

Teen perception of texting and driving in rural West Virginia

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Introduction

In the last decade, texting and driving has evolved into a serious problem among the adolescent population. Motor vehicle crashes are now the number one cause of fatality for teenagers.¹⁻³ In 2013 alone, there were over 2000 deaths and nearly 250,000 injuries to teens aged 16-19 from motor vehicle accidents.² Approximately half of these accidents were the result of distracted driving, with text messaging being a major source of distraction.¹⁻⁴ Research has shown that 94% of teens acknowledge that texting and driving is dangerous, yet over 1/3 continue to text and drive.^{1,5} As of 2015, 47 states have instituted laws banning texting and driving; despite these changes, teens continue to text and drive.^{1-3,5,6} Considering the potentially devastating impact of texting and driving, additional steps must be taken to reduce this behavior among the adolescent population.

The goal of this study was to determine if education could effectively raise awareness of the dangers of texting and driving and positively influence the behavior of rural West Virginia teens. The authors hypothesized that although teens are aware of the dangers of texting and driving, they continue to engage in this risky behavior, and that education would significantly improve awareness of the dangers of texting and driving and reduce the number of teens who exhibit this behavior.

Methods

This study received IRB approval and informed consent and assent was obtained from all subjects and their parents, as many participants were minors. Five rural West Virginia high schools in Logan, Lincoln, and Wayne counties participated in the study. Senior students were administered a 20 question survey to assess their driving behavior (Table 1). After completing the survey, students received a 20-minute lecture explaining how texting and driving can impair driving ability and showing graphic images of accidents resulting from texting and driving. After three months, students were emailed the same survey to determine whether their driving behavior had changed. Pre and post-lecture responses were compiled in Microsoft Excel[®]. Statistical analysis involved a Z-score test for two proportions, which was performed using Stata 13.0 (College Station, TX).

Figure 1. Survey administered to students to assess driving behavior.

| | | | | | | | |
|----------------------------------------------------------------------------------|--------------|----------------|-----------|----------------|----------|-----------|----------|
| What is your gender? | Male | | | Female | | | |
| How old are you? | | | | | | | |
| Have you completed driver's education? | Yes | | | No | | | |
| Do you have a learner's permit or license? | License | | Permit | | Neither | | |
| How long have you been driving? | Not driving | <1 year | 1-2 years | 2-3 years | >3 years | | |
| Do you have your own car? | Yes | | | No | | | |
| How dangerous do you think texting and driving is? | Not at all | | Mildly | Moderately | Very | | |
| How concerned are you about having a serious accident while texting and driving? | Not at all | | Mildly | Moderately | Very | | |
| In the past week, how many miles have you driven per day? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many times have you texted while driving? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many texts have you read while driving? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many texts have you responded to while driving? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many phone calls have you answered while driving? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many phone calls have you made while driving? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| In the past week, how many times have you ridden with drivers who text? | 0 | 1-10 | 11-20 | 21-30 | 31-40 | >40 | |
| What types of things do you text about? | Future plans | Status updates | Chatting | Map directions | Twitter | Snap chat | Facebook |

| | | | | |
|--------------------------------------------------------------------------------------------------|--------------|------------------|-----------|--------------|
| Is texting and driving legal is you are older than 18? | Yes | | No | |
| Is texting and driving legal in West Virginia? | Yes | | No | |
| Compared to alcohol, how does texting affect your driving ability? | Hinders less | Hinders the same | | Hinders more |
| Have you ever come close to having an accident because you were texting or talking on the phone? | Yes | | No | |
| How often do you wear a seatbelt? | Always | Most of the time | Sometimes | Never |
| In the past month, how many times have you drank alcohol and driven? | 0 | 1-5 | 5-10 | >10 |
| How many people do you know who have had a bad car accident? | 0 | 1-5 | 5-10 | >10 |
| How many people do you know who have had a bad car accident because of texting? | 0 | 1-5 | 5-10 | >10 |
| Do you know anyone who was killed in a car accident? | Yes | | No | |

Results

A total of 143 students completed the pre-lecture survey, and 74 completed the post-lecture survey. Among the pre-lecture participants, the average age was 17.8 years; 52% were male and 48% were female. Approximately 64% possessed a driver's license, 26% had learner's permits, and 10% had neither. When asked how long they had been driving, 43% had been driving less than a year, 14% between 1-2 years, 33% between 2-3 years, and 10% between 3-4 years. Of those who drove, 63% had access to their own car.

Approximately 57% of students admitted to either reading or sending text messages while driving in the past week, and 88% had ridden with a driver who texted. Approximately 73% of students believed that texting and driving was 'very' dangerous. Around 19% of students admitted that they had come close to having an accident because they were texting or talking on the phone while driving. Furthermore, 59% admitted to talking on the phone (both placed and answered) while driving in the past week. Around 11% admitted to drinking and driving within the past month, and 32% had ridden with a driver who had been drinking. The majority of students (62%) knew someone who had been killed in a car accident, and 36% knew someone who had been in an accident because of texting. Lastly, 27% of students believed texting and driving to be legal after 18.

When pre and post-lecture survey responses were compared, there were no statistically significant differences ($p < 0.05$) in the teens' perception of the danger of texting and driving, how concerned they were about being in an accident while texting and driving, how often they text while driving, and how many phone calls they make while driving (Table 1).

Table 1. Comparison of pre-test and post-test survey responses.

| | Pre-test (n=143) | Post-test (n=74) | Z-score | p-value |
|------------------------------------------------------------------------------------------|---------------------|---------------------|---------|---------|
| Proportion that perceived texting and driving to be 'very' dangerous | 73% | 84% | -1.72 | 0.086 |
| Proportion that were 'very' concerned about having an accident while texting and driving | 51% | 62% | -1.51 | 0.132 |
| Proportion admitting to texting and driving | 57% | 53% | 0.55 | 0.580 |
| Proportion admitting to talking on the phone while driving | 59% | 54% | 0.66 | 0.508 |

Discussion

Although the educational session failed to alter teenage driving behavior in a statistically significant manner, the results reveal that distracted driving is highly prevalent among rural West Virginia teens. Nearly half of teens admitted to reading and responding to text messages while driving. Additionally, 59% made phone calls while driving; using a hand-held phone while driving also constitutes distracted driving and is illegal for novice drivers in 37 states including West Virginia. Another alarming finding was that 11% of teens admitted to drinking and driving. Teens exhibited these behaviors despite the majority (73%) acknowledging that texting and driving is very dangerous.

Prior research has shown that young drivers possess a false sense of confidence in their driving skills, claiming that they feel comfortable texting and driving without fear of causing an accident.¹ However, teens who text and drive are 23 times more likely to have an accident than their non-distracted counterparts.¹ It has even been found that texting can be more disruptive than driving under the influence of alcohol and cannabis.^{7, 8} Studies have shown a delayed reaction time and lateral position deviation during the act of texting while operating a vehicle.^{7, 8} It should come as no surprise that impairing a driver's visual, mental, and physical capacity, regardless of speed, leads to more accidents.^{1, 4, 5, 7}

Adolescents' false sense of self-assurance, tendency towards riskier behavior, lack of experience, and inability to multitask increases their probability of an accident.⁹⁻¹² There is evidence that drivers who participate in drivers' education demonstrate safer driving habits during their first year driving before declining after 18 months.^{11, 12} Also, teens that make

more conscientious decisions tend to have lower accident rates.^{11, 12} It is imperative that the adolescent population is challenged to be more conscientious and practice safer driving habits.

This study failed to observe an improvement in teen driving behavior after an educational session. The failure to alter driving behavior may be largely due to the fact that teens already acknowledged that texting and driving was dangerous and continued to engage regardless. Perhaps other methods would be more effective at reducing texting while driving.

A number of cell phone applications have been developed to help combat distracted driving.¹³⁻¹⁶ These applications are capable of disabling text messaging functions when a vehicle is in motion, and some will notify parents when a teen attempts to use their phone while driving. This technology shows promise in reducing distracted driving. However, these applications often require the initiative of a parent to install and monitor the system as well as pay a subscription fee, which may pose a barrier. Many parents may be uninterested in installing such an application because they also text and drive, as this behavior is not limited to adolescents.

The ability of this study to measure a change in teen behavior was severely limited by a high rate of attrition, with only 52% completing the post-lecture survey. Furthermore, a single 20 minute lecture may have been insufficient to effect a lasting change in adolescent behavior. More research is needed to establish an effective strategy to reduce texting and driving.

Conclusion

This study revealed that texting and driving is highly prevalent among rural West Virginia teens, with 57% of teens admitting to exhibiting this behavior. Around 73% of teens agreed that texting and driving was very dangerous, but many continued to do so regardless. Additionally, 59% admitted to talking on the phone while driving, and 11% admitted to drinking and driving. This study failed to observe any effect of a single lecture at reducing texting and driving behavior among the study population; there was no statistically significant increase in the proportion of teens that thought texting and driving was very dangerous ($p=0.086$), and there was no statistically significant decrease in the proportion of teens who admitted to texting and driving ($p=0.580$). More research is needed to establish an effective way to reduce this dangerous behavior.

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