample size. n<sub>w</sub>%=weighted sample size proportion. \*=The survey did not specify talking or typing using hands-free technology to ask how dangerous people feel distracted. Frequencies above 50% were bolded to indicate the majority of a given group engaged in a given behavior.

Table 8. Demographic Characteristics of Risky Driving Profiles with BCH Corrections

Characteristics		Safe Drivers n <sub>w</sub> =34.9 (%)	Distracted Drivers n <sub>w</sub> =19.0 (%)	Speeding Drivers n <sub>w</sub> =32.6 (%)	Distracted and Aggressive Drivers n <sub>w</sub> =11.0 (%)	Most Dangerous Drivers n <sub>w</sub> =2.5 (%)	Total <sup>a</sup> n <sub>w</sub> =2,727 (%)
Age*	16–18	2.7%	2.6%	2.1%	4.1%	5.9%	2.8%
	19–24	5.9%	7.3%	3.5%	12.6%	8.5%	6.2%
	25–39	17.9%	30.8%	16.1%	38.8%	37.1%	22.6%
	40–59	29.4%	46.0%	40.9%	30.9%	37.4%	36.5%
	60–74	34.5%	12.1%	27.1%	11.9%	7.8%	24.7%
	75+	9.5%	1.2%	10.3%	1.7%	3.2%	7.2%
Sex*	Male	42.2%	43.4%	58.7%	52.3%	61.0%	49.3%
	Female	57.8%	56.6%	41.3%	47.7%	39.0%	50.7%
Education of Adult*	No High School or GED	6.4%	2.9%	6.4%	6.9%	21.0%	6.2%
	High School or GED	28.4%	21.7%	18.8%	22.6%	33.5%	23.6%
	Some College/Associate	30.2%	32.9%	30.9%	28.5%	27.0%	30.6%
	Bachelor’s Degree or Higher	32.3%	39.8%	41.8%	38.0%	12.7%	36.8%
	Teen Group <sup>b</sup>	2.7%	2.6%	2.1%	4.1%	5.9%	2.8%
Marital Status of Adult*	Never Married	21.0%	22.7%	18.9%	40.2%	56.1%	23.8%
	Married	62.4%	61.4%	63.8%	45.6%	29.9%	59.9%
	Widowed/Divorced/Separated	13.9%	13.3%	15.3%	10.1%	8.1%	13.6%
	Teen Group <sup>b</sup>	2.7%	2.6%	2.1%	4.1%	5.9%	2.8%
Employment Status*	Not working	44.8%	19.3%	32.9%	16.9%	24.1%	32.6%
	Currently working	55.2%	80.7%	67.1%	83.1%	75.9%	67.5%
Children 0–17 in HH*	No children	71.5%	53.2%	72.9%	57.1%	66.2%	66.8%
	One or more children	28.5%	46.8%	27.1%	42.9%	33.8%	33.2%

Note: n<sub>w</sub>=weighted sample size. n<sub>w</sub>%=weighted sample size proportion. <sup>a</sup>=values in the “Total” column did not require BCH corrections. <sup>b</sup>=The “teen group” in this category denotes participants who are 16–17 years old. \*=*p*<.05. It is possible that frequencies in a given cell do not add up to 100% due to rounding.

Table 9. Geographic Characteristics of Risky Driving Profiles with BCH Corrections

Characteristics		Safe Drivers n <sub>w</sub> %=34.9 (%)	Distracted Drivers n <sub>w</sub> %=19.0 (%)	Speeding Drivers n <sub>w</sub> %=32.6 (%)	Distracted and Aggressive Drivers n <sub>w</sub> %=11.0 (%)	Most Dangerous Drivers n <sub>w</sub> %=2.5 (%)	Total <sup>a</sup> n <sub>w</sub> =2,727 (%)
Metropolitan Area*	Non-Metropolitan area	12.5%	19.2%	10.8%	8.4%	20.1%	13.0%
	Metropolitan Areas	87.5%	80.8%	89.2%	91.6%	79.9%	87.0%
Region*	Northeast	16.1%	5.0%	24.3%	20.6%	9.0%	16.9%
	Midwest	24.2%	25.4%	17.7%	20.0%	20.9%	21.8%
	South	35.6%	46.9%	34.8%	36.5%	58.8%	38.2%
	West	24.0%	22.7%	23.2%	22.9%	11.4%	23.0%

Note: n<sub>w</sub>=weighted sample size. n<sub>w</sub>%=weighted sample size proportion. <sup>a</sup>=values in the “Total” column did not require BCH corrections. \*=p<.05. It is possible that frequencies in a given cell do not add up to 100% due to rounding.

Table 10. Vehicle Characteristics of Risky Driving Profiles with BCH Corrections

Characteristics		Safe Drivers n <sub>w</sub> %=34.9 (%)	Distracted Drivers n <sub>w</sub> %=19.0 (%)	Speeding Drivers n <sub>w</sub> %=32.6 (%)	Distracted and Aggressive Drivers n <sub>w</sub> %=11.0 (%)	Most Dangerous Drivers n <sub>w</sub> %=2.5 (%)	Total <sup>a</sup> n <sub>w</sub> =2,727 (%)
Age of vehicle*	0–4 years old	21.5%	19.4%	22.3%	25.6%	12.4%	21.6%
	5–9 years old	32.0%	34.0%	37.7%	36.7%	26.6%	34.6%
	10–14 years old	23.8%	28.8%	18.0%	20.2%	18.9%	22.4%
	15+ years old	22.7%	17.8%	21.9%	17.5%	42.1%	21.5%
Safety Features*	No safety features	27.0%	18.9%	20.2%	13.3%	37.7%	22.1%
	1–3 safety features	31.6%	35.0%	31.2%	36.5%	23.1%	32.4%
	4–6 safety features	18.1%	19.1%	18.3%	18.1%	9.3%	18.1%
	7+ safety features	23.3%	27.1%	30.3%	32.1%	29.9%	27.4%

Note: n<sub>w</sub>=weighted sample size. n<sub>w</sub>%=weighted sample size proportion. <sup>a</sup>=values in the “Total” column did not require BCH corrections. \*=p<.05. It is possible that frequencies in a given cell do not add up to 100% due to rounding.

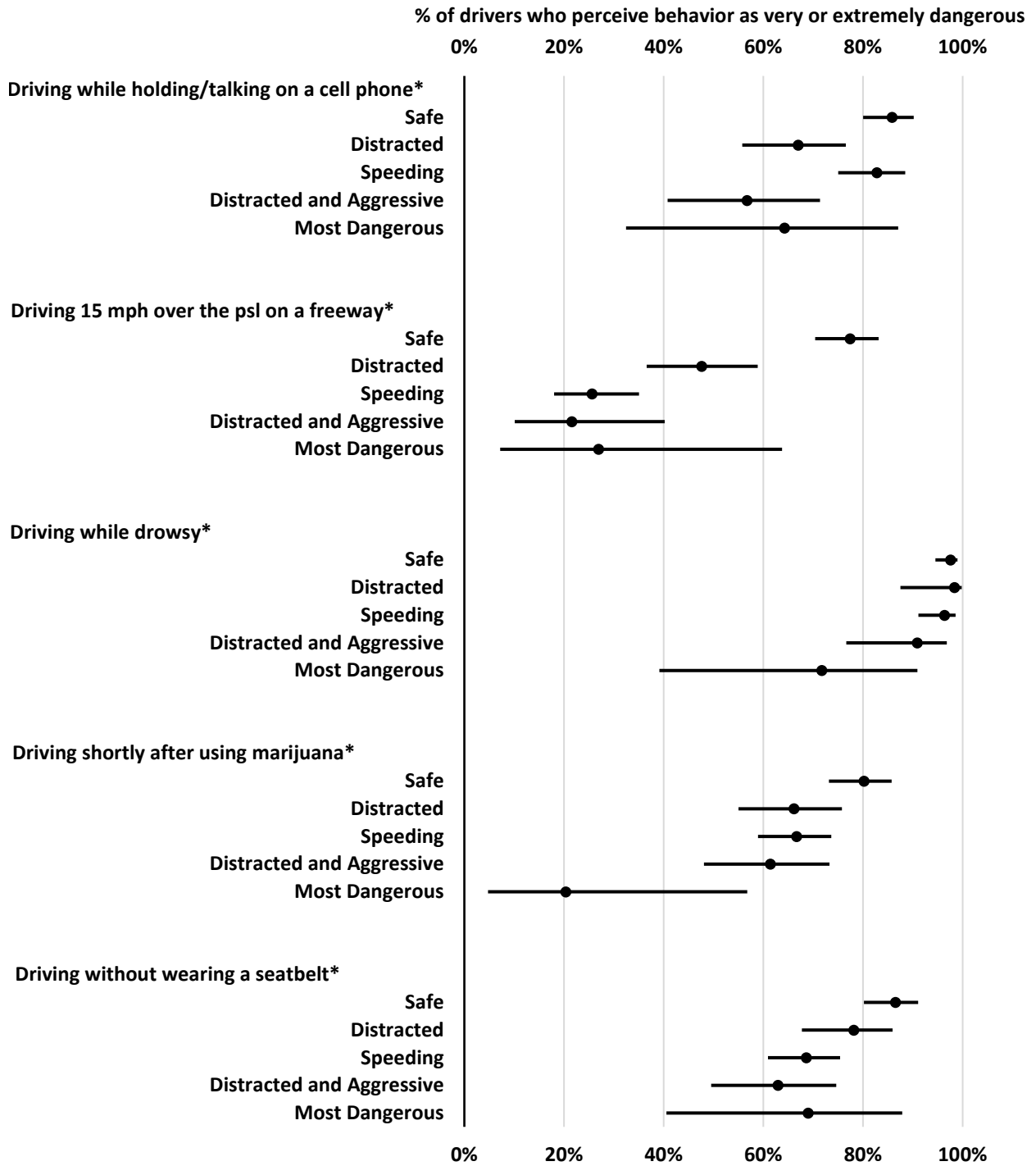


Table 11. Driver habits and crash involvement of Risky Driving Profiles with BCH Corrections

Characteristics		Safe Drivers n <sub>w</sub> %=34.9 (%)	Distracted Drivers n <sub>w</sub> %=19.0 (%)	Speeding Drivers n <sub>w</sub> %=32.6 (%)	Distracted and Aggressive Drivers n <sub>w</sub> %=11.0 (%)	Most Dangerous Drivers n <sub>w</sub> %=2.5 (%)	Total <sup>a</sup> n <sub>w</sub> =2,727 (%)
<b>Crash Involvement*</b>	No reported crashes	90.5%	88.9%	89.5%	82.2%	94.8%	89.1%
	One or more reported crashes	9.5%	11.1%	10.5%	17.8%	5.2%	11.0%
<b>Usual Driving Frequency*</b>	0–2 days per week	17.6%	4.0%	7.3%	3.4%	3.7%	9.8%
	3–5 days per week	35.8%	28.4%	32.6%	30.7%	19.3%	32.4%
	6–7 days per week	46.6%	67.6%	60.1%	65.9%	77.0%	57.8%

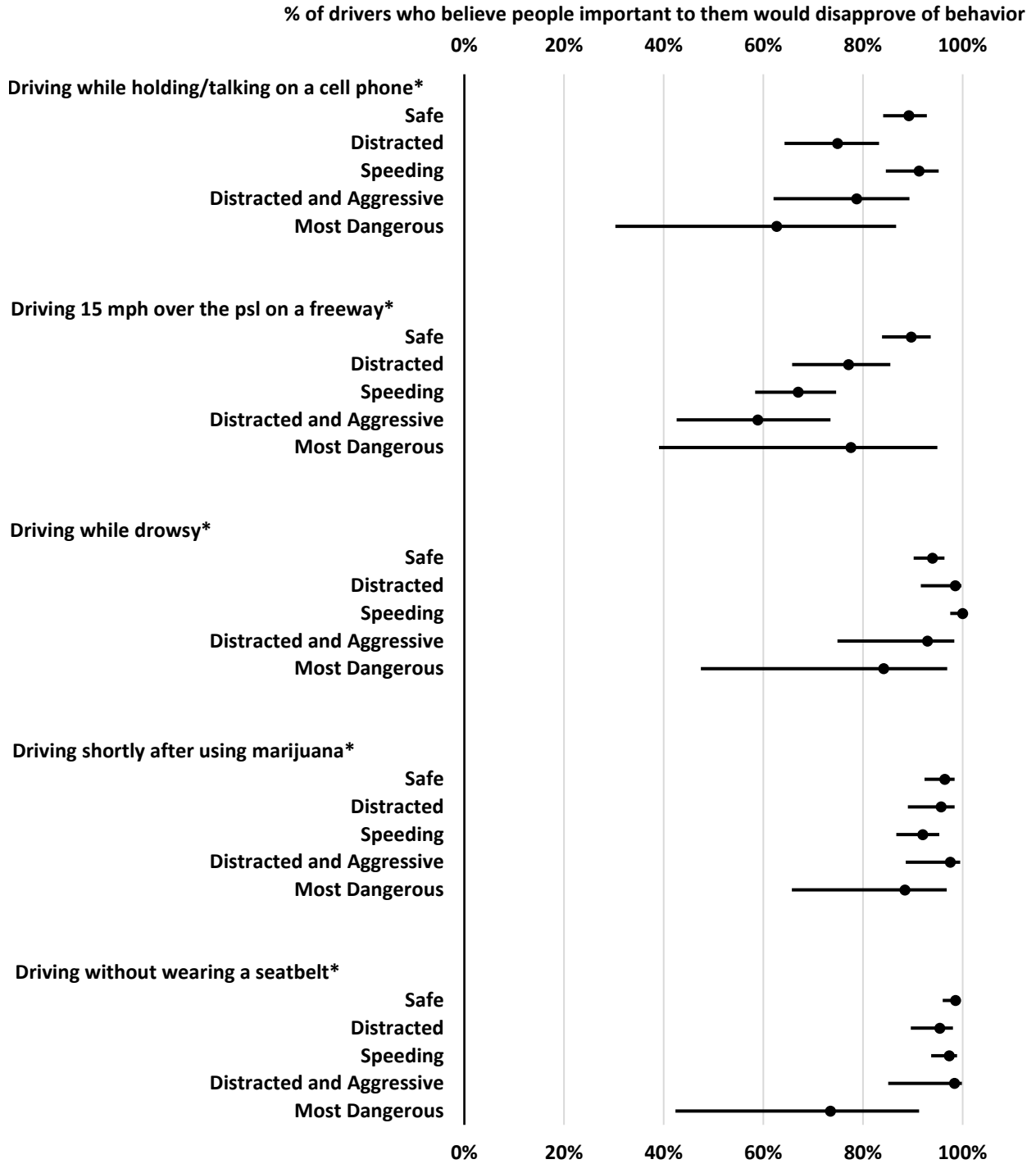
Note: n<sub>w</sub>=weighted sample size. n<sub>w</sub>%=weighted sample size proportion. <sup>a</sup>=values in the “Total” column did not require BCH corrections. \*=p<.05. It is possible that frequencies in a given cell do not add up to 100% due to rounding.

Figure 1: Perceived Danger of Selected Driving Behaviors by Risky Driving Profiles with BCH Correction



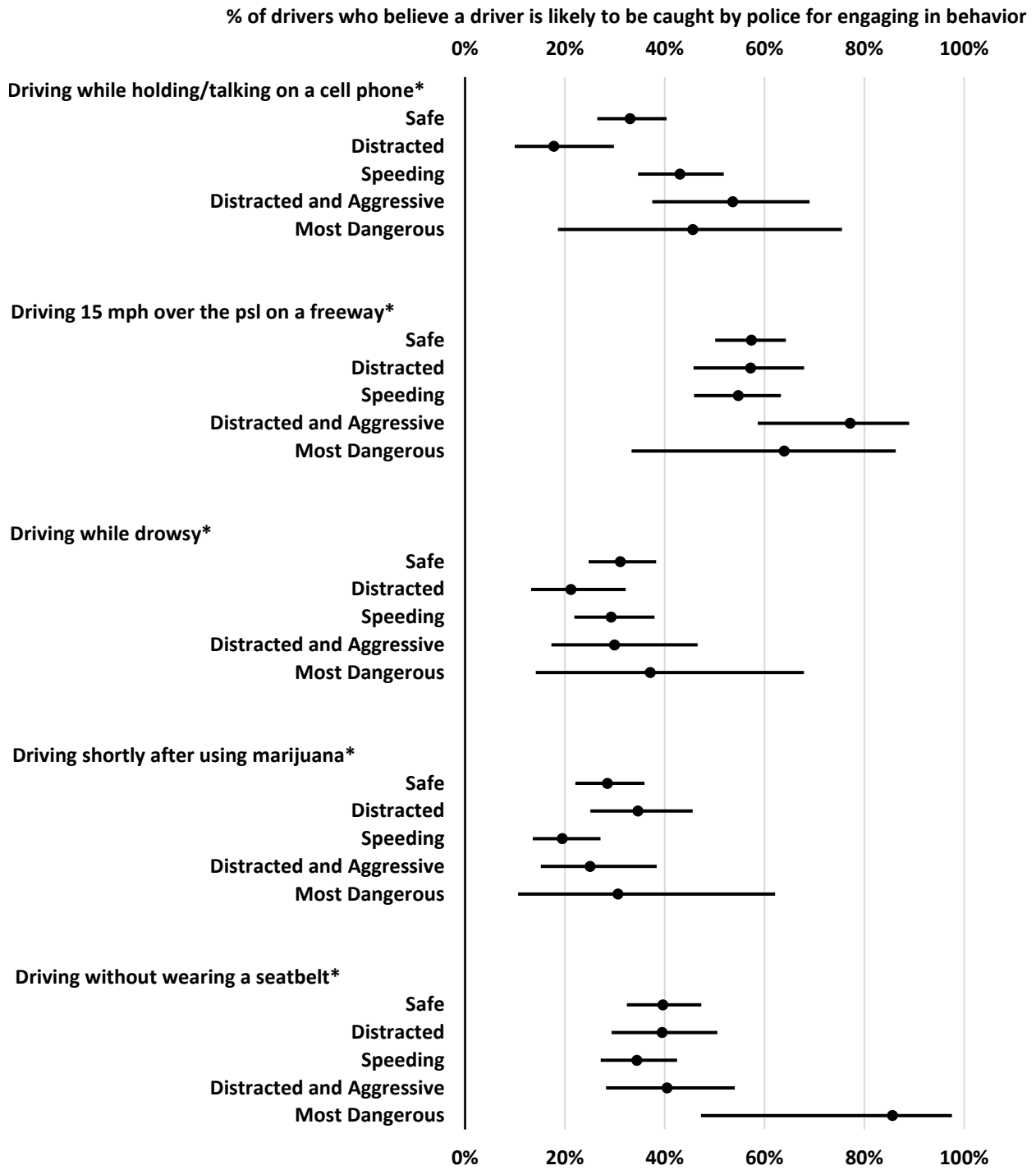
\*Chi-squared tests indicate significant differences in attitudes by Risky Driving Profile  $p < .05$ .

Figure 2: Perceived Social Disapproval of Selected Driving Behaviors by Risky Driving Profiles with BCH Correction



\*Chi-squared tests indicate significant differences in attitudes by Risky Driving Profile  $p < .05$ .

Figure 3: Perceived Risk of Apprehension of Selected Driving Behaviors by Risky Driving Profiles with BCH Correction



\*Chi-squared tests indicate significant differences in attitudes by Risky Driving Profile  $p < .05$ .

## Discussion

---

Findings from the 2023 TSCI survey contribute to our understanding of public perceptions and attitudes towards unsafe driving behaviors and can help identify key areas of consideration when developing countermeasures to both reduce risky driving and encourage safe driving behavior.

Overall trends in attitudes to risky driving behaviors are similar to previous rounds of the TSCI survey (AAA Foundation for Traffic Safety 2023; AAA Foundation for Traffic Safety 2022). Overwhelmingly, drivers recognize distracted and impaired behaviors as dangerous, report that people important to them would disapprove, and support laws aimed at reducing those behaviors. Attitudes towards speeding behaviors, however, follow a different pattern. Fewer drivers perceive speeding as dangerous, speeding behaviors had the lowest levels of social disapproval of all the examined risky driving behaviors, and a minority of drivers support using cameras to automatically ticket drivers on residential streets.

In terms of reported behavior, despite noting the riskiness of the behavior, roughly a third of respondents admit to distracted driving behaviors such as reading or sending text messages and emails in the past 30 days, and 20% admit to drowsy driving. Consistent with trends in previous TSCI reports (AAA Foundation for Traffic Safety 2023; AAA Foundation for Traffic Safety 2022), speeding remains a relatively common behavior with nearly half of drivers reporting speeding on the freeway and 36% on residential roads in the past 30 days.

In examining patterns of risky driving behaviors, five unique groups were identified and characterized as: 1) Safe Drivers, 2) Distracted Drivers, 3) Speeding Drivers, 4) Distracted and Aggressive Drivers, 5) Most Dangerous Drivers. While the largest group was Safe Drivers, who engaged in very few risky driving-related behaviors in the past 30 days, the majority of drivers were classified into one of the other Risky Driving Profiles, indicating that most U.S. drivers engage in risky behavior in on the roads.

Examining the characteristics and attitudes of respondents in each Driving Profile revealed some worrying trends. Safe Drivers, arguably the most desirable drivers to have on the roads, reported driving less frequently than respondents in other driving profiles. Most Dangerous Drivers drove more frequently than other driving groups, and a greater proportion drove older cars with fewer safety features compared to other driving profiles. This may indicate that Most Dangerous Drivers are at very high risk of road traffic crashes. Notably, however, compared to other driving profiles, Most Dangerous Drivers reported lower levels of crash involvement. This difference, however,

was not statistically significant, likely due to the relatively small number of drivers in this group.

Conversely, Distracted Drivers and Distracted and Aggressive Drivers reported higher crash involvement compared to other driving profiles. These drivers also reported driving more frequently, in newer vehicles with more safety features compared to respondents in other driving profiles.

In terms of attitudes, more Safe Drivers perceived the examined risky driving behaviors to be dangerous and socially disapproved of, compared to all other driving profiles, though differences were not always statistically significant. There were no differences in perceived risk of apprehension between Safe Drivers and other driving profiles.

Unsurprisingly, compared to other driving profiles, fewer Distracted Drivers perceived distracted driving as dangerous and socially disapproved of, and fewer Speeding Drivers perceived speeding as dangerous and socially disapproved of. There was a similar trend with Distracted and Aggressive Drivers, who also reported lower levels of perceived danger and social disapproval of both distracted and speeding driving behaviors compared to other driving profiles. Interestingly, however, Distracted and Aggressive Drivers had higher levels of perceived risk of apprehension for distracted driving and for speeding (though differences were not statistically significant).

These findings are critical to our understanding of the different types of drivers currently on U.S. roads and are useful for generating hypotheses on what types of countermeasures may work to curb risky behavior among different types of drivers. For instance, while there is evidence that increased enforcement efforts can deter certain types of dangerous driving behaviors (Taylor et al, 2022), speculatively, the higher levels of perceived risk of apprehension among Distracted and Aggressive Drivers could suggest that enforcement solutions may be less salient for this group. Conversely, their tendency to drive newer vehicles with more safety features may indicate a focus on vehicle solutions may be fruitful.

Additionally, consistent with recommendations in a recent review of countermeasures for distracted driving (Molnar et al., 2024), this study's findings that Distracted Drivers were more likely to be middle-aged, working parents, indicates that countermeasures should target populations groups beyond young drivers to reach other populations who may also be at risk.

While much more research is needed into which countermeasures will be effective for different populations and driving styles, findings in this report provide useful insights into attitudes, values, and cultural norms of drivers on America's roads. The AAA Foundation for Traffic Safety continues to devote research efforts to promote

safe driving behaviors, establish a healthy traffic safety culture, and encourage safe mobility for all.

## References

---

- AAA Foundation for Traffic Safety. (2023). *2022 Traffic Safety Culture Index* (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.
- AAA Foundation for Traffic Safety. (2022). *2021 Traffic Safety Culture Index* (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.
- Bolck, A., Croon, M., & Hagenars, J. (2004). Estimating Latent Structure Models with Categorical Variables: One-Step Versus Three-Step Estimators. *Political Analysis*, 12(1), 3–27. <https://doi.org/10.1093/pan/mp001>
- Molnar, L.J., Zakrajsek, J.S., Zanier, N., St. Louis, R.M. & Eby, D.W. (2024). *Countermeasures for Distracted Driving: An Exploration Beyond the Scientific Literature* (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.
- National Center for Statistics and Analysis. (2024a). *Early Estimate of Motor Vehicle Traffic Fatalities in 2023 (Crash\*Stats Brief Statistical Summary. Report No. DOT HS 813 561)*. National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2024b). *Alcohol-impaired driving: 2022 data* (Traffic Safety Facts. Report No. DOT HS 813 578). National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2023a). *Speeding: 2021 data* (Traffic Safety Facts. Report No. DOT HS 813 473). National Highway Traffic Safety Administration.
- National Center for Statistics and Analysis. (2023b). *Occupant protection in passenger vehicles: 2021 data* (Traffic Safety Facts. Report No. DOT HS 813 449). National Highway Traffic Safety Administration.
- Sagberg, F., Selpi, Bianchi Piccinini, G. F., & Engström, J. (2015). A Review of Research on Driving Styles and Road Safety. *Human Factors*, 57(7), 1248–1275. <https://doi.org/10.1177/0018720815591313>
- Sinha, P., Calfee, C. S., & Delucchi, K. L. (2021). Practitioner's Guide to Latent Class Analysis: Methodological Considerations and Common Pitfalls. *Critical care medicine*, 49(1), e63–e79. <https://doi.org/10.1097/CCM.0000000000004710>
- Taylor, C. L., Byrne, A., Coppinger, K., Fisher, D., Foreman, C., & Mahavier, K. (2022, June). *Synthesis of studies that relate amount of enforcement to magnitude of safety*

outcomes (Report No. DOT HS 813 274-A). National Highway Traffic Safety Administration.

U.S. Census Bureau (2022). *Current Population Survey*. Washington, D.C.  
<http://www.bls.gov/cps/>.

U.S. Department of Transportation. (2022). National Roadway Safety Strategy. U.S. Department of Transportation. Office of the Secretary of Transportation.

Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent Class Analysis: A Guide to Best Practice. *Journal of Black Psychology*, 46(4), 287–311.  
<https://doi.org/10.1177/0095798420930932>



## Appendix A: Drivers' attitudes, perceptions, and behaviors in relation to age and sex

### *Distracted Driving Behaviors*

*Table A1. Proportion of drivers who perceived distracted driving as very or extremely dangerous.*

		<b>Holding and talking on cell phone (%)</b>	<b>Reading on cell phone (%)</b>	<b>Texting or emailing on cell phone (%)</b>	<b>Using technology that allows hands-free use of their phone (Bluetooth, CarPlay) (%)</b>
<b>All drivers</b>		77.7	93.3	93.2	15.7
<b>Age group</b>	16–18	74.6	90.6	87.0	13.8
	19–24	72.6	87.4	84.5	21.8
	25–39	75.2	89.1	87.4	7.0
	40–59	74.5	93.6	94.2	12.0
	60–74	84.8	96.8	98.0	22.4
	75+	83.6	100.0	97.9	30.1
<b>Sex</b>	Male	78.6	91.7	91.6	16.3
	Female	76.9	94.7	94.7	15.2

*Table A2. Proportion of drivers who perceived distracted driving somewhat or very likely to be caught by the police.*

		<b>Holding and talking on cell phone (%)</b>	<b>Reading a text or an email on cell phone (%)</b>	<b>Typing or sending a text message or email on cell phone (%)</b>
<b>All drivers</b>		36.0	34.5	37.2
<b>Age group</b>	16–18	41.8	43.8	39.0
	19–24	35.3	40.4	59.2
	25–39	34.7	37.0	41.6
	40–59	39.1	33.0	35.1
	60–74	31.5	30.8	31.7
	75+	37.9	38.3	35.0
<b>Sex</b>	Male	33.9	32.5	36.7
	Female	38.2	36.3	37.8

Table A3. Proportion of drivers who believed people who were important to them would somewhat or completely approve of distracted driving.

		Holding and talking on cell phone (%)	Reading a text or an email on cell phone (%)	Typing or sending a text message or email on cell phone (%)
<b>All drivers</b>		14.7	6.2	4.2
<b>Age group</b>	16–18	10.8	8.9	1.5
	19–24	17.5	11.9	0.0
	25–39	15.6	8.3	4.6
	40–59	15.8	5.2	5.9
	60–74	13.0	3.7	3.5
	75+	11.9	7.4	2.9
<b>Sex</b>	Male	11.8	4.6	2.7
	Female	17.8	7.7	5.7

Table A4. Proportion of drivers who reported engaging in distracted driving at least once in the past 30 days.

		Holding and talking on cell phone (%)	Reading a text or an email on cell phone (%)	Manually texting or sending a text message or email (%)	Using technology that allows hands-free use of their phone (Bluetooth, Carplay) (%)
<b>All drivers</b>		35.5	37.0	26.7	59.2
<b>Age group</b>	16–18	41.9	45.8	32.5	59.5
	19–24	50.9	52.2	45.5	57.5
	25–39	39.6	51.3	42.2	65.9
	40–59	37.3	39.1	28.3	65.1
	60–74	27.8	22.5	11.4	51.3
	75+	24.5	14.0	3.3	36.1
<b>Sex</b>	Male	35.8	35.9	26.4	57.9
	Female	35.2	38.0	27.0	60.4

## Aggressive Driving Behaviors

Table A5. Proportion of drivers who perceived aggressive driving as very or extremely dangerous.

		Driving 15 mph over the speed limit on freeway (%)	Driving 10 mph over the speed limit on a residential street (neighborhood) (%)	Driving through a red light (%)	Aggressive driving (%)	Driving without wearing a seatbelt (%)
<b>All drivers</b>		48.6	61.4	80.6	88.5	75.9
<b>Age group</b>	16-18	55.6	50.9	75.1	81.9	75.2
	19-24	51.4	41.3	59.4	86.1	71.9
	25-39	44.3	56.2	75.6	83.3	73.1
	40-59	42.6	61.5	81.5	89.3	75.5
	60-74	59.5	68.6	86.2	91.8	78.6
	75+	50.4	76.4	90.9	94.1	80.3
<b>Sex</b>	Male	45.7	55.3	78.0	85.5	72.6
	Female	51.6	67.1	83.2	91.6	79.1

Table A6. Proportion of drivers who perceived aggressive driving as somewhat or very likely to be caught by the police.

		Driving 15 mph over the speed limit on freeway (%)	Driving 10 mph over the speed limit on a residential street (neighborhood) (%)	Driving through a red light (%)	Aggressive driving (%)	Driving without wearing a seatbelt (%)
<b>All drivers</b>		58.9	42.8	51.4	51.5	39.0
<b>Age group</b>	16-18	67.7	54.3	54.0	59.6	41.0
	19-24	57.3	53.7	65.4	52.2	43.6
	25-39	65.2	44.6	57.0	51.0	39.4
	40-59	61.0	42.0	53.5	52.9	40.5
	60-74	53.8	39.6	43.1	49.0	37.5
	75+	43.7	37.7	42.1	50.5	32.3
<b>Sex</b>	Male	55.7	39.5	49.7	49.0	41.2
	Female	62.2	45.8	53.1	54.1	37.0

Table A7. Proportion of drivers who believed people who were important to them would somewhat or completely approve of aggressive driving.

		Driving 15 mph over the speed limit on freeway (%)	Driving 10 mph over the speed limit on a residential street (neighborhood) (%)	Driving through a red light (%)	Aggressive driving (%)	Driving without wearing a seatbelt (%)
<b>All drivers</b>		23.3	11.0	5.2	5.2	3.0
<b>Age group</b>	16–18	12.3	10.0	1.2	7.3	2.8
	19–24	25.4	19.0	7.5	5.2	4.0
	25–39	26.7	10.3	4.8	4.8	4.0
	40–59	25.0	11.2	6.5	7.5	3.1
	60–74	18.4	8.0	5.0	2.7	2.4
	75+	22.9	15.7	1.2	3.3	1.3
<b>Sex</b>	Male	21.0	9.0	2.7	4.4	3.0
	Female	25.6	12.8	7.8	6.1	3.0

Table A8. Proportion of drivers who reported engaging in aggressive driving at least once in the past 30 days.

		Driving 15 mph over the speed limit on freeway (%)	Driving 10 mph over the speed limit on a residential street (neighborhood) (%)	Driving through a red light (%)	Aggressive driving (%)	Driving without wearing a seatbelt (%)
<b>All drivers</b>		49.2	36.3	27.0	21.7	12.4
<b>Age group</b>	16–18	41.0	48.6	29.9	27.8	17.2
	19–24	54.4	46.6	31.6	30.5	16.6
	25–39	53.1	40.0	27.8	26.7	13.7
	40–59	52.4	34.1	29.6	22.9	12.3
	60–74	40.4	30.9	21.6	15.1	10.9
	75+	49.9	40.8	24.8	12.7	8.1
<b>Sex</b>	Male	53.8	39.4	28.7	25.2	13.3
	Female	44.8	33.3	25.3	18.4	11.4

## Drowsy and Impaired Driving Behaviors

Table A9. Proportion of drivers who reported drowsy, alcohol-impaired, or drug-impaired driving as very or extremely dangerous.

		Driving while being so tired that they had had a hard time keeping their eyes open (%)	Drinking enough alcohol that they may be over the legal limit (%)	Driving shortly (within an hour) after using marijuana (%)	Driving after using potentially impairing prescription drugs (%)
<b>All drivers</b>		96.0	94.5	69.7	87.5
<b>Age Group</b>	16–18	89.2	94.5	79.7	89.6
	19–24	89.3	97.4	67.2	81.3
	25–39	95.3	93	67.1	83.1
	40–59	96.5	94.5	70.4	89.2
	60–74	98.5	94.5	68.3	90.3
	75+	95.7	97.3	77.3	88.6
<b>Sex</b>	Male	94.5	92.5	65.9	85.8
	Female	97.5	96.3	73.4	89.1

Table A10. Proportion of drivers who perceived drowsy, alcohol-impaired, or drug-impaired driving somewhat or very likely to be caught by the police.

		Driving while being so tired that they had had a hard time keeping their eyes open (%)	Drinking enough alcohol that they may be over the legal limit (%)	Driving shortly (within an hour) after using marijuana (%)	Driving after using potentially impairing prescription drugs (%)
<b>All drivers</b>		29.0	66.9	26.4	41.8
<b>Age Group</b>	16–18	44.6	77.2	34.7	57.8
	19–24	32.1	75.1	40.3	48.9
	25–39	23.2	69.0	25.6	47.0
	40–59	27.5	70.1	27.2	39.9
	60–74	35.0	59.1	24.1	35.1
	75+	25.8	57.0	17.9	45.6
<b>Sex</b>	Male	28.9	61.4	25.1	36.2
	Female	29.2	72.0	27.6	47.0

Table A11. Proportion of drivers who believed people who were important to them would somewhat or completely approve of engaging in drowsy, alcohol-impaired, or drug-impaired driving.

		Driving while being so tired that they had had a hard time keeping their eyes open (%)	Drinking enough alcohol that they may be over the legal limit (%)	Ridden in a car driven by someone who has had too much alcohol (%)	Driving shortly (within an hour) after using marijuana (%)	Driving after using potentially impairing prescription drugs (%)
<b>All drivers</b>		3.7	3.0	2.6	5.1	3.5
<b>Age Group</b>	16–18	7.7	6.3	5.9	2.0	7.1
	19–24	2.2	5.2	2.2	0.0	9.7
	25–39	3.3	3.3	1.7	4.5	4.2
	40–59	4.0	2.6	3.7	5.9	2.1
	60–74	3.5	2.6	1.4	6.1	2.1
	75+	3.4	2.9	2.6	5.8	7.3
<b>Sex</b>	Male	3.4	2.8	1.4	5.0	2.7
	Female	4.0	3.2	3.8	5.2	4.2

Table A12. Proportion of drivers who reported engaging in drowsy, alcohol-impaired, or drug-impaired driving at least once in the past 30 days.

		Driving while being so tired that they had had a hard time keeping their eyes open (%)	Drinking enough alcohol that they may be over the legal limit (%)	Ridden in a car driven by someone who has had too much alcohol (%)	Driving shortly (within an hour) after using marijuana (%)	Driving after using potentially impairing prescription drugs (%)
<b>All drivers</b>		19.5	7.4	6.4	5.0	2.8
<b>Age Group</b>	16–18	19.6	6.5	9.9	10.2	4.3
	19–24	28.5	4.9	3.5	10.5	4.1
	25–39	27.9	9.1	7.4	7.0	3.1
	40–59	19.8	8.3	6.6	4.4	2.8
	60–74	12.0	5.7	5.2	3.2	1.9
	75+	9.6	6.7	7.9	1.2	3.2
<b>Sex</b>	Male	21.1	10.0	5.4	6.2	2.7
	Female	18.0	5.0	7.5	3.8	2.9

## Appendix B: Latent Class Analysis

---

In survey research, there are often important constructs that are not directly measurable with a questionnaire. For instance, the Traffic Safety Culture Index is not able to directly measure a respondent's driving style or whether a particular respondent is a good driver. However, the questionnaire is able to include some indicators of different facets of driving style and ability, such as engagement in particular driving behaviors. Responses to questions on engagement in driving behaviors are called observed variables because they are directly measured.

Latent class analysis (LCA) is an approach that uses patterns of responses to observed variables in the data to investigate whether there are hidden constructs that are not directly measurable in a questionnaire. This technical report examined whether there were any patterns of association in the responses to the observed variables on engagement in driving behaviors that could group the sample into classes characterizing risky driving behavior.

LCA employs a person-oriented statistical procedure to identify individuals who can be grouped together based on their responses to survey questions. The underlying assumption of LCAs is that membership in an unobserved class or subgroup can explain the patterns of responses across the survey questions considered in the analysis. The ideal number of subgroups is not known beforehand. A large technical literature discusses how to select which survey questions to include in an LCA, how to select the final model, how to include co-variates, and the appropriate statistics to report.

Briefly, to use an LCA, there are two main pieces of information a researcher needs to input in their statistical program: 1) the survey responses of interest and 2) the number of subgroups (i.e. classes) they want to assess. The researcher wants to ensure the survey responses they are using are dichotomized (e.g., yes-no or 0-1). In any study, an LCA will be run on multiple models with an increasing number of subgroups (e.g., a researcher will run an LCA with 1 group, 2 groups, 3 groups, 4 groups, etc.). This iterative step will help the researcher to choose which model and corresponding number of subgroups best represents the data and should be explored further. Each LCA model run will output model fit indices. Looking at these model fit indices within a single model is not very informative. However, when a researcher compares the model fit indices across several models of varying subgroup numbers they can then decide how many subgroups are appropriate to interpret and inspect further.

It is important to understand that an LCA will not be able to definitively assign a given participant to any one class. Rather, the LCA will create probabilities for each participant for each subgroup in the analysis. There are several ways to use these probabilities, but a common approach (which is used in this technical report) is to assign

a participant to their most likely subgroup (i.e., the subgroup for which the participant had the highest probability). There are a variety of approaches that can account for the uncertainty in class assignment and the potential for individuals to be misclassified. The analyses presented in this technical report use the BCH correction (Bolck, Croon, and Hagnaars, 2004).

This appendix provides a very general overview of an LCA. LCAs can be complex and many details require careful consideration. Weller, Bowen, and Faubert (2020) presents a more thorough review of LCA approaches.