Journal of Safety Research 55 (2015) 1–5

Contents lists available at ScienceDirect

Journal of Safety Research

journal homepage: www.elsevier.com/locate/jsr

Vehicle choices for teenage drivers: A national survey of U.S. parents

Angela H. Eichelberger, * Eric R. Teoh, [1] Anne T. McCartt [1]

Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201, United States

ARTICLE INFO

Article history:
Received 22 August 2014
Received in revised form 23 February 2015
Accepted 15 July 2015
Available online 29 July 2015

Keywords:
Young drivers
Novice drivers
Teenage drivers
Vehicle crashworthiness

ABSTRACT

Introduction: Previous research has shown that many newly licensed teenagers in the United States are driving vehicles with inferior crash protection. The objective of this study was to update and extend previous research on U.S. parents' choices of vehicles for their teenagers. *Method:* Telephone surveys were conducted with parents in May 2014 using a random sample of U.S. households likely to include teenagers. Participation was restricted to parents or guardians of teenagers who lived in the household and held either an intermediate or full driver's license. Parents were interviewed about the vehicle their teenager drives, the reason they chose the vehicle for their teenager, and the cost of purchased vehicles. *Results:* Teenagers most often were driving 2000–06 model year vehicles (41%), with 30% driving a more recent model year and 19% driving an older model year. Teenagers most often were driving midsize or large cars (27%), followed by SUVs (22%), mini or small cars (20%), and pickups (14%). Far fewer were driving minivans (6%) or sports cars (1%). Forty-three percent of the vehicles driven by teenagers were purchased when the teenager started driving or later. A large majority (83%) were used vehicles. The median cost of the vehicles purchased was $5300, and the mean purchase price was $9751. *Conclusions:* Although parents report that the majority of teenagers are driving midsize or larger vehicles, many of these vehicles likely do not have key safety features, such as electronic stability control, which would be especially beneficial for teenage drivers. Many teenagers were driving older model year vehicles or vehicle types or sizes that are not ideal for novice drivers. *Practical applications:* Parents, and their teenage drivers, may benefit from consumer information about optimal vehicle choices for teenagers.

1. Introduction

Per mile driven, drivers ages 16–19 have rates of fatal crashes and police-reported crashes approximately three times as high as adult drivers in the United States (Insurance Institute for Highway Safety [IIHS], 2013). Given the disproportionately high crash rates among the youngest drivers, vehicles with adequate crash protection and safety features that prevent crashes may be especially beneficial for these drivers.

Factors that influence vehicle crash safety include the vehicle's size and weight, stability (reflecting its propensity to roll over), structure, and restraint systems. Vehicle models with the lowest driver death rates per registered vehicle year include primarily midsize or larger vehicles (IIHS, 2011). Among vehicle models of the same type and size, the degree of protection provided by the vehicles' structural designs and restraint systems varies and can be measured and compared using crash tests. Over time, the percentages of registered vehicles rated as good or acceptable in crash tests have increased dramatically (Highway Loss Date Institute [HLDI], 2013a), and strong performance in crash tests is associated with reductions in driver death risk (Farmer, 2005; Teoh & Lund, 2011). Thus, newer vehicles are generally safer than older vehicles because they are more likely to have crashworthy designs and advanced safety features.

Features that influence whether teenagers are likely to be involved in crashes are also important. Sports cars, which may encourage speeding, increase crash risk for teenage drivers. Although teenage drivers have higher insurance collision claim rates than middle-age drivers for almost all vehicle types, the difference is greatest for sports cars (HLDI, 2014). Crash avoidance technology, such as electronic stability control (ESC) can also reduce crash involvement. ESC helps a driver maintain control on curves, slippery roads, and during panic maneuvers; it reduces fatal crash involvement in cars and SUVs by 20% for multiple-vehicle crashes and by 49% for single-vehicle crashes (Farmer, 2010). ESC was first introduced in 1995 as optional equipment and was standard on many vehicles by model year 2001. ESC is especially effective for SUVs and pickups, given their propensity to roll over. It was available much more quickly on SUVs than on cars and pickups. As of model year 2012, ESC has been required by the federal government on passenger vehicles (NHTSA, 2007).

Previous research has shown that many teenagers do not drive vehicles with advanced safety technologies and adequate crash protection. A Connecticut study found that small cars were the most popular vehicle among novice teenage drivers (Williams, Leaf, Simons-Morton & Hartos, 2006). In a survey of parents about their reasons for choosing vehicles for their teenagers, vehicle size and weight were ranked

* Corresponding author at: Insurance Institute for Highway Safety, 988 Dairy Road, Ruckersville, VA 22968, United States. Tel.: +1 703 247 1500; fax: +1 703 247 1678.
E-mail address: aeichelberger@iihs.org (A.H. Eichelberger).
[1] Tel.: +1 703 247 1500; fax: +1 703 247 1678.

http://dx.doi.org/10.1016/j.jsr.2015.07.006
0022-4375/

lower than factors such as gas mileage and antilock brakes (Rivara, Rivara, & Bartol, 1998). In another study in Minnesota, North Carolina, and Rhode Island, about half of parents interviewed when their teenager was taking the on-road driving test reported that their teenager would be driving a vehicle type or size that was not ideal for teenagers (Hellinga, McCartt, & Haire, 2007). The study, conducted in 2006, also found the majority of teenagers (64–84%) would be driving 2001 or older models. Thus, many of the vehicles driven by teenagers would not have the latest safety technologies. A New Zealand study found that half of teenagers drove small cars as learners, and most vehicles were at least 10 years old (Brookland & Begg, 2011). The present study updates previous research on parents' vehicle choices for teenagers based on a national telephone survey of U.S. households with teenage drivers.

2. Method

Participation in the current survey was restricted to parents or guardians of teenagers who lived in the same household and held either an intermediate or full driver's license. A national sample pool of 12,500 telephone numbers for U.S. households with a high probability of having a teenager was obtained from Marketing Systems Group. The sample included both landline and cellphone numbers. From this initial sample, 2783 households were reached, and 500 parents or guardians completed the interview. Those not participating included 666 households that declined to participate and 1617 households that did not have a licensed teenager living in the household. Thus, the cooperation rate was 18% (American Association for Public Opinion Research, 2011).

Experienced telephone interviewers from Opinion America Group, LLC, a professional survey organization, conducted the interviews during May 2014. After screening for license status of the teenager, interviewers asked parents about the vehicle their teenager drives most often, including the make and model, model year, and cost (if purchased after the teenager started driving). Parents were also asked what the most important reason was for choosing this vehicle for their teenager to drive and what, if any, safety features they insisted the vehicle have. If more than one teenager lived in a household, the parent answered the questions for the teenager who most recently received his or her intermediate license. Demographic questions were asked at the end of the interview and included questions on parent's race/ethnicity, categories of annual household income, and teenager's gender and age. Due to a low response rate for the income question during pilot testing, a follow-up question about income was added. If respondents refused the initial income question, they were asked whether their annual household income was less than $40,000 or $40,000 or greater.

There is no national repository of information on characteristics of households with teenage drivers. However, the 2008 National Household Travel Survey (NHTS), a survey of a carefully designed nationally representative sample of households, was considered as the basis for a weighting scheme for the current survey. Comparing the demographics of the current sample with the demographics for households with teenage drives living with at least one parent or guardian in the NHTS sample, the distributions by gender and geographic region were similar across both samples. Some differences were observed, most notably in the distributions of household income and the age of teenage drivers living with at least one parent or guardian. A smaller proportion of households had incomes less than $40,000 in the current survey, compared with the NHTS (6% vs. 23%). Relative to the NHTS sample, the current sample had fewer 18–19 year-olds (32% vs. 57%) and fewer 15 year-olds (1% vs. 8%) living with at least one parent or guardian. However, there are important methodological differences between the NHTS survey and the current survey. NHTS reports driving, not licensure, and travel for all teenagers in a household is documented. Thus, teenagers with learner's permits and multiple teenage drivers per household in the NHTS could change the age distribution, relative to the current sample, in unknown ways. In addition, the most recent NHTS was conducted during 2008, and there is evidence that the economic downturn beginning around 2008 may have affected patterns of teenage licensure (HLDI, 2013b; Shults & Williams, 2013). For these reasons and in the absence of other information on the national population of households with teenage drivers, no general weighting scheme was developed for the current sample to account for a potentially skewed income distribution or other factors. For vehicle price, estimates of the mean were weighted based on NHTS proportions for household income. Both unweighted and weighted means are reported for vehicle price.

Of the 500 completed interviews, responses for a teenager who drove a large truck and responses from three households with 20 year-olds were excluded from further analysis. For all analyses, the unknown category included “don't know” responses and refusals unless otherwise noted. Based on the make, model, and model year reported by the parent, vehicles were categorized into broad vehicle type/size categories: mini/small car, midsize/large car, sports car, SUV, pickup, or minivan. When invalid make and model combinations were provided, the make was corrected to match the model where appropriate (e.g., Chevrolet Bonneville changed to Pontiac Bonneville). Eleven percent of vehicles could not be classified because respondents did not know or refused to provide the model.

Differences in survey responses by household income, vehicle type and size, whether vehicles were purchased or already owned, and age of teenager were tested using chi-square tests of independence. Unknowns were excluded from statistical tests, and response categories were collapsed where appropriate. Differences in unweighted mean vehicle purchase price were tested using analysis of variance. Results were considered statistically significant at the 0.05 level.

3. Results

Table 1 summarizes the characteristics of the parents interviewed and their teenage drivers. The majority of respondents were white (85%). Half of the teenage drivers were male. Only about 1% of the teenagers were ages 14–15. About one-third were 17 years old; one-fifth were 16 or 18 years old, each; and 12% were 19 years old. Twelve percent of parents did not provide the age of their teenagers. Most teenagers were reported to have a full license (82%).

With regard to household income, about three-quarters of the households surveyed had incomes of $40,000 or greater, 6% had incomes less than $40,000, and household income was missing for 18%. Among households who provided more specific income information, 32% had incomes exceeding $100,000, 15% had incomes of $75,000–$99,999, and 20% had incomes of $40,000–$74,999.

Parents were asked a series of questions regarding the vehicle that their teenager drove most often. Most teenagers were the primary driver of the vehicle (71%; Table 2). Teenagers most often were driving 2000–06 model year vehicles (41%), with 30% driving a more recent model year and 19% driving an older model year. Teenagers most often were driving midsize or large cars (27%), followed by SUVs (22%), mini or small cars (20%), and pickups (14%). Far fewer were driving minivans (6%) or sports cars (1%).

When asked for the most important reason the vehicle was chosen for their teenager, the most common response was safety (23%), followed by a low cost to purchase, maintain, or insure (16%). Parents were asked what safety features they insisted their teenager's vehicle have, with multiple responses allowed. The most frequently mentioned safety features included front airbags (54%), seat belts (33%), and side airbags (25%). Few parents mentioned good crash test ratings (8%) or ESC (5%).

Forty-three percent of the vehicles driven by teenagers were purchased when the teenager started driving or later (Table 2). A series of questions was asked about these vehicles. A large majority (83%) were used vehicles. Thirty-four percent of parents reported that their teenager contributed to the purchase cost of the vehicle. The median cost was $5300, and the mean purchase price was $9751. The mean purchase price was $2840 for households with annual incomes less than