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Inaccuracy of Federal Highway Administration licensed driver data: Implications on young driver trends

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Abstract

Purpose—The Federal Highway Administration (FHWA) collects and publishes annual state-based counts of licensed drivers, which have been used to estimate per-driver crash rates and document a decline in young licensed drivers. The accuracy of these data has been questioned.

Methods—We compared the number of young licensed drivers as reported by the FHWA (2006–2012) with that generated directly from New Jersey (NJ) administrative licensing data. Census data were used to estimate the proportion of NJ adolescents who were licensed.

Results—FHWA data showed a decline in the proportion of licensed 17- to 20-year-olds over the seven-year period (77% to 63%), while analysis of NJ licensing data revealed a more stable trend (75% to 74%).

Conclusions—We advise against use of FHWA licensing data for research purposes and encourage FHWA to work with state licensing agencies to review and enhance data collection and quality control procedures with the goal of ensuring the accuracy of licensing data.

Keywords

adolescent driver; motor vehicle crashes; Graduated Driver Licensing; teen driver; teen driving

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Implications and Contributions: The ability to monitor licensure and examine crashes among young licensed drivers is vital. However, FHWA data—the only source of US licensing data available to most researchers—are inaccurate and may lead to erroneous conclusions. Researchers should refrain from using these data until their accuracy can be ensured.

Motor vehicle crashes are the leading cause of death among US adolescents. Accurate data on the number of licensed drivers is critical for monitoring licensing trends, estimating crash rates among licensed drivers, and evaluating the effect of state-wide interventions. Each year, the US Department of Transportation Federal Highway Administration (FHWA) collects aggregated age- and sex-specific counts of licensed drivers from each state and publishes the data in their *Highway Statistics Series* [1]. These data have been utilized to estimate per-driver crash rates and, in the field of young driver safety, to document a decline in the number of licensed adolescents. For example, Sivak and Schottle documented a six percentage point drop in the number of licensed 19-year-olds in the US from 2008 to 2010 (75.5% to 69.5%) [2].

Several researchers have raised concerns about the accuracy of FHWA license data. The Insurance Institute for Highway Safety (IIHS) investigated the issue in 2006, in part by comparing age-specific FHWA counts of licensed drivers from 1996–2003 with counts provided directly to the IIHS by state licensing agencies [3]. They reported numerous discrepancies in four of the six states examined and situations in which the state agency supplying data to FHWA was not the same agency that maintains licensing data. More recently, Foss and Martell provided examples from a dozen states of large year-to-year fluctuations in the number of licensed 16-year-olds reported by FHWA [4].

We extend investigation of this issue by conducting the first direct comparison of the number of young licensed drivers reported by FHWA (2006–2012) with counts we generated using individual-level data from New Jersey's (NJ) administrative licensing database. In doing so, we also provide insight on whether NJ is experiencing a decline in the number of young licensed drivers similar to what has been reported nationally using FHWA data.

Methods

New Jersey's Graduated Driver Licensing (GDL) system applies to all novice drivers under age 21 and includes a minimum age of licensure of 17. Annual counts of 17- to 20-year-old licensed drivers were obtained from the FHWA's annual *Highway Statistics Series* (2006–2012). The FHWA instructs states to report the “number of driver licenses in force at the end of the reporting year,” including both intermediate (provisional) and full (unrestricted) licenses, and to exclude individuals with learner's permits, non-driver identification cards, motorcycle-only licenses, suspended licenses, or licenses cancelled due to emigration, death, or revocation [1].

We obtained detailed records of all NJ drivers through July 2012 ($n \approx 9.5$ million) from the NJ Motor Vehicle Commission's licensing database. Information on license class (basic, motorcycle only, moped only, identification, commercial), start dates of learner's permit and intermediate license, license transactions (to ascertain start date of full licensure), dates of license suspension/revocation and restoration, and date of death were used along with date of birth to construct each NJ driver's detailed licensing history over the study period; further details are available elsewhere [5]. We followed as much as possible FHWA's reporting procedures by determining the number of 17- to 20-year-olds who held a valid intermediate or full basic driver license on December 31 of each year 2006–2011 and July 1, 2012. We

excluded individuals with other-class licenses or whose licenses were expired, suspended/revoked, or canceled.

For each data source, we used annual age-specific Census population data as denominators to estimate licensure rates [6].

Results

As shown in Figures 1, counts for 2006–2009 were similar using the two data sources (1% to 2% differences). However, from 2009 to 2010 FHWA data showed a 14% decrease in the number of 17- to 20-year-old licensed drivers—including a 58% decrease in licensed 17-year-olds. Conversely, analysis of licensing records indicated that there was a 1% decrease in licensed 17- to 20-year-olds over the same time period. The discrepancy between the two data sources is greatest for 17-year-olds, more modest for 18-year-olds, and very slight for 19- and 20-year-olds (Figure 2). When Census data were applied to estimate the proportion of NJ 17- to 20-year-olds who were licensed, FHWA data showed a decline from 77% in 2006 to 63% in 2012, while analysis of NJ licensing data revealed a more stable trend over the seven-year period (75% to 74%).

Discussion

A report documenting a recent decline in licensure among US adolescents using FHWA data received considerable attention [2]. However, analysis of individual-level licensing data in NJ shows a relatively stable trend in licensure in recent years, contradicting what would have been concluded in NJ had publically-available FHWA data been used. Results are also in contrast to other recent national-level reports of declining licensure rates [7,8], suggesting that national estimates of licensure trends may be obscuring important state-to-state differences.

Reasons for discrepancies may vary between and even within states and could occur anywhere in the chain of responsibility from data collection and processing by state agencies to reporting by FHWA. In this case, we confirmed with FHWA that the number of young licensed drivers they reported for NJ in 2012 reflects the number submitted by NJ (personal communication, Highway Information Team, US Department of Transportation, March 2014). Efforts to ensure the accuracy of FHWA-reported licensing data should focus both on data collection and reporting procedures at state agencies as well as implementation of quality control procedures by FHWA to identify and correct implausible year-to-year changes.

Researchers' ability to examine and monitor crash trends among licensed individuals (i.e., those primarily "at risk" of crashing) is vital. In the absence of licensing data, researchers are limited to examining crash rates on the entire population and evaluations of GDL systems—the cornerstone of public policy aimed at reducing the burden of crashes on adolescent health—are limited to age-based analyses, leaving important gaps in knowledge pertaining to how GDL influences licensing patterns and how crash risk varies over the course of licensure. Currently, FHWA data is the only source of licensing data easily accessible to traffic safety researchers. However, as evidenced in this and several previous

reports, it may be highly inaccurate. Thus, we advise against use of these data for research purposes until their accuracy can be ensured.

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List of abbreviations

FHWA	Federal Highway Administration
IIHS	Insurance Institute for Highway Safety
NJ	New Jersey

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Figure 1.

Number of 17- to 20-year old licensed drivers in New Jersey (NJ), as reported by the U.S. Department of Transportation Federal Highway Administration (FHWA) (dotted line) and generated from individual-level NJ licensing data (solid line), 2006–2012.

^a FHWA counts for 2007 and 2008 were the same, as NJ did not provide FHWA with data in 2008.

Figure 2.

Number of 17- to 20-year old licensed drivers in New Jersey (NJ), by age, as reported by the U.S. Department of Transportation Federal Highway Administration (FHWA) (dotted lines) and generated from individual-level NJ licensing data (solid lines), 2006–2012.

^a FHWA counts for 2007 and 2008 were the same, as NJ did not provide FHWA with data in 2008.