Variation in Teen Driver Education by State Requirements and Sociodemographics

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KEY WORDS
adolescence, driving, driving instruction, graduated driver licensing laws, novice driver, injury prevention

ABBRÉVIATONS
BTW—behind the wheel
DE—driver education
NHTSA—National Highway Traffic Safety Administration
NYDS—National Young Driver Survey
SES—socioeconomic status

All authors have made substantive intellectual contributions to this manuscript and all meet the following criteria: (1) Substantial contribution to conception and design (Drs Curry, García-España, Winston, Ginsburg, and Durbin), acquisition of data (Drs Winston, Durbin, and Ginsburg), or analysis and interpretation of data (Drs Curry, García-España, Winston, and Durbin). (2) Drafting the article or revising it critically for important intellectual content. (3) Final approval of the version to be published. Thus, all persons designated as authors qualify for authorship, and all those who qualify are listed. All authors have approved the final manuscript submitted. Neither this manuscript nor one with substantially similar content under our authorship has been published or is being considered for publication elsewhere.

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WHAT’S KNOWN ON THIS SUBJECT: Most states require driver education (DE) for novice drivers, and several recent substantial efforts have sought to realign DE with the aim of producing safer drivers. However, teen participation rates and how they differ among relevant subgroups remain unknown.

WHAT THIS STUDY ADDS: This study provides national estimates of teen driver participation in formal DE, a recognized gap in the literature, and identifies disparities in behind-the-wheel training among certain racial/ethnic, socioeconomic, and gender groups, particularly in jurisdictions without a DE requirement.

abstract

OBJECTIVE: There is renewed attention on national standardization of formal driver education (DE) instruction and momentum toward realigning DE with its original goal of producing safer teen drivers. However, teen DE participation rates and how they differ among socio-demographic groups and in states with and without DE requirements remain largely unknown. Thus, our objective was to estimate national teen participation rates in formal classroom and behind-the-wheel DE instruction in relevant demographic subgroups and also estimate subgroup-specific participation rates by presence of a state DE requirement.

METHODS: Data were collected via the National Young Driver Survey, administered to a nationally representative sample of 5665 public school 9th- through 11th-graders in Spring 2006. Analyses were restricted to 1770 students with driver licenses. Survey data were weighted to reflect national prevalence estimates.

RESULTS: Overall, 78.8% of students reported participating in formal DE. However, in states without DE requirements, more than 1 in 3 students had no formal DE before licensure, and more than half had no behind-the-wheel training. Hispanics, blacks, males, and students with lower academic achievement participated in DE at markedly lower levels than counterparts in states with requirements. Notably, 71% of Hispanic students in states with no requirement received a license without receiving formal DE.

CONCLUSIONS: Considerable racial/ethnic, socioeconomic, and gender disparities in DE participation may exist in states with no DE requirements. State DE requirements may be an effective strategy to reduce these disparities. Pediatrics 2012;129:453–457
Inexperience is a main underlying factor contributing to the high per-mile crash rate of novice teen drivers. Crash rates drop as novice drivers gain road experience postlicensure, illustrating the benefit of behind-the-wheel (BTW) experience to teen driving safety. During the learning-to-drive phase, this experience may be gained through adult-supervised instruction and practice, which allow for acquisition of knowledge of the rules of the road, basic maneuvering and vehicle handling skills, and abilities to recognize hazards and avoid crashes.

One forum through which formal supervised instruction may occur during the learner phase is driver education (DE), which traditionally includes 30 hours in the classroom and 6 hours BTW with a certified driving instructor. Although an originally stated key objective of DE was to produce safer teen drivers, evaluations have failed to show that DE reduces crash rates. This may be due in part to a digression between a largely unchanged DE framework and scientific advancements in understanding the nature of teen drivers and their crashes and to implementation of DE programs without regard to articulation of underlying theory-based logic models.

In the past few years DE has received renewed attention in the United States, led by the National Highway Traffic Safety Administration’s (NHTSA) Novice Teen Driver Education and Training Administrative Standards, which aimed to propose an improved and more consistent national DE framework informed by sound scientific evidence. Given momentum toward a paradigm shift, an understanding of baseline levels of participation in formal DE instruction among teens in various sociodemographic groups is needed. As recently noted, “there is no longer any good way to keep track of … how many students take DE and what types of courses they take.” Currently, knowledge of participation rates is limited only to high-level national estimates (among all drivers) available in NHTSA’s Motor Vehicle Occupant Safety Survey. Thus, to provide insight on current participation rates among teen drivers, we estimated the prevalence of classroom and BTW training by relevant demographic characteristics and presence of a DE state requirement in a nationally representative sample of public school students.

**METHODS**

Data for this study were collected as part of the National Young Driver Survey (NYDS), a paper-and-pencil survey administered to a nationally representative sample of 9th-, 10th-, and 11th-graders in Spring 2006. 5665 students in 68 public high schools in 34 states participated in the survey. A 2-stage sampling design was used, consisting of a stratified, probability-based sampling of US public high schools (school-level response rate: 57%; 68/120 schools) followed by a within-school sampling of specific classes (student-level response rate: 85%; 5665/6665 students). The sampling design and sample size were designed to generate estimates with sampling errors within ± 5% for 95% confidence intervals at the school grade level and for black and Hispanic students in all grades combined. Sample design details are available in Ginsburg et al.

Analyses were restricted to 1770 students who reported having a valid driver license and driving on their own. Students were asked “What kinds of driver’s education have you had? Mark all that apply.” Response choices included the following: I have not had a formal DE class; classroom through my school; BTW through my school; classroom through a private driving school; and BTW through a private driving school. Participation in formal DE was defined as reporting classroom and/or BTW training through school and/or a private driving school. Students self-reported race/ethnicity and academic grades. School-level urbanicity was categorized according to the 2006 procedures of the National Center for Educational Statistics as central city (large or midsize central city), rural/small town, and suburban (urban fringe of large or midsize city).

Prevalences and 95% confidence intervals were estimated for the total sample and by demographic subgroup, and P-values were calculated by using robust $\chi^2$ tests. Survey data were weighted to reflect different probabilities of selection and to adjust for nonresponse, and methods to account for the complex design were used. This research was approved by The Children’s Hospital of Philadelphia’s Institutional Review Board.

**RESULTS**

The majority of students were white (76%), in 11th grade (65%), earned mostly As and Bs (79%), and lived in...
a rural/small-town location (58%). Twenty-five of the 34 states with participating schools had DE requirements; three-fourths of students lived in these states.

Overall, 78.8% (69.1, 86.0) of newly licensed drivers participated in formal DE instruction (Table 1); rates were higher in states with DE requirements than in states without requirements (84.4% vs 61.5%, *P* = .01). Among states with requirements, rates of participation were >75% regardless of gender, socioeconomic status, academic performance, and urbanicity. However, participation rates were lower in the absence of a requirement for several subgroups, most notably students in Midwestern states (93.4% in states with requirements vs. 29.3% in states without requirements, *P* = .00), Hispanics (67.9% vs 29.0%, *P* = .03), blacks (88.4% vs 53.4%, *P* = .01), students in low SES schools (81.6% vs 55.3%, *P* = .03), males (84.1% vs 58.7%, *P* = .01), and those reporting mostly Ds and Fs (81.5% vs 50.6%, *P* = .05). In other subgroups, including whites, students with mostly As and Bs, and students in high SES schools, participation rates were only modestly lower in states without requirements than in those with them. Finally, participation levels among those in suburban areas and those in the Northeast appeared to be relatively robust even in the absence of a DE requirement.

Overall, 86.7% of students who took formal DE (68.3% of all students) received BTW training (Table 2). In states with requirements, the prevalence of BTW training was 89.5% for students who took DE and 75.5% for all students residing in these states, whereas in states with no requirement, the prevalence of BTW training was 75.5% for students who took DE and 46.4% for all students residing in these states. In terms of participation in both classroom and BTW training, rates were higher in girls than boys (74.0% vs 66.8%, *P* = .02) and in students with mostly As and Bs than those with Ds and Fs (74.2% vs 55.0%, *P* = .00). Particularly low proportions of participating Hispanics also reported having both classroom and BTW training, and slightly more than half of those in central cities and the Western United States.

**TABLE 1** Participation in Formal DE Instruction, by Presence of State DE Requirement and Select Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall Participation</th>
<th>State DE Requirementa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 1770)b; Prevalence (95% CI)c</td>
<td>No (n = 510)b; Prevalence (95% CI)c</td>
</tr>
<tr>
<td>Total</td>
<td>78.8 (69.1–86.0)</td>
<td>61.5 (42.9–77.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>80.1 (69.4–87.6)</td>
<td>65.0 (44.9–80.8)</td>
</tr>
<tr>
<td>Male</td>
<td>77.7 (68.1–85.0)</td>
<td>58.7 (39.3–75.6)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>81.9 (71.5–89.1)</td>
<td>68.4 (45.1–85.1)</td>
</tr>
<tr>
<td>Black</td>
<td>74.0 (60.6–84.0)</td>
<td>53.4 (28.0–73.5)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>57.8 (39.9–73.9)</td>
<td>29.0 (17.5–44.0)</td>
</tr>
<tr>
<td>Other</td>
<td>79.3 (63.9–89.3)</td>
<td>54.7 (39.9–89.1)</td>
</tr>
<tr>
<td>SES of school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>85.0 (70.3–93.1)</td>
<td>72.5 (54.0–83.1)</td>
</tr>
<tr>
<td>Low</td>
<td>72.8 (58.1–83.8)</td>
<td>55.3 (40.2–69.5)</td>
</tr>
<tr>
<td>Academic performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mostly As and Bs</td>
<td>81.6 (71.6–88.6)</td>
<td>65.6 (45.5–81.4)</td>
</tr>
<tr>
<td>Mostly Cs</td>
<td>69.3 (54.3–81.1)</td>
<td>51.3 (31.7–70.6)</td>
</tr>
<tr>
<td>Mostly Ds and Fs</td>
<td>69.2 (53.3–81.6)</td>
<td>50.6 (32.0–77.9)</td>
</tr>
<tr>
<td>Urbanicity of school</td>
<td></td>
<td></td>
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<tr>
<td>Central city</td>
<td>82.0 (54.3–94.6)</td>
<td>n/a4</td>
</tr>
<tr>
<td>Rural/town</td>
<td>70.3 (55.9–81.5)</td>
<td>59.7 (39.7–76.9)</td>
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<tr>
<td>Suburban</td>
<td>92.3 (76.0–97.8)</td>
<td>93.9 (63.3–94.5)</td>
</tr>
<tr>
<td>Geographic region</td>
<td></td>
<td></td>
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<tr>
<td>Northeast</td>
<td>96.7 (90.1–98.9)</td>
<td>97.1 (91.1–98.9)</td>
</tr>
<tr>
<td>South</td>
<td>73.7 (56.1–86.0)</td>
<td>66.1 (54.1–88.0)</td>
</tr>
<tr>
<td>West</td>
<td>70.6 (50.9–84.7)</td>
<td>53.2 (30.1–75.1)</td>
</tr>
<tr>
<td>Midwest</td>
<td>86.5 (70.1–94.6)</td>
<td>29.3 (23.3–36.2)</td>
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CI, confidence interval.

a Surveyed states with DE requirements: CA, CO, CT, FL, HI, IA, ID, IL, IN, LA, MA, MI, MN, MT, NC, NE, NM, NV, OH, OR, PA, and TN.

b Surveyed states without DE requirements: AL, AZ, GA, MO, MS, NJ, OR, PA, and WI.

1 Unweighted frequencies.

2 Weighted percentages.

3 There was no central city school sampled in a state with no DE requirement.

4 No ED school sampled in a state with no DE requirement.

**DISCUSSION**

Overall, the majority of licensed public school teens reported participating in formal DE instruction. However, in states without a DE requirement, more than 1 in 3 students had no formal instruction, and more than half had no formal BTW training. Considerable racial/ethnic, socioeconomic, and gender disparities in participation may exist in states with no DE requirements; notably, almost three-fourths of Hispanic students in these states reported receiving a license without formal DE instruction.

DE has had a long and complicated history. Although most previous evaluations of DE programs have largely shown no safety benefits to teen drivers, a recent meta-analysis suggested that mandatory DE may have a positive effect on the fatality risk of 18-year-old drivers.14 Furthermore, there is renewed interest in using scientific and methodological advancements to improve DE training and evaluation programs, evident in such recent developments as the evidence-based standards proposed by NHTSA7;
newer “insight” training programs that work to address societal, familial, cognitive, and/or developmental factors known to influence teens’ crash risk; recent research indicating a need for specific training on hazard detection and scanning and speed control; a growing effort among US states to incorporate lessons on distracted driving and other risky driving behaviors into DE; and published guidelines for comprehensively evaluating DE programs. As more evidence-based DE programs are implemented and rigorously evaluated, attention should be paid to possible implications of underutilization by lower-income, male and minority teens, especially given that these groups are reported to have higher rates of risky driving behaviors and crashes. Because few states have implemented DE requirements since the time NYDS was conducted in 2006, we believe that these estimates likely reflect current participation rates. Findings, however, are generalizable only to public school students in 9th to 11th grade and may not reflect participation rates among students attending private schools or those who have dropped out. Survey response, particularly at the school level, may have affected the NYDS sample’s representativeness; however, participating and nonparticipating schools did not differ with respect to the number of students, geographic region, population density, race/ethnicity, and percent of students receiving subsidized meals. This survey was self-report, and misclassification error might be introduced by recall bias. Additionally, although the survey was intended to determine participation in instructor-led formal DE classroom and/or BTW training, it is important to note that even in some states with DE requirements, there are other options for how teens receive this education, including online classes or parent-led instruction. However, these findings serve as an initial identification of groups that may be at risk for underutilization of formal DE or BTW training (among those who do participate in DE).

**CONCLUSIONS**

State DE requirements may be an effective strategy to reduce disparities in these groups. It is important, however, that any requirements are implemented without changes in the licensing timeline or a reduction in restrictions so as not to undermine the potential benefits of DE and training and to ensure it does not inadvertently lead to higher crash risks.

**ACKNOWLEDGMENTS**

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