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Vehicle Choices for Teenage Drivers: A National Survey of Parents

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ABSTRACT

Objective: Previous research has shown that many newly licensed teenagers are driving vehicles with inferior crash protection. The objective of this study was to update and extend previous research on parents' choices of vehicles for their teenagers.

Methods: Telephone surveys were conducted with parents in May 2014 using a random sample of 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 percent), with 30 percent driving a more recent model year and 19 percent driving an older model year. Teenagers most often were driving midsize or large cars (27 percent), followed by SUVs (22 percent), mini or small cars (20 percent) and pickups (14 percent). Far fewer were driving minivans (6 percent) or sports cars (1 percent). Forty-three percent of the vehicles driven by teenagers were purchased when the teenager started driving or later. A large majority (83 percent) were used vehicles. The median cost of the vehicles purchased was \$5,300, and the mean purchase price was \$9,751.

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, which are less likely to be equipped with important safety features, or vehicle types or sizes that are not ideal for novice drivers. Parents, and their teenage drivers, may benefit from consumer information about optimal vehicle choices for teenagers.

Keywords: Young drivers; Novice drivers; Teenage drivers; Vehicle crashworthiness

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 (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 Data Institute (HLDI), 2013a), and strong performance in crash tests is associated with reductions in driver death risk (Farmer, 2005; Teoh and 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 percent for multiple-vehicle crashes and by 49 percent 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 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 (Hellings, McCartt, & Haire, 2007). The study, conducted in 2006, also found the majority of teenagers (64-84 percent) would be driving 2001 or older models. Thus, many of the vehicles driven by teenagers would not have the latest safety technologies. The present study updates previous research on parents' vehicle choices for teenagers based on a national telephone survey of households with teenage drivers.

METHODS

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 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, 2,783 households were reached, and 500 parents or guardians completed the interview. Those not participating included 1,617 households that did not have a licensed teenager living in the household. Thus, the cooperation rate was 43 percent (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.

The demographics of the current sample were compared with demographics for households with teenage drivers living with at least one parent or guardian from the 2008 National Household Travel Survey (NHTS), a survey of a carefully designed nationally representative sample of households. 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 percent). Relative to the NHTS sample, the current sample had fewer 18-19 year-olds (32 vs. 57 percent) and fewer 15 year-olds (1 vs. 8 percent) living with at least one parent or guardian. However, there are important differences between the NHTS and the current sample. 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, 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 reweighted based on NHTS proportions.

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.

RESULTS

Table 1 summarizes the characteristics of the parents interviewed and their teenage drivers. The majority of respondents were white (85 percent). Half of the teenage drivers were male. Only about 1 percent 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 percent 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 percent).

With regard to household income, about three-quarters of the households surveyed had incomes of \$40,000 or greater, 6 percent had incomes less than \$40,000, and household income was missing for 18 percent. Among households who provided more specific income information, 32 percent had incomes exceeding \$100,000, 15 percent had incomes of \$75,000-\$99,999, and 20 percent 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 percent) (Table 2). Teenagers most often were driving 2000-06 model year vehicles (41 percent), with 30 percent driving a more recent model year and 19 percent driving an older model year. Teenagers most often were driving midsize or large cars (27 percent), followed by SUVs (22 percent), mini or small cars (20 percent), and pickups (14 percent). Far fewer were driving minivans (6 percent) or sports cars (1 percent).

When asked for the most important reason the vehicle was chosen for their teenager, the most common response was safety (23 percent), followed by a low cost to purchase, maintain, or insure (16 percent). 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 percent), seat belts (33 percent), and side airbags (25 percent). Few parents mentioned good crash test ratings (8 percent) or ESC (5 percent).

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 percent) were used vehicles. The median cost was \$5,300, and the mean purchase price was \$9,751. The mean purchase price was \$2,840 for households with annual incomes less than \$40,000 and \$10,562 for households with annual incomes of \$40,000 or greater. These results are similar to

those derived from responses weighted by the 2008 NHTS income distribution for households with teenage drivers living with a parent or guardian. Among NHTS households that had teenage drivers living with a parent or guardian and reported annual income, 23 percent had incomes less than \$40,000 and 77 percent had incomes that were \$40,000 or greater. Weighting by these percentages results in a weighted mean purchase price of \$8,786 $[(0.23 \times \$2,840) + (0.77 \times \$10,562)]$. Thirty-four percent of parents reported that their teenager contributed to the cost of the vehicle.

The types of vehicles driven by teenagers differed by household income. Teenagers living in households with annual incomes of \$75,000 and greater were more likely to drive SUVs (28 percent), compared with teenagers in households with incomes of \$40,000 to less than \$75,000 (12 percent) or less than \$40,000 (9 percent). Teenagers in households with annual incomes greater than \$75,000 were more likely to drive 2007 or newer models, compared with teenagers in households with annual incomes less than \$75,000 (37 vs. 20 percent). The median vehicle purchase price was substantially lower in households with annual incomes less than \$75,000, compared with households with annual incomes of \$75,000 or greater (\$3,000 vs. \$9,000).

The model years of vehicles driven by teenagers varied by vehicle type/size (Table 3). Pickups were most often older model years; 81 percent were 2006 model year or older, 9 percent were 2007-11 model years, and only 3 percent were 2012-14 model years. In contrast, mini or small cars tended to be relatively newer model years; less than half were 2006 model years or older (48 percent), 27 were 2007-11 model years, and 18 percent were 2012-14 model years.

Teenagers were more often the primary driver of vehicles purchased, compared with vehicles already owned by the family (89 vs. 57 percent). The types and age of vehicles driven by teenagers varied by whether the vehicle was purchased or already owned (Table 4). Compared with vehicles already owned by the family, vehicles purchased when the teenager started driving or later were more often mini or small cars (28 vs. 14 percent) and less often SUVs (18 vs. 25 percent), and were more often 2007 or newer model year vehicles (39 vs. 23 percent).

Relative to younger teenagers, 18-19 year-olds were more likely to be driving mini or small cars (25 vs. 17 percent) and less likely to be driving pickups (10 vs. 16 percent). Twenty-nine percent of the

vehicles driven by 18-19 year-olds were 2008 or newer model year vehicles, compared with 23 percent of the vehicles driven by younger teenagers.

Parents were asked whether a teenager is safer driving a midsize or large vehicle or a small vehicle. Most parents (72 percent) thought a midsize or larger vehicle was safer for a teenager to drive than a small one. Parents most often attributed the superior safety of midsize or larger vehicles to better crash protection. Parents who thought smaller vehicles were safer most often attributed this to ease of handling (67 percent) or better ability to avoid crashes (10 percent), or allowing fewer passengers (13 percent).

DISCUSSION

Vehicles that reduce the risk of crashing and the risk of injury in a crash are especially important for teenage drivers, given their high crash rates relative to drivers of other ages. The percentages of registered vehicles with good or acceptable ratings in IIHS crash tests and the availability of important safety features, such as ESC and side airbags, have increased dramatically in recent years (HLDI, 2013a; HLDI, 2012). Although the current national survey of parents shows that the majority of teenagers are driving midsize or larger vehicles, it also reveals that many teenagers are driving vehicles that likely do not have key safety features, such as ESC. Results were generally consistent with previous surveys of parents; however, the earlier surveys focused on specific states so that the samples may not be comparable.

A previous survey of parents found that 16-28 percent of novice teenage drivers would be driving SUVs and 2-4 percent would be driving pickups (Hellinga, et al., 2007), vehicles not considered safe for teenage drivers at the time. Because of their high centers of gravity, SUVs and pickups have a propensity to roll over in a crash. However, ESC has dramatically reduced the tendency of these vehicles to roll over, and because they are large and heavy vehicles, when equipped with ESC they can be safe choices for teenagers. ESC became available much more quickly on SUVs than on other vehicle types, while availability on pickups lagged behind SUVs, minivans, and cars. Among 2000-06 model year passenger vehicles registered in the United States in 2013, ESC was standard equipment on almost a quarter of SUVs and less than 1 percent of pickups (IIHS, 2014). Among 2007-11 model year vehicles registered in 2013, the vast majority of SUVs had standard ESC, compared with slightly less than half of

pickups. Effective with the 2012 model year, all passenger vehicles sold in the United States must have ESC. In the current survey, 22 percent of teenagers were driving SUVs, and 14 percent were driving pickups. The survey did not determine whether the vehicles driven by teenagers were equipped with ESC. However, many of the SUVs (42 percent) were 2007 or newer model years, and these vehicles were likely to have standard ESC. The large majority of teenagers with pickups were driving 2006 or older model years, very few of which were likely to have ESC.

One-fifth of teenagers were driving mini or small cars or sports cars. Similar to a previous survey (Hellinga, et al., 2007), mini or small cars were the most popular vehicle types among those who purchased a vehicle for their teenager to drive. Compared with teenagers driving vehicles already owned, teenagers driving purchased vehicles were about twice as likely to be driving mini or small cars. These vehicles do not provide optimal protection for occupants in the event of a crash, even with ESC and good crash test ratings.

Sports cars were the least common vehicle type driven by teenagers in the present survey and in previous surveys (Hellinga, et al., 2007; Williams, et al., 2006). In the current survey, only 1 percent of teenagers were driving sports cars, which are not ideal for teenage drivers. The high horsepower and optimized handling of these vehicles may encourage speeding and other high-risk driving behaviors, which increases both the risk of crashing and the risk of injury in a crash.

Midsize or large cars and minivans are generally considered relatively safe vehicle types for teenage drivers, and in a previous survey about half of parents reported their newly licensed teenagers would be driving these vehicle types (Hellinga, et al., 2007). In the current survey, one-third of teenagers were driving midsize or large cars or minivans. However, these vehicles tended to be older model years. About three-quarters of the teenagers with midsize or large cars or minivans drove 2006 or older model years, whereas about two-thirds of midsize or larger cars and minivans registered in 2013 in the United States were of 2006 or older model years (IIHS, 2014). Few of these older vehicles were likely to have ESC. Older model year vehicles also are less likely to be rated as good or acceptable in crash tests.

Safety was the top reason parents cited for choosing a particular vehicle for their teenage driver, and many parents were aware of some key aspects of vehicle safety. Most parents understood that midsize or larger vehicles are generally safer than smaller ones because they offer better protection in a

crash. Parents often cited airbags and seat belts as important safety features. However, few parents mentioned ESC or good crash test ratings as requirements for their teenager's vehicle. This finding suggests that even though parents may consider safety when choosing their teenager's vehicle, they are generally not aware of the latest safety technologies.

Behind safety, cost to purchase, maintain, or insure the vehicle was the most important reason for choosing it. This priority appears to be reflected in the vehicle choices for teenagers. Fifty-seven percent of parents reported their teenagers were driving vehicles already owned by the family, and among the 43 percent who purchased a vehicle after the teenager started driving, the median cost of purchased vehicles was \$5,300.

A limitation of the current study is that lower income households may have been underrepresented in the sample. However, when the mean cost of purchased vehicles was weighted by the 2008 NHTS income distribution for households with teenage drivers living with at least one parent or guardian, the weighted mean was lower than the unweighted mean, but the difference was not dramatic (\$8,786 vs. \$9,751).

Given teenagers' elevated crash rates, it is especially important that they drive vehicles that have the most important safety features and provide adequate protection in the event of a crash. Both safety and cost were cited as important factors in parents' choices of vehicles for their teenage drivers, but it appears that parents, and their teenage drivers, may benefit from consumer information about optimal vehicle choices for teenagers. This information should include specific choices of vehicles that are both safe and economical.

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Table 1 Characteristics of parents and teenagers

	Percent (N=496)
Parent's gender	
Male	39
Female	60
Unknown	1
Parent's race/ethnicity	
White	85
Hispanic or Latino	4
African American	2
Asian	2
Other	2
Unknown	5
Census region	
Northeast	18
Midwest	31
South	33
West	19
Annual household income	
<\$40,000	5
\$40,000-74,999	20
\$75,000-99,999	15
≥\$100,000	32
Unknown	28
Annual household income*	
<\$40,000	6
≥\$40,000	76
Unknown	18
Teenager's gender	
Male	50
Female	49
Unknown	1
Teenager's license status	
Intermediate license	17
Full license	82
Unknown	1
Teenager's age	
14	<1
15	1
16	20
17	36
18	20
19	12
Unknown	12

Note: Percentages do not always sum to 100 percent due to rounding.

*Respondents who refused to answer the initial income question were asked whether their annual household income was less than \$40,000 or \$40,000 or greater.

Table 2 Parents' responses concerning vehicle choices for teenagers

	Percent (N=496)
Is teenager primary driver of vehicle?	
Yes	71
No	29
Vehicle type/size	
Midsize/large car	27
SUV	22
Mini/small car	20
Pickup	14
Minivan	6
Sports car	1
Unknown	11
Model year	
2012-2014	10
2007-2011	20
2000-2006	41
1999 and earlier	19
Unknown	9
Most important reason parent chose this vehicle	
Safety	23
Low cost to purchase, maintain, or insure	16
Already owned	11
Reliability	10
Styling	10
Size	9
Good gas mileage	7
Received as gift/free	3
Other	7
Unknown	3
Safety features parent insisted vehicle have*	
Driver/passenger front airbags	54
Seat belts	33
Side airbags	25
Antilock brakes	18
Good crash test/consumer ratings	8
Bumper strength	5
Electronic stability control (ESC)	5
Other	17
Did not consider safety	13
Unknown	8
When was vehicle purchased?	
Purchased when teenager started driving or later	43
Family car purchased before teenager started driving	57
(If purchased when teenager started driving or later) Was vehicle new or used?	(N=213)
New	16
Used	83
Unknown	<1
(If purchased when teenager started driving or later) Approximate purchase price of vehicle?	
<\$5,000	34
\$5,000-9,999	23
\$10,000-19,999	19
≥\$20,000	12
Unknown	12
(If purchased when teenager started driving or later) Did son/daughter pay for any of cost?	
Yes	34
No	62
Unknown	4

Note: Percentages do not always sum to 100 percent due to rounding.

*Multiple responses permitted.

Table 3 Model year of teenagers' vehicles by vehicle type/size (percent)

	Midsize/ large car N=133	SUV N=109	Mini/ small car N=98	Pickup N=68	Minivan N=28	Sports car N=7
Model year						
2012-2014	8	11	18	3	4	29
2007-2011	17	31	27	9	14	14
2000-2006	50	39	37	46	54	29
1999 and earlier	21	11	11	35	21	29
Unknown	5	8	7	7	7	0

Note: Percentages do not always sum to 100 percent due to rounding.

Table 4 Type/size and model year of teenagers' vehicles by whether vehicle was purchased when the teenager started driving or already owned (percent)

	Purchased N=213	Already owned N=281
Vehicle type/size		
Midsize/large car	27	27
SUV	18	25
Mini/small car	28	14
Pickup	14	13
Minivan	0	10
Sports car	2	1
Unknown	11	10
Model year		
2007-2014	39	23
2000-2006	34	47
1999 and earlier	18	21
Unknown	9	9

Note: Percentages do not always sum to 100 percent due to rounding.