

**Survey of Drivers of
Airbag-Equipped Vehicles**

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ABSTRACT

A random sample of 903 drivers of airbag-equipped vehicles in three states was surveyed in January 1997 about their awareness of airbag safety issues and attitudes toward airbags. Overall, most people surveyed felt airbags are effective in providing protection in frontal crashes (85 percent) and would want at least a driver airbag in their next vehicle (76 percent). Most respondents said their opinions of airbags had not changed in the past six months, but 22 percent said their opinions of driver airbags had become less favorable (including 30 percent of shorter drivers), and 41 percent said they now think less favorably of passenger airbags (including 46 percent of people who transport children). Respondents were asked about their interest in cutoff switches and deactivation for their airbags, if this were permitted (currently, it is not legal to do either without a written waiver from the National Highway Traffic Safety Administration). More respondents expressed interest in having cutoff switches than in having their airbag deactivated, particularly those with dual airbags. The high level of interest in cutoff switches or deactivation suggests that large numbers of people who are not at risk of serious airbag inflation injury are worried unnecessarily.

INTRODUCTION

There is clear evidence that both driver and passenger airbags are saving lives (Ferguson et al., 1995; Ferguson et al., 1996; Kahane, 1996). The National Highway Traffic Safety Administration (NHTSA, 1997) estimates that airbags had saved about 1,700 lives through the end of 1996. However, airbags have caused some serious and even fatal injuries to occupants who are very close to airbags when they begin to deploy. Particularly at risk are infants in rear-facing child restraints placed in front seats and children sitting in front seats who are unbelted or improperly belted (i.e., with the shoulder belt behind the back). Preimpact braking can move them close to passenger airbags before they begin to deploy. Even properly belted children do not always sit back in their seats and may move about when riding in a vehicle. A child's small stature means that leaning forward at the time of deployment can put the head very close to the airbag when it begins to deploy.

Recent analyses indicate that passenger airbags may increase the risk of fatality to children younger than age 10 (Ferguson et al., 1996). Of the 41 deaths attributed to passenger airbags in low-severity crashes through March 1, 1997, 9 were infants in rear-facing child restraints and 29 were children ages 1-9, almost all of whom were unbelted or improperly belted. The remaining three deaths were a belted 98-year-old female, an unbelted 57-year-old male, and an unbelted 66-year-old female.

In addition to the deaths attributed to passenger airbags, the deaths of 21 drivers in low-severity crashes have been attributed to driver airbag deployments. Many of these drivers were unbelted, and 15 were women 5 feet 4 inches or shorter who likely were sitting very close to the steering wheel.

Because of these adverse effects, there has been extensive media coverage of airbag risks, and some people, particularly parents and shorter women, have become concerned about their vehicles' airbags. These concerns have resulted in a re-examination of Federal regulations governing airbag design. Under consideration are changes to Federal Motor Vehicle Safety Standard (FMVSS) 208 that would allow vehicle owners to deactivate their driver and/or passenger airbags.

Although strong public support for airbags has resulted in many vehicles being equipped with airbags ahead of federally mandated deadlines, it is possible that public opinion may be changing. Therefore, the purpose of this study was to determine the driving public's perception of airbag effectiveness and risks and how their opinion of airbags may have changed during the past six months.

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METHOD

For regional representation, three states were selected from those in which the names and telephone numbers of registered vehicle owners were available: Michigan, North Carolina, and Texas. A random sample of 12,000 owners of 1994-97 model year vehicles equipped with airbags was derived from state vehicle registration data maintained by R.L. Polk.

Computer-assisted telephone interviews were conducted January 15-18, 1997 with respondents age 18 or older who typically drove vehicles with either driver-only or dual airbags. A total of 4,484 telephone numbers, selected randomly from the sample frame of 12,000 owners, were called at least once. There was either no answer, a busy signal, or an answering machine at 1,862 numbers (42 percent), and 265 numbers (6 percent) were either disconnected or belonged to a business rather than an individual.

Of the individuals contacted, 647 (14 percent) refused to participate in the survey, 431 (10 percent) were unavailable at the time they were called, and 22 (< 1 percent) were unable to communicate because of a language barrier. Another 290 (6 percent) said they did not own vehicles with airbags, and 64 (1 percent) terminated the survey before the questionnaire was completed. Respondents totaling 903 (300 in Michigan, 303 in North Carolina, and 300 in Texas) were interviewed, with 331 (37 percent) driving vehicles equipped with driver-only airbags and 572 (63 percent) driving vehicles equipped with dual airbags.

Two groups of particular concern during this study were drivers 5 feet 4 inches or shorter and people who transported children younger than age 13 in vehicles with passenger airbags. To ensure a representative sample within these groups, a minimum of 200 respondents was set as an objective for each. It was unnecessary, however, to deviate from the random sample to meet these objectives.

Respondents first were asked whether the presence of an airbag was important in their purchase decision for the vehicles they currently drove and if they would want airbags in their next vehicle. They also were asked whether they thought airbags were effective in preventing serious injuries in frontal crashes. Next, respondents were asked if their opinions of driver and passenger airbags had become more favorable, less favorable, or remained unchanged during the past six months. If they said their opinions had changed, they were asked why. Respondents were asked their opinions about the risks posed by driver airbags and what precautions, if any, they took to reduce those risks. Respondents who drove vehicles with dual airbags were asked their opinions of the risks posed by passenger airbags to child and adult passengers and whether they had transported any children younger than age 13 in the past six months. All respondents were asked what precautions, if any, they were aware of that should be taken with child passengers in vehicles equipped with dual airbags. The survey ended with questions

about respondents' attitudes toward airbag deactivation and manual cutoff switches. Respondent characteristics such as income, education, gender, age, and height also were collected.

RESULTS

Forty-three percent of respondents were male, and 57 percent were female. Forty-seven percent of respondents were ages 35-54, 33 percent were age 55 or older, and 20 percent were ages 18-34. Sixty percent of respondents had at least some college education, and 29 percent had completed high school. Forty-two percent of respondents lived in households with annual incomes of less than \$50,000, and 40 percent had annual incomes of \$50,000 or greater (18 percent refused to provide income information). Respondents included 292 drivers who identified themselves as being 5 feet 4 inches or shorter and 339 people who said they drove vehicles with dual airbags and had transported children younger than age 13 in the past six months.

Table 1 presents a summary of the main findings of the survey. Fifty-seven percent of all respondents said the availability of an airbag was an important factor in their decision to purchase the vehicles they currently drove, and most (76 percent) said they would want either a driver-only airbag (13 percent) or dual airbags (63 percent) in their next vehicle. Eighty-five percent of respondents felt that airbags were either very effective (42 percent) or somewhat effective (43 percent) in protecting occupants from serious injury in frontal crashes. Fifty percent of respondents said they were aware of some problems with airbags. The three problems most often mentioned were danger to children (35 percent), danger to shorter/smaller occupants (14 percent), and problems with rear-facing child restraints (11 percent).

Table 1
Differences in Survey Responses for Selected Respondent Categories

	Percent in Agreement						
	All	Driver-Only Airbag	Dual Airbags	Drivers 5'4" and Shorter	Drivers Taller Than 5'4"	Transported Children*	Did Not Transport Children*
Airbags were important to vehicle purchase	57	45**	63	57	57	68**	56
Airbags are effective in frontal crashes	85	84	85	83	85	87	82
Aware of problems with airbags	50	53	49	49	51	51	47
Aware of precautions to take with child passengers	85	86	84	85	85	88**	79
Opinion of driver airbags less favorable in past six months	22	22	22	30**	18	24	20
Opinion of passenger airbags less favorable in past six months	41	41	40	50**	36	46**	32
Would like a cutoff switch for driver airbag	30	41**	23	30	29	26**	18
Would like a cutoff switch for passenger airbag*	--	--	67	73**	64	70	64
Would want to have driver airbag disconnected	13	14	12	17**	11	11	14
Would want to have passenger airbag disconnected*	--	--	19	22	17	19	19
Want dual airbags in next vehicle	63	54**	68	60	64	69	67
Want driver-only airbag in next vehicle	13	17**	11	13	13	14**	7

*For respondents with dual airbag vehicles

**Denotes statistical significance between the responses of people in the comparison groups ($p < 0.05$)

Driver Airbags

The majority of respondents (68 percent) said they had not changed their opinions of driver airbags in the past six months. Among those who said their opinions had changed, shorter drivers (those who said their height was 5 feet 4 inches or less) were significantly more likely than taller drivers to say they now had less favorable opinions of driver airbags (30 percent compared with 18 percent). When asked why their opinions had become less favorable, 82 percent of respondents mentioned negative news reports. Only 8 percent of respondents said they now have more favorable opinions of driver airbags.

Most respondents (58 percent) felt deploying driver airbags posed no risk of personal injury to them. When asked if, overall, they felt safer or more at risk because of their driver airbag, 78 percent of respondents said they felt safer.

The 308 respondents (34 percent) who felt airbags posed a risk of injury were asked, “What precautions, if any, do you take as a driver to reduce or eliminate these risks in your vehicle?” The three precautions most often mentioned were to always use seat belts (38 percent), to drive more safely (35 percent), and to sit as far away from the steering wheel as possible (17 percent). Of the respondents taking precautions, 74 percent said they had always taken them, and 23 percent said they had made changes in the past six months. Twenty percent of the respondents who felt at risk from the driver airbag said they took no precautions. There were no significant differences between the responses to these questions from drivers taller than 5 feet 4 inches and from shorter drivers.

Sixty percent of all respondents 5 feet 4 inches or shorter felt they would be safer if they could sit farther from the steering wheel. When asked, “What keeps you from moving the seat further back?,” the reason most often given was that they would no longer be able to reach the pedals comfortably (87 percent).

Passenger Airbags

More respondents said they had changed their opinions of passenger airbags than of driver airbags in the past six months (47 percent compared with 30 percent). Forty-one percent of respondents said they had less favorable opinions of passenger airbags -- nearly twice as many as the 22 percent who said their opinions of driver airbags had become less favorable. Respondents who said they drove vehicles with dual airbags and transported children were significantly more likely than those who did not transport children to say they now have less favorable opinions of passenger airbags (46 percent compared with 32 percent). When asked why their opinions of passenger airbags had become less favorable, 82 percent of respondents mentioned negative news reports. Fifty percent of respondents said their opinions had not changed.

When asked whether passenger airbags posed a risk to their child and adult passengers, 81 percent of respondents who drove vehicles with dual airbags said passenger airbags posed a risk to child passengers, and 26 percent said they posed a risk to adult passengers. Those who transported children were significantly more likely to respond that they thought airbags posed a risk to child passengers than those who did not transport children (86 percent compared with 73 percent).

All respondents, regardless of whether they drove vehicles with dual airbags or transported children, were asked if they were aware of any precautions that should be taken with children in vehicles

with passenger airbags. Eighty-five percent of respondents reported they were aware of precautions that should be taken. When asked what precautions they were aware of, most respondents (76 percent) mentioned that children should not ride in front seats, 18 percent said infants in rear-facing child restraints should never be placed in front of passenger airbags, and 15 percent said children should always use seat belts.

Deactivation

Respondents were asked the following question about their interest in having their airbags disconnected by mechanics: “Current Federal regulations prohibit mechanics from disconnecting airbags. If the laws were changed, would you want to have your mechanic deactivate your driver airbag, passenger airbag, both, or neither?” Twenty-two percent of respondents said they would want to have one or both airbags disconnected by their mechanic.

Respondents also were asked if they would want cutoff switches installed to allow them to turn off their airbags in some situations. More respondents said they would want cutoff switches than said they would want their airbags disconnected. Sixty-seven percent of respondents with dual airbag-equipped vehicles said they would want cutoff switches installed for their passenger airbags compared with 19 percent who said they would want mechanics to disconnect them. Thirty percent of respondents said they would want cutoff switches installed for their driver airbags compared with 13 percent who said they would want mechanics to disconnect them. Shorter drivers were no more likely than taller drivers to say they would want driver airbag cutoff switches, and people who transported children were no more likely than people who did not transport children to say they wanted passenger airbag cutoff switches.

DISCUSSION

Despite the recent spate of negative publicity about airbags, most people surveyed felt airbags are effective in providing protection in frontal crashes and say they would want them in their next vehicle. Most respondents reported they have not changed their opinions of airbags in the past six months, but a substantial number of drivers said they now have less favorable opinions of airbags, particularly passenger airbags. This shift in opinion is more pronounced among shorter drivers and among people who transported children, the groups that have been the subject of the most negative publicity concerning airbag risks.

Negative news reports appear to have influenced some drivers -- particularly shorter drivers and those who transported children -- to reconsider whether they want the airbags in their vehicles. Of particular concern is the proportion of people who said they would want their airbags disconnected if

allowed and the even greater proportion who say they would want cutoff switches for one or both airbags. This is of concern because the risk of serious injury from inflating airbags to people positioned correctly and using seat belts is extremely small, yet the benefits of airbags in serious frontal crashes are large (Ferguson et al., 1995; Ferguson et al., 1996; Kahane, 1996).

If NHTSA decides to allow people to have their driver and/or passenger airbags deactivated, many vehicle owners may choose to do so. From October 29, 1996 through March 3, 1997, NHTSA received 14,646 calls to their telephone hotline about airbags, and 5,693 of the callers wanted to have their airbags disconnected. However, the circumstances in which it makes sense to deactivate airbags are very rare. For example, when a driver is traveling alone with an infant requiring frequent observation due to a medical condition, necessitating the infant to travel in a rear-facing child restraint in the front seat, the passenger airbag must be turned off.

To ensure people make informed decisions about the appropriateness of deactivation, they need to be apprised of the steps they can take to eliminate the risk of serious inflation injury and still be afforded the protection of airbags. In almost all instances, eliminating this risk involves changes in driver behavior such as always using seat belts, putting children in back seats, and, in the case of adult drivers and passengers, making sure they are sitting back away from airbags.

The media have played a valuable role in informing the public about the risks of airbags, as recent surveys confirm (Ferguson and Williams, 1996; Insurance Research Council, 1996; Associated Press, 1996). However, as this survey indicates, one unfortunate aspect of this coverage is that, for many people, the news reports have created an exaggerated sense of risk.

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