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Texting/Emailing While Driving Among High School Students in 35 States, United States, 2015

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Abstract

Purpose: Determine the prevalence and explore individual- and state-level factors associated with texting/emailing while driving (TWD) among adolescent drivers in the United States.

Methods: Data from 35 states that administered the 2015 state Youth Risk Behavior Survey were analyzed. We used Poisson regression models with robust error variance to estimate prevalence ratios (PRs) for TWD.

Results: Among the 101,397 high school students aged 14 years who had driven a vehicle during the past 30 days, 38% reported TWD at least once. TWD prevalence ranged from 26% in Maryland to 64% in South Dakota. TWD prevalence was higher in states with a lower minimum learner's permit age and in states where a larger percentage of students drove. Multivariable analyses revealed that the likelihood of TWD increased substantially with age, and white students were more likely to engage in TWD than students of all other races/ethnicities. Infrequent seatbelt users were 21% more likely to engage in TWD compared with frequent seatbelt users (adjusted PR = 1.21, 95% confidence interval: 1.16–1.26), and students who reported drinking and driving were almost twice as likely to TWD as compared to students who did not (adjusted PR = 1.91, 95% confidence interval: 1.79–2.04).

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Conclusions: Prevalence of TWD among US high school students varied by more than two-fold across states. TWD prevalence was higher in states with lower minimum learner’s permit ages and in states where a larger percentage of students drove. Older age, white race/ethnicity, and other risky driving behaviors were associated with TWD.

Keywords

Distracted driving; Cellphone use; Adolescent; Minimum learner’s permit age; Texting while driving; Teen driving

Distracted driving, defined as any activity that diverts a driver’s attention from the task of safe driving [1], is an important source of injury and mortality in road crashes [2–4]. Distracted driving can impair a driver’s performance in multiple ways, including increasing reaction time when critical events arise, impairing the ability to maintain lane position, and reducing overall awareness of the driving environment [5]. Adolescent drivers are particularly vulnerable to the effects of distraction given their relative inexperience behind the wheel [6,7]. Other factors related to adolescents’ likelihood of distracted driving include age, sex, race/ethnicity, psychological factors, social norms, and driving habits of parents or peers [8–10].

Cellphone use is an important in-vehicle distraction. In 2015, cellphone use was associated with 14% of distraction-affected fatal crashes [11]. The behavior has been estimated to increase crash risk by 2–9 times [3,12,13]. Also, young drivers are more likely to use a cellphone while driving than older drivers [14]. Texting while driving (TWD) may be especially risky because it involves at least three types of driver distraction: visual, physical, and cognitive [2,15].

Multiple cross-sectional studies have found that adolescent drivers have high rates of TWD in the United States [8,16–19]. For example, the 2015 national Youth Risk Behavior Survey (YRBS) estimated that 42% of high school students who drove in the past 30 days engaged in TWD during the same 30-day period [16]. Another nationally representative survey of licensed adolescent drivers estimated that 72% of 11th grade students engaged in TWD on at least one day in the last 30 days [17]. A 2016 online survey of licensed drivers aged 16–19 years revealed that 84% of respondents reported using their smartphones for at least one activity “sometimes” or more often while driving, with 35% reporting reading text messages, and 27% reporting sending text messages [19].

Most states have sought to reduce TWD and other in-vehicle cellphone use by drivers through legal means. As of April 2018, 38 states and the District of Columbia had laws restricting all cellphone use while driving for novice drivers [20]. In addition, TWD is banned for all drivers in 47 states and the District of Columbia, and Missouri has banned TWD for drivers aged 21 years [20]. However, enforcing these laws can be challenging[21], and their effectiveness in reducing cellphone use by novice drivers is unclear. A recent literature review evaluating cellphone restrictions concluded that they appear to have no long-term effect on the prevalence of cellphone use by novice drivers [22].

The purpose of our study was to estimate the state-level prevalence of TWD and to explore individual- and state-level factors that are associated with TWD among adolescent drivers in the United States. Previous studies have indicated that as adolescents gain experience and comfort with driving, they engage in more secondary tasks while driving, such as TWD [2,19]. We analyzed 2015 YRBS data from 35 states. This large sample size permitted us to estimate TWD prevalence by each year of age, which may provide insights for addressing TWD as adolescents increase in age and gain independent driving experience.

To our knowledge, this study is the first to explore the prevalence of TWD by two state-level factors: the minimum age for obtaining a learner's permit and the percentage of high school students that drove during the past 30 days. Lacking individual data on driving exposure, we selected the state-level minimum learner's permit age (permit age) as a crude contextual-level proxy for driving experience. Similarly, we included the state-level percentage of students who drove as a crude indicator of the socio-cultural and regulatory context in which adolescents and their families make decisions about if and when an adolescent will begin driving.

Methods

Data sources

The YRBS is an anonymous, voluntary, and biennial self-report survey designed to monitor the prevalence of critical health risk behaviors among high school students. We analyzed 2015 state YRBS data from the 35 states that conducted a survey, included the TWD question, and had an overall response rate ("school response rate" times "student response rate") of at least 60% (range = 60%–84%) [16]. Each participating state used a two-stage cluster sample design to obtain a representative sample of public school students in 9th–12th grade. The YRBS methodology for combining and analyzing state-level data has been described elsewhere [16,23]. State data were weighted to adjust for student grade, sex, and race/ethnicity to provide population-level estimates. Each state's minimum learner's permit age was obtained from the Insurance Institute for Highway Safety [24].

Study population and variables

The study population included 195,236 students aged 14 years from the 35 participating states. Respondents aged <14 years were excluded because they cannot legally drive on public roads in any US state [24]. TWD analyses were restricted to students who drove during the past 30 days. TWD was assessed with the following question: "During the past 30 days, on how many days did you text or e-mail while driving a car or other vehicle?" Response options are the following: "I did not drive a car or other vehicle during the past 30 days," "0 days," "1 or 2 days," "3 to 5 days," "6 to 9 days," "10 to 19 days," "20 to 29 days," and "all 30 days." For descriptive analyses, we categorized all driver responses into three TWD groups: "0 days = never," "1–9 days = sometimes," and "10–30 days = frequently." For multivariable analyses, we dichotomized responses as "0 days" or "1 day," because we were interested in whether or not a student engaged in TWD (rather than how often a student engaged in TWD). The percentage of students who drove in each state was

calculated based on the same question. Students who reported that they did not drive during the past 30 days were considered nondrivers, and all others were considered drivers.

Demographic variables included age (14-, 15-, 16-, 17-, 18 years), sex (female, male), and race/ethnicity (white, black/African-American, Hispanic, and other). Three dichotomous variables were included in the analysis: (1) seatbelt use when riding in a car driven by someone else (infrequent users = never, rarely, or sometimes wear a seatbelt vs. frequent users = most of the time or always wear a seatbelt); (2) riding during the past 30 days with a driver who had been drinking alcohol (0 times vs. 1 times); and (3) driving during the past 30 days after drinking alcohol (0 times vs. 1 times). The percentage of students who drove was calculated by state, and the values were categorized into roughly equal tertiles of 40%–59%, 60%–69%, and 70%–87%. Then, the state-level tertile value was assigned to each individual depending on the state in which the student took the survey.

Statistical methods

Twenty-two percent of participants had missing data for one or more of the study variables (including 12% for the TWD question and 15% for the drinking and driving question); therefore, multiple imputation using Fully Conditional Specification [25] was applied to reduce the loss of precision and power caused by the cumulative effect of missing data in those variables. Ten imputed datasets were generated, and all of the presented results were derived using the imputed datasets. In addition, we conducted two sensitivity analyses. As the descriptive and multivariate analyses were conducted, results from the imputed datasets were compared to the corresponding results from the dataset before multiple imputation (complete case analysis) to confirm that the results were similar. We also considered the most extreme situation, by replacing missing responses to the TWD question with a response of “at least one day.” We repeated the multivariable analysis and compared these results to those from the model using the imputed data.

We first examined TWD by assessing its relationship with individual student demographics, as well as its relationship with the state-level variables of minimum learner’s permit age and the percentage of students who drove in each state. Crude and adjusted prevalence ratios (PRs) for TWD were then estimated using Poisson regression models with robust error variance. The referent group for the age variable was set at 16 years because adolescents in all study states are eligible to obtain a provisional license that allows them to drive under certain conditions without adult supervision before their 17th birthday [24]. We did not include the minimum learner’s permit age in the multivariable model because our objective was to estimate TWD prevalence across states with varying minimum permit ages rather than to estimate the average independent effect of permit age on TWD across all 35 states. In contrast, the variable representing the percentage of students in each state who drove was included in the model and likely reflects the influence of permit age along with other factors that families consider as they decide whether and when an adolescent will begin to drive. An indicator variable for each state was introduced in the regression model to represent unmeasured factors that vary across states; however, it was ultimately excluded because of col-linearity with the variable representing the percentage of students who drove.

Data analyses were performed using SAS Enterprise Guide 7.1 (SAS Institute Inc., Cary, NC) and STATA 14.0 (StataCorp LLC, College Station, TX). All analyses used weighted data to adjust for school and student nonresponse, and accounted for the complex sample design. This study did not include personal identifiers, and it was exempt from IRB review at Nationwide Children's Hospital.

Results

Fifty-eight percent of students aged 14 years in the 35 study states indicated that they had driven during the 30 days before the survey. Among students who drove, 38% reported engaging in TWD on at least one day, 22% reported sometimes engaging in TWD ("1–9 days"), and 16% reported frequently engaging in TWD ("10–30 days") (Table 1). The prevalence of sometimes or frequently engaging in TWD was higher among older students, reaching 56% among students aged 18 years.

A higher percentage of white students reported TWD compared with students of all other races/ethnicities. Overall, both the percentage of students who drove and the TWD prevalence was higher among students from states with a permit age of 14 to <15 years compared to students from states with a permit age of 16 years (68% vs. 47% for students who drove, and 44% vs. 34% for TWD prevalence).

The prevalence of TWD varied across states, ranging from 26% in Maryland to 64% in South Dakota (Table 2). Each of the five states (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) with TWD prevalence of 50% had a permit age of 15 years (Table 2, Figure 1). Students in states with a permit age of 14 to <15 years had a higher prevalence of TWD at each age (Figure 2). For example, at age 17 years, when all students would be eligible to drive without adult supervision, TWD was 13 percentage points higher among students from states with a permit age of 14 to <15 years compared with students from states with a permit age of 16 years (57% vs. 44%).

TWD among students who drove before they reached the minimum learner's permit age for their state was of interest. We found that 28% of 14-year-olds living in states with permit ages of 15 to <16 years reported driving, and among 14-year-olds living in states with a permit age of 16 years, 18% reported driving (data not shown). Notably, 15% of these 14-year-old drivers reported TWD (Figure 2). Likewise, 21% of 15-year-olds living in states with a permit age of 16 years reported driving (data not shown); among these drivers, 16% reported TWD.

The likelihood of TWD on at least one day during the 30 days before the survey increased with each year of age (Table 3). Students aged 18 years were 56% more likely to engage in TWD than those aged 16 years (adjusted aPR = 1.56, 95% confidence interval: 1.43–1.70). White students were more likely to engage in TWD than students of all other races/ethnicities. Students who reported other risky driving/riding behaviors were more likely to engage in TWD than students who did not report those behaviors, with drinking and driving being most strongly associated with TWD (aPR = 1.91, 95% confidence interval: 1.79–2.04). However, about one-third of students who did not engage in TWD in the other measured

risky driving/riding behaviors reported TWD. Lastly, the likelihood of students engaging in TWD increased as the percentage of students who drove in the state increased.

Sensitivity analysis

Results from both the complete case analysis and the analysis in which the missing TWD responses were replaced with a response of “at least one day” were consistent with the results from the imputed datasets. Prevalence ratios did not change substantially, and the direction of associations did not change.

Discussion

This study found that overall, 38% of high school students in 35 US states who were aged 14 years and who drove engaged in TWD on at least one day during the 30 days before the survey, with 16% of students engaging in TWD on 10 days. State-level prevalence of TWD varied by more than two-fold, with higher prevalence seen in states with lower minimum learner’s permit ages or higher percentages of students who drove. These findings suggest that contextual factors related to state-level licensing policy and other socio-cultural conditions that influence adolescent driving patterns likely also influence an individual’s TWD behavior. For example, the five states in this study with TWD prevalence of 50% are contiguous, each with primarily rural populations of fewer than 2 million persons [26], and each has a minimum learner’s permit age of 15 years. Moreover, these five states had among the highest proportions of students who drove. Adolescents in these states are more likely to begin driving at younger ages than adolescents living in more densely populated states, and, because of the rural nature of the states, they may drive longer distances [27], thereby increasing the opportunity to engage in TWD.

TWD prevalence doubled between ages 15 and 16 years, and it continued to increase substantially for ages 17 and 18 years. The doubling of TWD prevalence at the age when adolescents can legally begin unsupervised driving was not surprising, because risky driving behavior is known to be much rarer in the presence of an adult supervisor [28]. The association between age and TWD highlights the need for sustained attention to TWD throughout the adolescent years. Moreover, we found that more than 1 in 5 students aged 14 or 15 years reported driving before they were eligible for a learner’s permit, and 1 in 6 of these drivers reported TWD. In addition to the crash risk imposed by their inexperience, unlicensed teen drivers have higher rates of risky driving behaviors than their licensed counterparts, including speeding, nonuse of seatbelts, and driving after drinking alcohol or using drugs [29,30]. TWD could increase the extreme crash risk for unlicensed adolescent drivers.

Consistent with previous studies, we found that TWD was more prevalent among adolescents also engaging in other risky driving/ riding behaviors (e.g., drinking and driving, riding with a driver who had been drinking, and infrequent seatbelt use) [8,19]. However, about one-third of students who did not engage in the other measured risky driving/riding behaviors reported TWD. This finding suggests that the motivations for and perceived benefits of TWD may differ from those related to other risky driving/riding behaviors.

Recent research is providing a better understanding of adolescents' perceptions surrounding in-vehicle cellphone use and suggesting strategies to help limit these behaviors [10,31–33]. For example, Hafetz et al. reported that adolescent drivers' beliefs about the advantages and disadvantages of abstaining from cell-phone use while driving were associated with their self-reported use [31]. Perceived disadvantages of abstaining were related to navigation concerns, the inability to communicate location and time of arrival, and the inability to be contacted by their parents when necessary. The authors recommended using health messages that recognize the legitimate benefits of having a cellphone in the car while emphasizing safe in-vehicle cellphone use, such as pulling over to a safe location before making or receiving calls.

Studies examining the context and motivations around cellphone use while driving provide further insights. An online survey that queried adolescent drivers about their willingness to give up various types of cellphone use while driving reported that most respondents were at least somewhat willing to give up text messages and social media but were less willing to give up navigation and music applications [34]. In a qualitative study, adolescent drivers reported that they were more likely to respond to a call or text if it were from a close friend, boyfriend or girlfriend, or parent [32]. Carter et al. found that adolescents whose parents and peers engaged in distracted driving behaviors including cellphone use more frequently engaged in distracted driving behaviors themselves [33]. To help address these contextual and motivational factors, strategies that promote positive parental role modeling, clear communication of rules around in-vehicle cell-phone use, and increased parental monitoring of newly licensed teen drivers are encouraged [31–33]. Social marketing techniques aimed at correcting teens' misperceptions, such as the belief that their friends engage in distracted driving behaviors more often than they do, are also suggested [33].

Additional strategies that warrant further investigation include providing positive incentives for not engaging in TWD and in-vehicle cellphone blocking technologies [34–37]. Monetary incentives, for example, could be offered by parents or through auto insurance companies [36]. Although some monetary incentive programs exist, we did not locate any evaluations of such programs. An evaluation of a smartphone blocking application employed with newly licensed adolescents found that teen drivers who had the blocking application on their cellphones engaged in less TWD and made significantly fewer phone calls while driving [35]. This was especially true in the exposure group with the application that both blocked cellphone use and also sent immediate notifications to parents if their teens performed risky driving behaviors, such as speeding. However, about 15% of teens found ways to bypass the blocking system, indicating that voluntary sustained use of such applications might be low [35]. Suggestions for improving young driver acceptance of cellphone blocking applications include allowing automated responses to incoming messages, permitting hands-free navigation, enabling emergency calls, and involving young drivers in the application design process [36].

Limitations

Our study has several limitations. First, 22% of observations were missing data for one or more of the study variables, including 12% for the TWD question. To help minimize the

likelihood of bias due to missing data, we conducted multiple imputations. Second, we did not assess cellphone access or ownership among students who drove, which may vary by demographics. However, a 2015 national survey estimated that 92% of teens aged 15–17 years own or have access to a cellphone [38], so the percentage of drivers in this study who did not have access to a cellphone was likely low. Third, the YRBS TWD question asks specifically about texting and emailing; therefore, it does not measure the full range of ways that teens use cellphones while driving. Other common ways in which cellphones are used while driving include answering or placing a phone call, accessing social media, playing music, and navigating with online apps. Fourth, it is possible that students may have considered reading a text while driving to be different from initiating a text while driving and may not have reported it [10]. Likewise, some students may not have considered texting while the vehicle was stopped (at a stoplight or stop sign) as TWD, leading to underreporting of the behavior [32,39]. Fifth, the YRBS survey data include only the number of days a student engaged in TWD; information on the frequency or duration of TWD episodes was not available. Sixth, the data were self-reported. Although the extent of underreporting or overreporting of TWD and other risk behaviors cannot be determined, YRBS questions assessing other risk behaviors have shown good test–retest reliability [40]. Lastly, the study results are not generalizable to adolescents in the 35 study states who were not enrolled in high school or to the entire US population in this age group.

Despite knowledge that the behavior is dangerous and illegal [10,32,36], many teens engage in texting while driving. Our study results confirm and extend earlier findings related to individual characteristics and provide new information about the association between state-level contextual factors and prevalence of TWD among high school students. We conclude that state-level licensing policies and other socio-cultural conditions that influence adolescent driving patterns likely also influence a teen’s TWD behavior.

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Disclaimer: The findings and conclusions in this paper are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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IMPLICATIONS AND CONTRIBUTIONS

Identification of an association between state-level contextual factors and prevalence of texting while driving may help raise awareness of the need for new strategies to reduce TWD among adolescent drivers, particularly in states where adolescents begin driving at younger ages.

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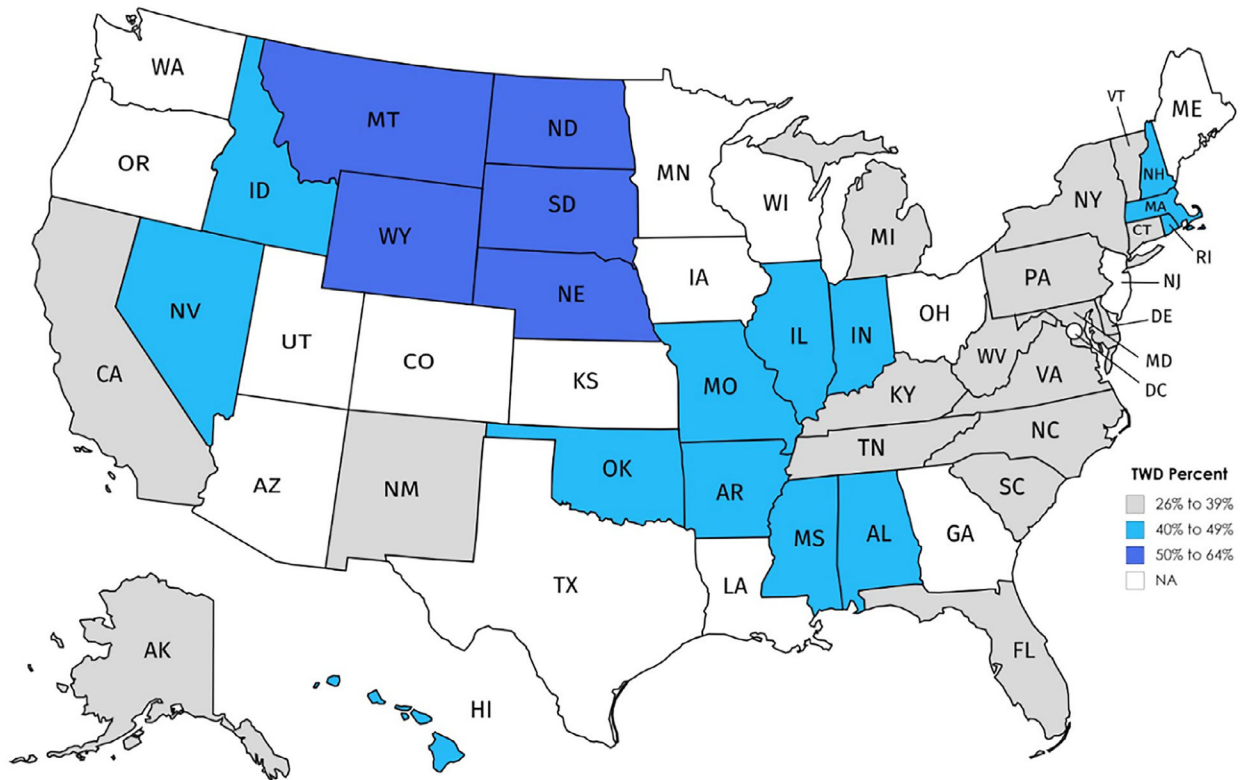


Figure 1.

Texting or emailing while driving among high school students aged 14 years, 35 states, state YRBS, US 2015.

Notes: YRBS = Youth Risk Behavior Survey. TWD percent: Percentage of students that reported texting/emailing while driving at least once during the 30 days before the survey (among students who drove).

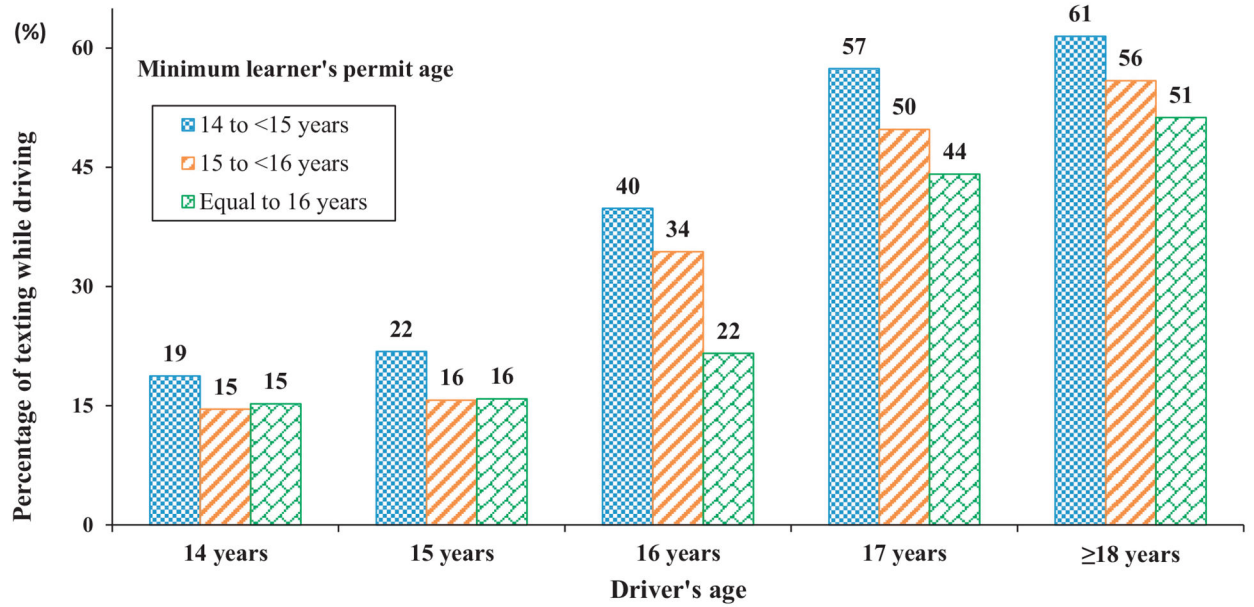


Figure 2.

Texting or emailing while driving among high school students aged 14 years by state's minimum learner's permit age, 35 states, state YRBS, US 2015.

Notes: YRBS = Youth Risk Behavior Survey. Percentage of texting while driving: Percentage of students that reported texting/emailing while driving at least once during the 30 days before the survey (among students who drove).

Characteristics of driving and texting/emailing while driving during the past 30 days among high school students aged 14 years, 35 states, state YRBS, US 2015

Table 1

Variables (groups)	Unweighted N (weighted %)	Driving percentage ^a (95% CI)			Texting ^b while driving among drivers		
		None (95% CI)	1-9 days (95% CI)	10-30 days (95% CI)	None (95% CI)	1-9 days (95% CI)	10-30 days (95% CI)
Overall	195,236	58(57, 59)	22 (21,22)	16(15,17)			
Age (years)							
14	30,922(13)	26 (24, 28)	10(9,11)	5 (4, 6)			
15	52,769 (26)	41 (39,43)	11 (10, 13)	5 (4, 6)			
16	51,363 (25)	66 (64, 67)	21 (19,22)	12(10,13)			
17	43,317(23)	74(72, 77)	27 (26, 29)	22(21,24)			
18	16,865(13)	79(77, 81)	28 (26, 30)	28 (25, 30)			
Sex							
Male	96,514(51)	60 (58, 62)	21 (20, 22)	17(16,18)			
Female	98,722 (49)	56(55, 57)	22 (21,23)	15(14,16)			
Race/ethnicity							
White	106,714(53)	63 (62, 65)	24 (23, 25)	19(18, 20)			
Black/African-American	29,542(16)	55(53, 57)	18(16,19)	12(11,13)			
Hispanic	32,520(21)	53(51,55)	20(18,22)	11(10,12)			
Other ^c	26,460(10)	48(44,51)	19(16,22)	14(12,16)			
Minimum learner's permit age							
14 to <15 years	18,663 (48)	68 (65, 70)	24 (22, 26)	20(17, 22)			
15 to <16 years	148,875 (38)	60 (59, 62)	21 (20, 22)	16(15,17)			
16 years	27,698(15)	47 (44, 49)	21 (19,23)	13(12,14)			
Percentage of drivers^d							
40%-59%	92,893 (9)	47 (45, 50)	20(19,22)	12(11,14)			
60%-69%	80,492 (69)	65 (64, 66)	22 (21,23)	17(16,18)			
70%-87%	21,851 (22)	74(73, 76)	24 (23, 25)	21 (20, 23)			

CI = confidence interval; YRBS = Youth Risk Behavior Survey.

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^aPercentage of students that drove at least once during the 30 days before the survey.

^bTexting or emailing, and percentages may not total 100 due to rounding.

^cOther includes: American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Multiple- Non-Hispanic/Latino.

^dState-specific percentage of students that drove during the 30 days before the survey applied to each observation.

Driving and texting or emailing while driving among high school students aged 14 years, by state, state YRBS, US 2015

Table 2

State	Unweighted N	Minimum learner's permit age	Driving ^a % (95% CI)	Texting ^b % (95% CI)
Alabama	1,552	15	79(75, 83)	43(39,48)
Alaska	1,409	14	62 (58, 66)	35 (31,40)
Arkansas	2,842	14	67 (63, 70)	40(34,46)
California	1,934	15,6 months	48 (43, 53)	32 (26, 38)
Connecticut	2,389	16	51 (48, 54)	30 (26, 34)
Delaware	2,766	16	60 (54, 66)	37(31,42)
Florida	6,325	15	64(62, 65)	37 (34, 39)
Hawaii	6,040	15,6 months	40 (36,43)	40(37,42)
Idaho	1,758	14,6 months	71 (66, 77)	49 (42, 56)
Illinois	3,251	15	67 (61, 72)	42(37,47)
Indiana	1,906	15	64(59, 68)	44(39,49)
Kentucky	2,560	16	56(52, 61)	37(33,42)
Maryland	54,811	15,9 months	44 (44,45)	26 (25, 27)
Massachusetts	3,106	16	48 (44, 52)	40(36,44)
Michigan	4,772	14,9 months	64(60, 69)	39 (34,44)
Mississippi	2,122	15	75 (71, 79)	43(39,48)
Missouri	1,496	15	72 (67, 77)	47(41,52)
Montana	4,464	14,6 months	80 (77, 83)	55(51,58)
Nebraska	1,675	15	74(70, 78)	50 (46, 55)
Nevada	1,449	15,6 months	60 (54, 66)	40(36,43)
New Hampshire	14,767	15,6 months	63 (61, 66)	44(42,46)
New Mexico	8,244	15	67 (65, 69)	38 (36,41)
New York	10,560	16	41 (36, 45)	30 (25, 34)
North Carolina	6,117	15	68 (64, 72)	38 (34,43)
North Dakota	2,117	14	83 (80, 85)	58 (54,61)
Oklahoma	1,606	15,6 months	71 (66, 76)	44(37,51)
Pennsylvania	2,886	16	49 (44, 54)	35 (31,40)
Rhode Island	3,431	16	45 (40, 50)	45(40,51)

State	Unweighted N	Minimum learner's permit age	Driving ^a % (95% CI)	Texting ^b % (95% CI)
South Carolina	1,348	15	71 (67, 75)	38 (33,42)
South Dakota	1,301	14	87(84, 90)	64 (57, 70)
Tennessee	4,104	15	65 (62, 68)	36 (33,39)
Vermont	20,930	15	67 (66, 68)	33 (33,34)
Virginia	5,176	15,6 months	53 (50, 56)	31 (28, 35)
West Virginia	1,610	15	64(59, 70)	36 (31,40)
Wyoming	2,412	15	80 (77, 84)	52 (46, 57)

CI = confidence interval; YRBS = Youth Risk Behavior Survey.

^aPercentage of students that drove at least once during the 30 days before the survey.

^bAmong students who drove, percentage of students that reported texting or emailing while driving at least one day during the 30 days before the survey.

Table 3 Prevalence ratios of texting or emailing while driving among high school students aged 14 years, 35 states, state YRBS, US 2015

Variables	TWD prevalence (95% CI)		Unadjusted		Adjusted	
	PR	95% CI	PR	95% CI	PR	95% CI
Age (years)						
14	.45	(.39, .53)	0.46	(.40, .53)		
15	.49	(.43, .54)	0.48	(.43, .54)		
16	–	–	–	–	Reference	
17	1.48	(1.37, 1.61)	1.45	(1.34, 1.57)		
18	1.65	(1.50, 1.82)	1.56	(1.43, 1.70)		
Sex						
Male	–	–	–	–	Reference	
Female	.98	(.93, 1.03)	1.05	(1.00, 1.09)		
Race/ethnicity						
White	–	–	–	–	Reference	
Black/African-American	.71	(.66, .76)	.70	(.65, .74)		
Hispanic	.71	(.64, .77)	.74	(.69, .80)		
Other ^a	.76	(.67, .87)	.77	(.69, .87)		
Seatbelt use						
All or most of the time	–	–	–	–	Reference	
Never, rarely, or sometimes	1.40	(1.34, 1.47)	1.21	(1.16, 1.26)		
Riding with driver who had been drinking alcohol^b						
Never	–	–	–	–	Reference	
At least one time	1.57	(1.50, 1.64)	1.23	(1.17, 1.29)		
Driving when drinking alcohol^b						
Never	–	–	–	–	Reference	
At least one time	2.55	(2.45, 2.66)	1.91	(1.79, 2.04)		
Percentage of drivers^c						
40%–59%	–	–	–	–	Reference	
60%–69%	1.18	(1.06, 1.32)	1.15	(1.05, 1.25)		

Variables	TWD prevalence (95% CI)		Unadjusted		Adjusted	
	PR	95% CI	PR	95% CI	PR	95% CI
70%–87%		46 (44, 48)	1.39	(1.24, 1.55)	1.36	(1.24, 1.48)

CI = confidence interval; PR = prevalence ratio; TWD = texting while driving; YRBS = Youth Risk Behavior Survey.

^aOther includes: American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Multiple- Non-Hispanic/Latino.

^bDuring the 30 days before the survey.

^cState-specific percentage of students that drove during the 30 days before the survey applied to each observation.