

# Public Health in Emergency Medicine



## GENDER DIFFERENCES IN PERCEPTIONS AND SELF-REPORTED DRIVING BEHAVIORS AMONG TEENAGERS

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**Abstract—Background:** The Centers for Disease Control reports that motor vehicle crashes (MVCs) are the leading cause of injury and death among U.S. teenagers, and disproportionately affect males. Among preventable causes of MVCs involving teenage drivers, distracted driving continues to be a serious public health problem. **Objectives:** To describe gender differences in teenage drivers' self-perceptions of safe driving behaviors, and self-reported risk behaviors and distractions while driving. **Methods:** We prospectively surveyed teenage drivers from four high schools in Pennsylvania and New Jersey. Gender comparisons were made between self-reported perceptions and self-reported driving behaviors. Descriptive statistics and chi-squared testing were used in data analyses; significance was set at  $p < 0.05$ . **Results:** Seven hundred fifty-six high school teenage drivers completed surveys. Males (52%) and females (48%) were equally distributed; 32% of males reported that they were extremely safe drivers, whereas only 18% of females reported that they were extremely safe drivers ( $p < 0.001$ ). Significantly more females (91%) compared to males (77%) reported always wearing their seatbelts ( $p < 0.001$ ). Female drivers were more likely than male drivers to self-report that they always make their passengers wear a seat belt (76% vs. 63%,  $p < 0.001$ ). A higher proportion of males reported using their

cell phones while driving, compared to females (68% vs. 56%,  $p = 0.004$ ), and 42% of males reported texting while driving, compared to 34% of females ( $p = 0.037$ ). **Conclusion:** Teenage male drivers perceive themselves to be safe drivers, but report engaging in more distracted driving and risky behaviors compared to females. These results suggest that there is an opportunity for gender-specific educational and injury prevention programs for teen drivers. © 2015 Elsevier Inc.

**Keywords—**distracted driving; gender differences

### INTRODUCTION

Motor vehicle crashes (MVCs) are the leading cause of death for U.S. teenagers. According to the Centers for Disease Control and Prevention, in 2010 approximately 2700 teens aged 16–19 years were killed, and another 282,000 were injured, in MVCs (1). Teenage drivers aged 16–19 years are three times more likely to crash than drivers older than 20 years (1,2). Among this population, those at especially high risk for MVC are newly licensed drivers, male drivers, and teens driving with teen passengers (1).

Distracted driving has also been identified as a preventable cause of MVC-related morbidity and mortality among teenagers, accounting for 11% of all fatal MVCs among teenage drivers (3). The National Highway Traffic

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Safety Administration defines distracted driving as focusing on an activity other than driving while operating a vehicle, and can include activities such as eating, reading, smoking, and cell phone use (3). Text messaging has been identified as a particularly alarming distraction because it requires cognitive, visual, and tactile attention from the driver (3). Despite public health, legislative, and regulatory efforts, distracted driving continues to be a significant public health problem, with more than 3330 distraction-affected crashes resulting in injuries to an estimated 421,000 people in 2012 (3).

Teen drivers are at risk for increased crash risk due to distractions, yet are often unaware of the magnitude of their risky behaviors, or when aware, act in ways that contradict their knowledge. Ginsburg et al. report that adolescents understand the danger of driving while intoxicated, but do not recognize cell phone use or having teenage passengers in the car as a hazard or distraction to their driving (4). Additionally, although teenage drivers acknowledge that texting and driving is dangerous, just under half of teenage drivers report that engaging in texting, calling, or using phone-based e-mail while driving is dangerous (5,6).

The relationship between adolescent driver distraction and gender seems less than clear. Rhodes and Pivik describe an association between the male gender and a higher incidence of risky driving behaviors, yet Heck and Carlos found that passenger distraction was more common among adolescent females (7,8). To further understand this association, we sought to determine the gender differences between self-reported risk perceptions of teen drivers and their self-reported driving behaviors, in regard to seat belt compliance, cell phone use, and driver distractions.

## MATERIALS AND METHODS

This was a prospective survey study conducted during the 2007–2008 school year at four high schools in Pennsylvania (PA) and New Jersey (NJ). Two school districts in PA and one in NJ were included. Of the two districts in PA, one school district had a single high school (District A), and the other had two schools on separate campuses (District B). School districts were selected to be representative of suburban schools in each state and were in the same media market and athletic conferences. The districts—although subject to different laws and regulations as applied to driving—were comprised of study subjects with similar cultural and geographic environments. During the study period, driving laws related to cell phone use differed between states. NJ had a ban on cell phone use while driving. PA had no law in place restricting the use of cell phones while driving. Both states had

laws mandating the use of seat belts, with violations of seat belt use an indication for primary traffic stops in New Jersey.

Approval from all of the school districts and the hospital's Institutional Review Board was obtained. The voluntary, confidential survey was distributed to a convenience sample cohort of all students at the participating high schools. The survey instrument (Appendix, available online) was developed for the project by the study team. It queried respondents on their knowledge, attitudes, and self-reported behaviors regarding safety issues, their driving and distracted driving behaviors, and the driving behavior of parents and adults. Ten surveys were piloted to high school students (not included in the study data) for content validity prior to being administered. Based on their review, only minor revisions in formatting were recommended by the study team.

Continuous variables were summarized using descriptive statistics, and categorical variables were reported using counts and percentages. All tabulations were based on observed data. Mean differences were compared using a one-factor analysis of variance. Differences in proportions were compared using a chi-squared test or a Fisher's exact test. Tests of significance were reported using a type 1 error rate of 5%. Computations were performed using SAS® software, version 9.2 (SAS Institute, Inc., Cary, NC).

## RESULTS

Surveys of 756 teens from four high schools in PA and NJ were returned, representing an 86% return rate. The demographics of age, gender, school, and hours/miles driven per week are reported in Table 1. Males (52%) and females (48%) were equally distributed. Thirty-two percent of males reported they were extremely safe drivers, whereas only 18% of females reported that they were extremely safe drivers ( $p < 0.001$ ). Significantly more females (91%) compared to males (77%) reported always wearing their seatbelts ( $p < 0.001$ ). Female drivers were more likely than male drivers to self-report that they always make their passengers wear a seat belt (76% vs. 63%,  $p < 0.001$ ). A significantly higher proportion of females (80%) always have the front seat passengers wear seatbelts while driving, compared to males (70%);  $p = 0.018$ . A higher proportion of females (62%) always have the back seat passengers wear seatbelts while driving, compared to males (55%), however, the difference in proportions was not significant ( $p = 0.161$ ). A significantly higher proportion of males (14%) report having received a ticket for a driving violation (not a parking ticket) compared to females (4%);  $p < 0.001$ . Males were also significantly more likely than females to self-report having ever performed distracted driving behaviors (Table 2).

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