

# Risky Motor Vehicle Behaviors among Rhode Island High School Students

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Motor vehicle crashes are the leading cause of death and injury among United States adolescents. According to data from the Centers for Disease Control and Prevention (CDC), 2,333 adolescents ages 16–19 were killed and 235,845 were treated in emergency departments due to injuries sustained in crashes in 2015.<sup>1</sup> Per mile driven, teen drivers are nearly three times more likely than those aged 20 and older to be involved in a fatal crash.<sup>1</sup> Driver inexperience and engagement in risky behaviors are primary reasons for the increased number of crashes among teens. Substance use, distracted driving, and lack of seat belt use significantly increase the risk of crashes and/or subsequent injury or death. The purpose of the current analysis was to measure the prevalence of risky transportation-related behavior among Rhode Island high school students.

## METHODS

Data are from the 2017 Rhode Island High School Youth Risk Behavior Survey (YRBS). The YRBS is a biennial national survey of public high school students designed to monitor health risk behaviors related to leading causes of morbidity and mortality among youth. YRBS employs a two-stage, cluster sample design to produce a representative sample of students.<sup>2</sup> First, schools in the state are selected with probability proportional to school enrollment size. Next, classes from a required subject or period within each school are randomly selected. All students in sampled classes are eligible to participate. A weight is applied to each record to adjust for student non-response and to obtain a distribution of students by grade, sex, and race/ethnicity that approximates that of the state public high school population. The overall response rate, which is determined by the response rates of the selected schools and students, was 67% in 2017. In total there were 2,221 high school students from 19 public high schools who completed the YRBS. This sample is representative of 41,114 students statewide.

Six questions on the YRBS addressed motor vehicle safety—three regarding passenger behavior and three regarding driver behavior. Passenger safety questions included topics of seat belt use: “How often do you wear a seat belt when riding in a car driven by someone else? (never, rarely, sometimes, most of the time, always)” and riding with a potentially impaired

driver asking how often in the last 30 days respondents rode with a driver who had been (1) drinking alcohol, or (2) using marijuana. Questions regarding driver safety focused on cell phone use and asked respondents while driving in the last 30 days how often did they (1) talk on the cell phone (2) text or email, and (3) use the internet or apps (excluding those for directions). For purposes of data analyses, seat belt use responses were condensed into “always” or “not always” and items assessing riding with an impaired driver and using a cell phone while driving were condensed into “yes” (1 or more times) or “no” (0 times). Respondents younger than 16 years of age or who reported they did not drive in the last 30 days were excluded from analyses of driving behavior.

Descriptive analyses were conducted to obtain estimates for the frequency of all transportation-related behaviors. Additionally, chi square tests were used to examine differences in risky transportation-related behavior across demographic groups and to test whether transportation behavior was associated with mental health and other behaviors. Other risk measures assessed included current alcohol use (drank any alcohol in the last 30 days), binge drinking ( $\geq 4$  drinks in one sitting for girls or  $\geq 5$  drinks in one sitting for boys in the last 30 days), current marijuana use, having felt sad/hopeless for 2 or more consecutive weeks in the last year, and having been bullied in school or electronically in the last year.

## RESULTS

### Passenger Behavior

Overall, within the last month, an estimated 12,593 high school students statewide (or about 30% of students) rode in the car with a driver who had been drinking alcohol or smoking marijuana (**Figure 1**). An examination of demographic factors found older students and lesbian/gay/bisexual students were more likely to ride in a car with a driver who used marijuana/alcohol than younger students and heterosexual students, respectively (**Table 1**). Riding in a car with a driver who had been smoking marijuana was more common (25%) than riding in a car with a driver who had been drinking alcohol (14%). Additionally, 36% of students report they do not always wear a seat belt when riding in a car driven by someone else (**Figure 1**).

## Driving Behavior

Among students 16 years and older who have driven in the last month, 58% (or an estimated 10,893 teenagers) reported using their cell phone while driving at least one time in the last month (Figure 2). About half (51%) reported talking on the phone while driving and 48% reported either texting, emailing, or using an app/internet while driving. Students ages 17 and older were more likely than 16-year-old students to use a phone while driving, but there were no other significant differences based on demographics (Table 1).

## Association with other factors

Analysis of other risk behaviors revealed those who rode in a vehicle with someone who had been using alcohol/marijuana were more likely than those who did not ride with an impaired driver to not always wear a seatbelt, have felt sad/hopeless for 2 or more weeks in the last year, have been bullied in the last year, and have drunk alcohol, binge drank, or smoked marijuana in the last month (Figure 3). Similarly, teens who used a phone while driving were more likely than teens who did not use a phone to not always wear a seatbelt, have been bullied, and have drunk alcohol, binge drank, and smoked marijuana (Figure 4).

Figure 1. Prevalence of risky passenger behavior among RI high school students

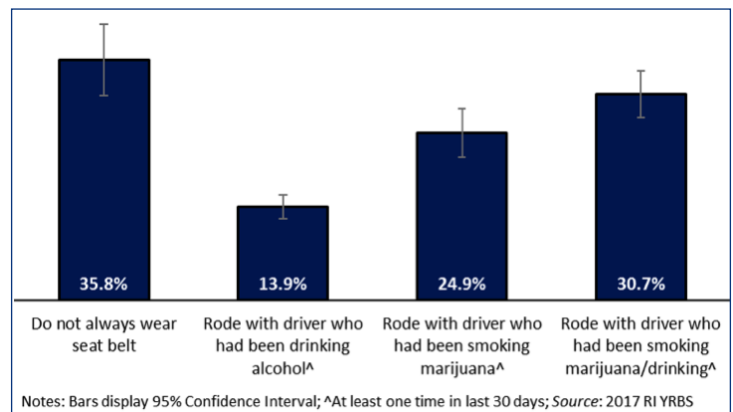


Figure 2. Prevalence of risky driving behavior among RI high school students\*

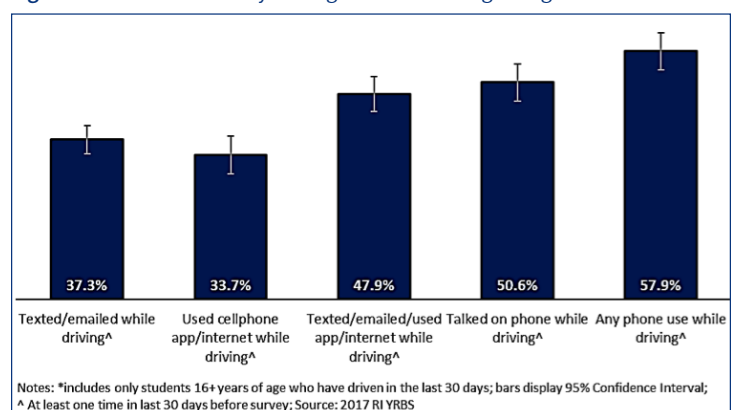


Table 1. Risky transportation-related behaviors among Rhode Island high school students, by selected demographics

	Total RI Public High School Population (N=41,114)	Rode in car with an impaired driver (n=12,593)		Used cell phone while driving <sup>a</sup> (n=10,893)	
	Weighted n	Weighted n	Weighted %	Weighted n	Weighted %
<b>SEX</b>					
Female	19,699	5,841	29.8%	4,124	54.0%
Male	20,953	6,475	30.9%	5,292	60.9%
<b>SEXUAL ORIENTATION</b>			*		
Straight	33,950	9,984	29.2%	8,269	58.4%
Lesbian/Gay/Bisexual	4,501	1,766	39.4%	771	59.1%
<b>RACE/ETHNICITY</b>					
White	24,678	7,159	29.0%	6,448	61.0%
Black	3,384	1,078	32.1%	236	54.9%
Hispanic	9,327	2,885	31.0%	398	48.8%
Other	2,753	1,063	38.6%	112	53.0%
<b>AGE GROUP</b>			*		*
12-14 years of age	4,276	1,047	24.5%	--	--
15-16 years of age	20,368	6,082	29.9%	2,182	40.2%
17+ years of age	16,360	5,446	33.4%	7,328	66.6%

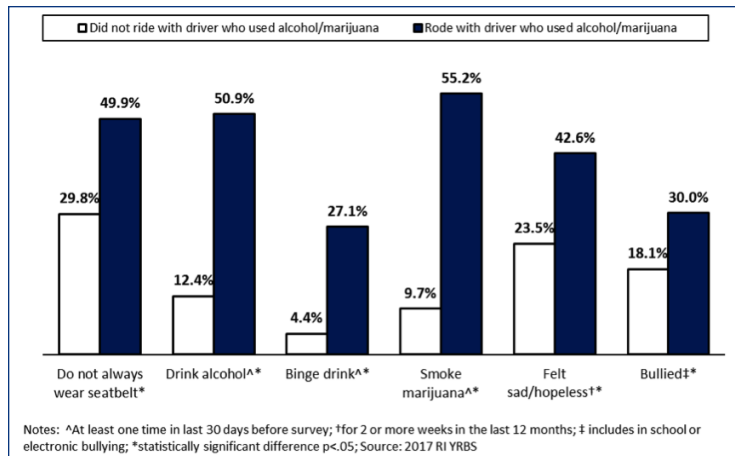
Source: 2017 RI Youth Risk Behavior Survey

Note: Columns may not add up to total N due to missing data on some demographic variables.

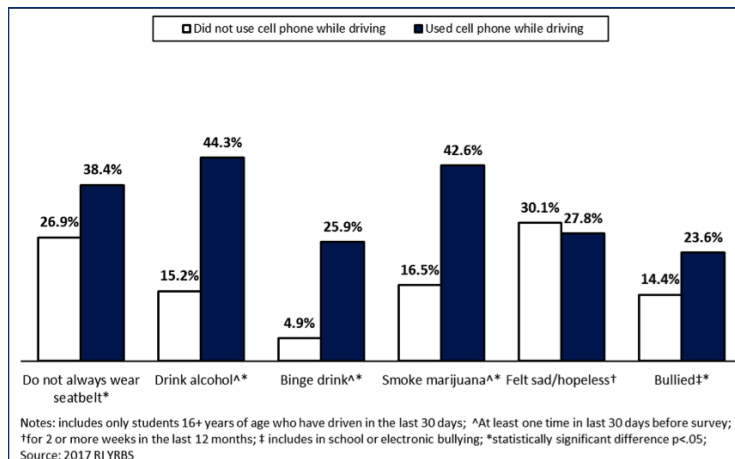
<sup>a</sup>Excludes those less than 16 years of age and students who have not driven in last month.

\*indicates statistically significant difference (p<.05).

**Figure 3.** Mental health and other behaviors among RI high school students, by risky passenger behavior



**Figure 4.** Mental health and other behaviors among RI high school students, by distracted driving status



## DISCUSSION

This brief highlights the burden of risky transportation-related behaviors among high school students. Notably, almost one-third of students reported that in the last month they rode with a driver who had been smoking marijuana or drinking alcohol, and almost 60% of teens who drive reported using their phone while driving in the last month. Additionally, more than one in three respondents reported they do not always wear a seat belt when riding in the car. Students who reported risky transportation behaviors were also more likely to report substance use and having been a victim of bullying.

Distracted and impaired driving are two leading causes of motor vehicle crashes. In 2016, there were 10,497 individuals in the U.S. killed in a crash involving an alcohol-impaired driver – or one every 50 minutes.<sup>3</sup> Among fatally injured drivers with known drug tests results, 38% tested

positive for alcohol and 44% tested positive for some other type of drug.<sup>4</sup> Also, nationwide, approximately 26% of all crashes in 2014 were attributed to cell phone use.<sup>5</sup> According to the National Highway Traffic Safety Administration, on average, sending or reading a text takes a driver's eyes off the road for 5 seconds – the equivalent of driving an entire football field at 55 mph with one's eyes closed.<sup>6</sup> Lastly, seat belt use is critically important as it is estimated that seat belt use saved about 15,000 lives in 2015 and cuts the risk of serious injury and death in half.<sup>7</sup>

Several laws have been implemented to improve driving safety. Graduated Driver Licensing (GDL) programs have proven to be effective in reducing risk of crash among teens.<sup>8</sup> In Rhode Island, teens cannot obtain a learner's permit until age 16 and those under age 18 must take a driver's education course, have at least 50 hours of driver training, and have the permit for a minimum of 6 months before being eligible to take the test to obtain an intermediate/restricted license.<sup>9</sup> The restricted license allows for unsupervised driving but limits passengers to no more than one (non-family) passenger under age 21, and forbids driving from 1 a.m. to 5 a.m. After teens turn 18 years of age or have their license for 12 months, restrictions may be lifted. The state also recently passed a law banning handheld cell phone use while driving for all drivers. Laws did previously exist banning any cell phone use among those under age 18; however, additional focus on the new law regulating behavior of adults will hopefully reinforce laws against teen cell phone use and decrease the chances of teens seeing adults engage in the behavior and thereby modeling the behavior themselves.

Pediatricians can play an important role in transportation-related safety. The American Academy of Pediatrics recommends physicians screen patients and ask about alcohol use, substance use, and reckless and distracted driving and talk to teens and parents about driving safety.<sup>10</sup> According to the CDC, several ways parents and teens can improve safety include: increasing the amount of supervised driving practice, reducing the number of passengers allowed in the vehicle, setting curfews to reduce night-time driving, prohibiting cell phone use while driving, ensuring the vehicle is safe, requiring teens wear their seat belt on every trip, and talking about the risks of driving recklessly or when drowsy or impaired and of getting in a car with another driver who has engaged in any of those behaviors.<sup>11</sup> Pediatricians can also recommend parents and teens develop a written "parent-teen safe driving agreement" as a way to further reinforce safe driving rules.<sup>10,11</sup> It is also important to remind parents to engage in safe driving behaviors themselves, as teens model much of their behavior from parents.<sup>11</sup> Additionally, pediatricians can help make driving safety information more readily available by having information in their office and/or website.<sup>11</sup>

This study had some limitations. First, data were based on self-report and therefore can be prone to recall bias, which

may result in overreporting or underreporting of behaviors. Secondly, questions addressing texting were worded such that respondents may have only answered affirmatively if they sent a text while driving rather than just reading messages, which could result in an underreporting of phone use. Additionally, items designed to measure riding with an impaired driver only assessed if respondents rode with a driver who “had been” using alcohol/marijuana and did not assess level impairment or any other types of substance use. This could result in an overestimate or underestimate of the prevalence of riding with an impaired driver. Despite these concerns, the YRBS has been shown to be a reliable and valid measure of risk behavior.<sup>12</sup>

Car crashes remain a significant risk factor for morbidity and mortality among U.S. teenagers. It is important to continue to reinforce the dangers of driving impaired or distracted and to ensure safe transportation practices are followed.

### Acknowledgments

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