



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

2007 Motor Vehicle Occupant Safety Survey

VOLUME 3

Air Bags Report

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<p>16. Abstract</p> <p>The 2007 Motor Vehicle Occupant Safety Survey was the sixth in a series of periodic national telephone surveys on occupant protection issues conducted for the National Highway Traffic Safety Administration (NHTSA). Data collection was conducted by Schulman, Ronca & Bucuvalas, Inc., a national survey research organization. The survey used two questionnaires, each administered to a randomly selected national sample of about 6,000 persons age 16 or older. Interviewing began January 9, 2007, and ended April 30, 2007. This report presents the survey findings pertaining to air bags. Detailed information on the survey methodology, as well as copies of the questionnaires, are contained in a separate NHTSA report ("2007 Motor Vehicle Occupant Safety Survey. Volume 1. Methodology Report").</p> <p>The percentage of drivers with air bags in their primary vehicles has continued to increase. In 2007, 90% reported air bags in their primary vehicles, compared to 77% in 2003. The vast majority of the public (96%) understood that seat belts still needed to be worn even when the vehicle they were riding in had an air bag.</p> <p>Thirty-three percent of the public had concerns about the safety of air bags. Despite the concerns, 90% of the public would prefer both driver and passenger air bags in their next vehicle, compared to 5% who would prefer not to have air bags in their next vehicle and 3% who were unsure what they would prefer.</p>					
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INTRODUCTION

Background

The Motor Vehicle Occupant Safety Survey is conducted on a periodic basis for the National Highway Traffic Safety Administration (NHTSA). It is a national telephone survey composed of two questionnaires, each administered to several thousand randomly selected persons age 16 and older. The Version 1 Questionnaire emphasizes seat belt issues while Version 2 emphasizes child restraint issues. The questionnaires also contain smaller modules addressing such issues as air bags, emergency medical services, and crash injury experience. For the 2007 survey, each questionnaire was administered to approximately 6,000 individuals.

NHTSA conducted the first Motor Vehicle Occupant Safety Survey in 1994. Subsequent versions of the survey have included modest revisions to reflect changes in information needs. Thus, the 2007 survey contained numerous items from the earlier surveys, which allows the agency to monitor change over time in knowledge, attitudes, and (reported) behavior related to motor vehicle occupant safety.

The following report presents findings from the 2007 Motor Vehicle Occupant Safety Survey pertaining to air bags. Section 1 presents the 2007 results. Section 2 compares findings across years, from 1994 through 2007.

Methodology

The 2007 Motor Vehicle Occupant Safety Survey was conducted by Schulman, Ronca & Bucuvalas, Inc. (SRBI), a national survey research organization. SRBI conducted a total of 11,918 telephone interviews among a nationally representative sample of individuals 16 and older. To reduce the burden on the respondents, the survey employed two questionnaires. A total of 5,908 interviews were completed in Version 1 and 6,010 were completed in Version 2. Although some questions were used in both versions (e.g., demographics, crash injury experience, seat belt use), each questionnaire had its own set of distinct topics. Each sample was composed of a cross-sectional sample of approximately 4,500 persons 16 and older, and an over-sample of approximately 1,500 persons ages 16 through 39. The procedures used in the survey yielded national estimates of the target population within specified limits of expected sampling variability, from which valid generalizations can be made to the general public.

The survey was conducted from January 9, 2007, to April 30, 2007. For a complete description of the methodology and sample disposition, including computation of weights, refer to the 2007 Motor Vehicle Occupant Safety Survey, Volume 1: Methodology Report. The report includes English and Spanish language versions of the questionnaires.

The percentages presented in this report are weighted to accurately reflect the national population age 16 or over. Unweighted sample sizes (“N’s”) are included so that readers know the exact number of respondents answering a given question, allowing them to estimate sampling precision (see Appendix A for related technical information).

Percentages for some items may not add to 100 percent due to rounding, or because the question allowed for more than one response. In addition, the number of cases involved in subgroup analyses may not sum to the grand total who responded to the primary questionnaire item being analyzed. Reasons for this include some form of nonresponse on the grouping variable (e.g., “Don’t Know” or “Refused”), or use of only selected subgroups in the analysis. Moreover, if one of the variables involved in the subgroup analysis appeared on both versions of the questionnaire, but the other(s) appeared on only one questionnaire, then the subgroup analysis was restricted to data from only one version of the questionnaire.

The survey employed two questions to categorize cases for subgroup analyses involving race and ethnicity. The first asked respondents if they considered themselves to be Hispanic or Latino. Those who said “Yes” composed the Hispanic analytic subgroup in the study, those who said “No” composed a non-Hispanic comparison group. The second question was treated independently of the ethnicity question, i.e., it was asked of every respondent. The interviewers recited several different racial categories, and asked respondents which categories described them. Respondents could select more than one. For purposes of analysis, a respondent was assigned to a specific racial category if s/he selected only that category. The few respondents who selected multiple categories (219 out of more than 11,000 cases) were analyzed as a separate multi-racial group. Because race and ethnicity were considered independently, each racial group could include both Hispanics and non-Hispanics, and the Hispanic analytic group included both Blacks and Whites.

The abbreviations DK and Ref are frequently listed as response categories in the report. DK stands for “Don’t Know” and Ref stands for “Refused”. For most questions, the persons who answered “Don’t Know” vastly outnumbered those who refused to answer the question.

SECTION 1: 2007 SURVEY RESULTS

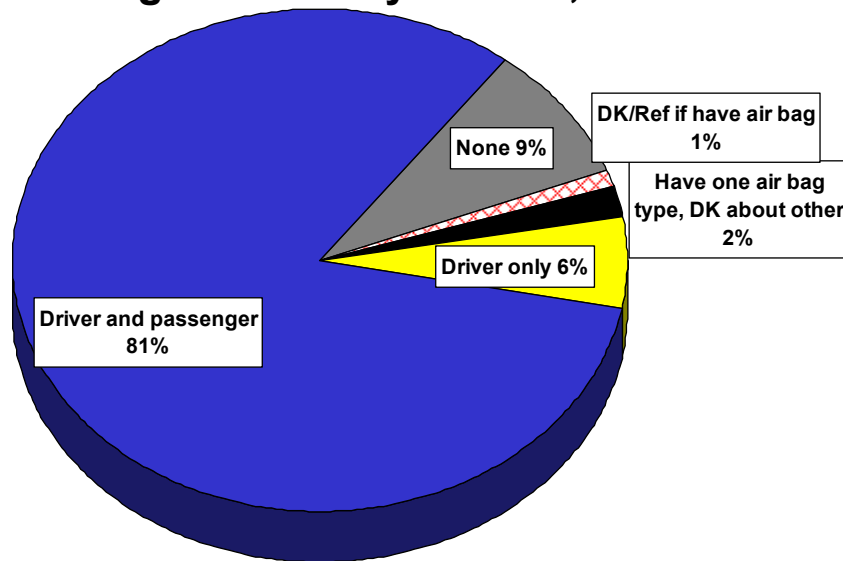
2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Prevalence of Air Bags

In 2007, the vast majority of drivers (90%) reported having an air bag in their primary driving vehicle. More than eight in ten (81%) reported having driver and passenger frontal air bags compared to 6% with driver frontal air bags but no passenger frontal air bags.¹ Less than one in ten drivers (9%) said they did not have an air bag in the vehicle they drive most often.

The results also suggested that some people may not fully understand their air bag system. Dozens of respondents said they didn't know if they had air bags or where they were located.

Figure 1
Air Bags In Primary Vehicle, 2007



Qx: Does the (car/truck/van) you normally drive have an air bag?

Qx: Does your (car/truck/van) have an air bag in front of the driver?

Qx: Does your (car/truck/van) have an air bag in front of where a passenger would sit in the front seat?

Base: Drivers whose primary vehicle is not a motorcycle

Unweighted N=10,673

*The sum of the percentages in the pie chart do not equal 100% because the numbers are rounded.

¹ In the 2003 and 2007 survey separate questions were asked to determine if there was an air bag in front of the driver and in front of the front seat passenger. Previously, the survey had used a single question to make this determination.

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

The 2000 survey added a question pertaining to side air bags. In 2003 this question was reworded to ask if there was an air bag anywhere else in the vehicle besides in front of the driver or passenger. While 90% of drivers reported air bags in their primary vehicles, only 18% of drivers reported having other air bags, in addition to the driver and passenger frontal air bags.²

**Table 1
Front and Other Air Bags In Primary Vehicle, 2007**

No air bags	9%
Not sure/Ref if have air bags	1%
Driver frontal air bags only	6%
Driver and passenger frontal air bags only	61%
Driver and passenger frontal air bags and other air bags	18%
In front seat car doors	10%
In rear seat car doors	6%
Descending curtain from above front seat doors	4%
Descending curtain from above rear seat doors	3%
Other non-frontal airbags	4%
Driver and passenger frontal air bags, DK about other	3%
Other reported combinations	2%

Qx: Does the (car/truck/van) you normally drive have an air bag?

Qx: Does your (car/truck/van) have an air bag in front of the driver?

Qx: Does your (car/truck/van) have an airbag in front of where a passenger would sit in the front seat?

Qx: Is there an air bag anywhere else in that (car/truck/van)? If so, where? Anywhere else? (reworded in 2003)

Base: Drivers whose primary vehicle is not a motorcycle

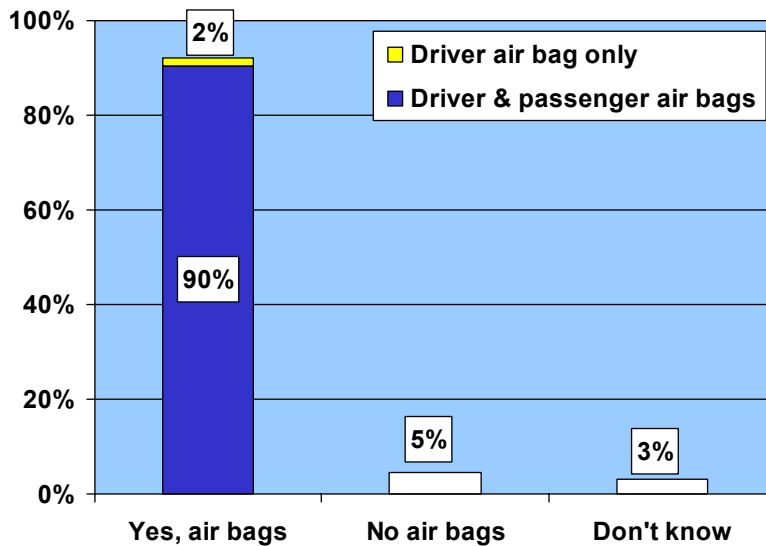
Unweighted N=10,673

² Table 1 shows the percentage distribution of different air bag combinations according to what drivers “believed” were installed in their primary vehicles. It differs from the actual prevalence known from other sources. For example, a far smaller percentage of air bags are stored in car doors than what is presented in Table 1. These differences, plus direct expressions of uncertainty identified in the Table, suggest some confusion over the presence and location of air bags in drivers’ vehicles.

Air Bag Preference

Most of the public (92%)³ said they would prefer air bags on their next vehicle, compared to 5% who would prefer not to have air bags and 3% who were not sure. The majority of the public preferred vehicles with both driver and passenger air bags (90%).

Figure 2
Prefer Air Bags On Your Next Vehicle, 2007



Qx: Would you prefer that your next vehicle have driver air bags only, driver and passenger air bags, or no air bags?

Base: Total Population Age 16+

Unweighted N=5,908

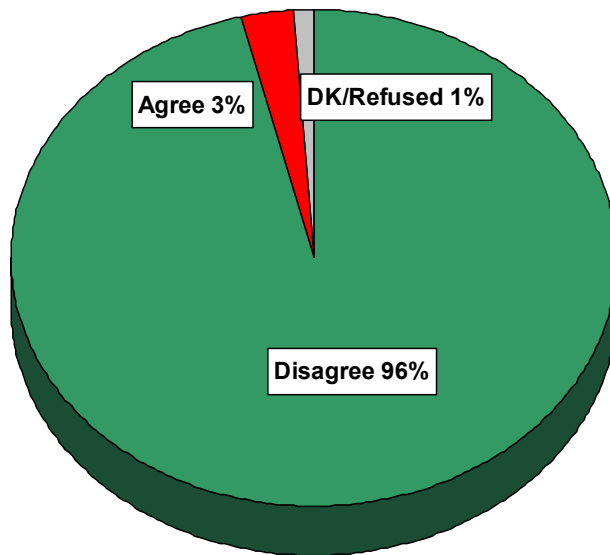
³ When a percentage is cited in the text that combines two or more response categories, it is combined using non-rounded numbers. That combined percentage may differ slightly from the sum of the listed percentages for the component categories because the category percentages are rounded numbers.

Air Bags and Seat Belt Use

Air bags and seat belts are two parts of a vehicle’s passenger safety system. Safety experts emphasize that drivers and passengers should always wear their seat belts, regardless of whether or not the vehicle is equipped with an air bag.

To assess consumer understanding of this issue, drivers were asked to agree or disagree with the statement: "If my car has a driver side air bag, I don't need to wear my seat belt when driving" (or for non-drivers, whether or not they need to wear the belt if there is a passenger air bag). Correctly, the overwhelming majority (96%) did not view air bags as a substitute for seat belts.

Figure 3
Agree Or Disagree: Seat Belt Unnecessary
When Air Bag Is Present, 2007

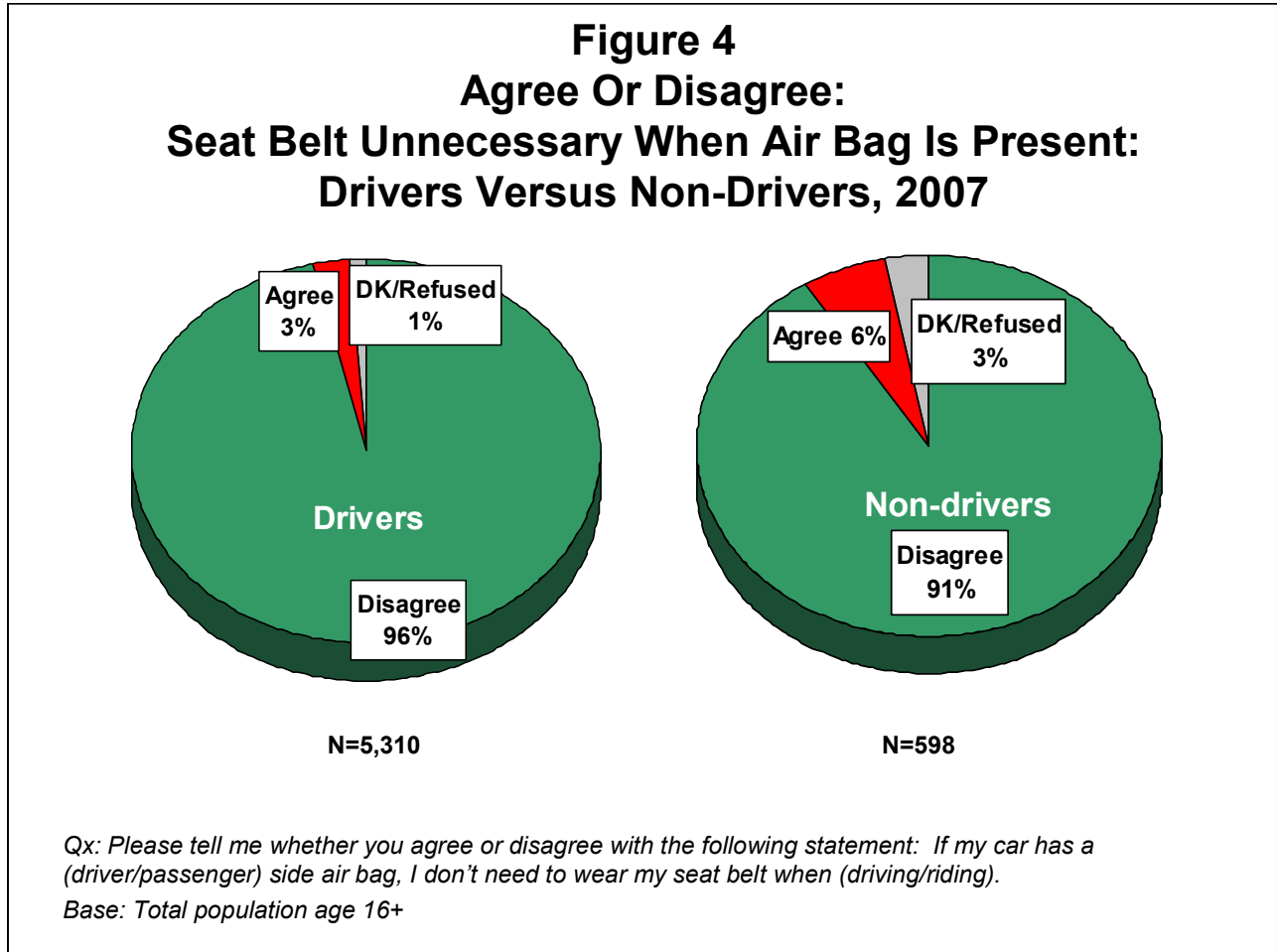


Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Total population age 16+

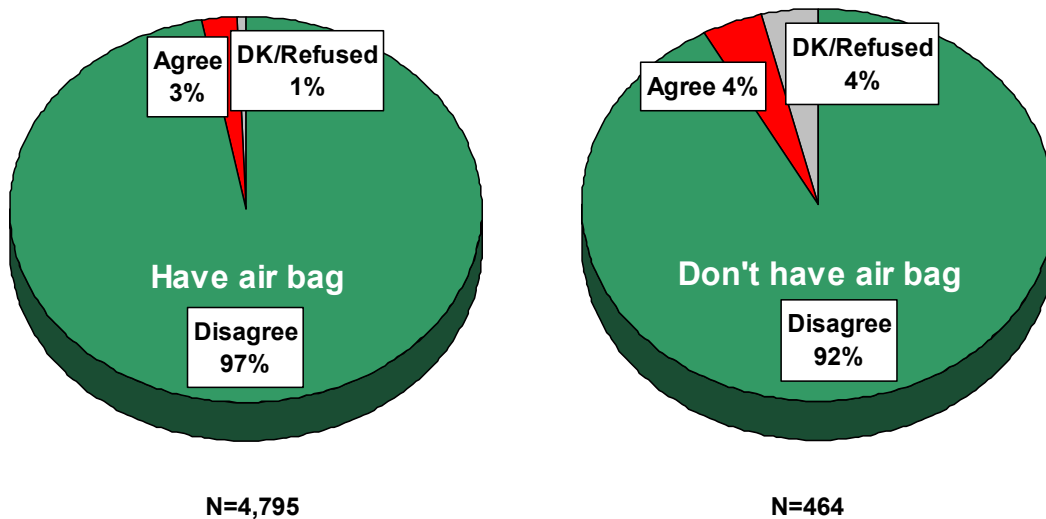
Unweighted N=5,908

Drivers were more likely than non-drivers to believe that seat belts should still be used when the vehicle has an air bag. Ninety-six percent of drivers correctly disagreed with the statement "If my car has a driver side air bag, I don't need to wear my seat belt when driving." By contrast, 91% of non-drivers disagreed with the passenger air bag statement.



Drivers with air bags in their primary vehicles were more likely to know that air bags do not eliminate the need for seat belts. Ninety-seven percent of drivers with air bags correctly disagreed that seat belts were unnecessary with air bags compared with 92% of drivers without air bags in their primary vehicles.

Figure 5
Agree Or Disagree:
Seat Belt Unnecessary When Air Bag Is Present:
Primary Vehicle Comparison For Drivers, 2007



Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Qx: Does the vehicle you normally drive have an air bag?

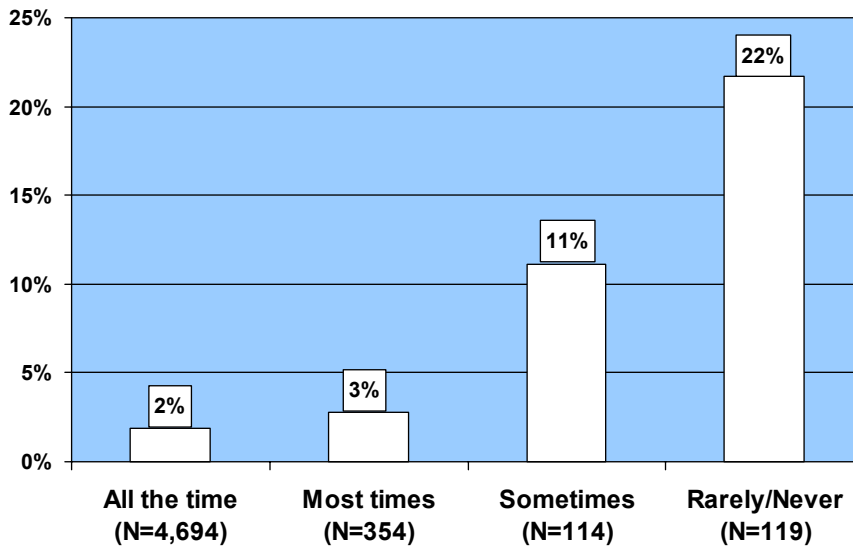
Base: Drivers whose primary vehicle is not a motorcycle

*The sum of the percentages in the pie chart do not equal 100% because the numbers are rounded.

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Only 2% of drivers who said they use their seat belt all the time when driving agreed (incorrectly) with the statement, "If my car has a driver side air bag, I don't need to wear my seat belt when driving." The less frequently one wore a seat belt, the more likely he or she was to agree with the statement. More than one-fifth (22%) of drivers who rarely or never wear their seat belt incorrectly stated that seat belts don't need to be worn when an air bag is present.

Figure 6
Believe Seat Belt Unnecessary With Air Bag
By Belt Use, 2007



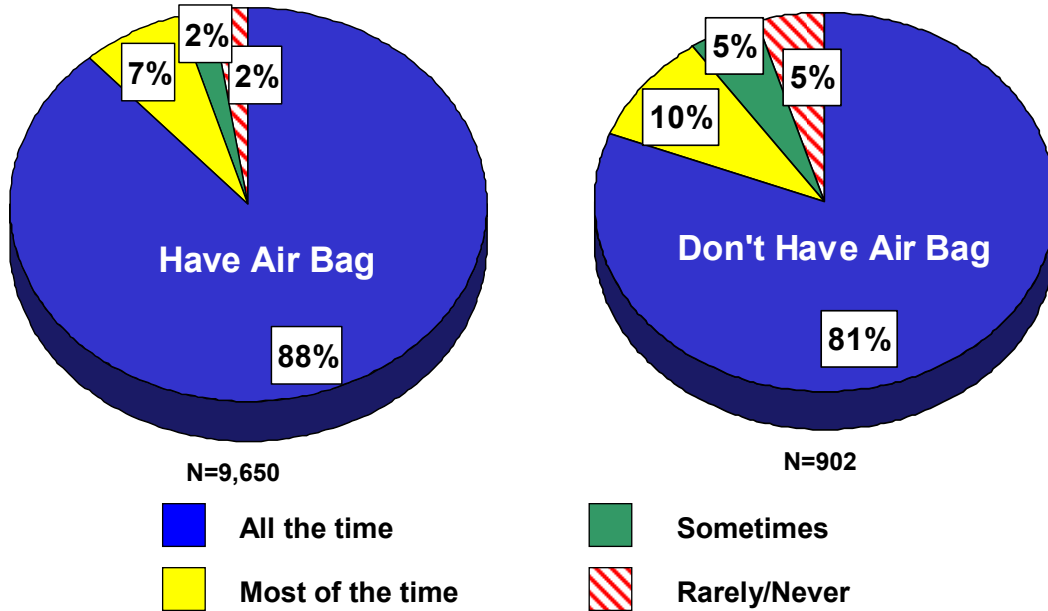
Qx: Please tell me whether you agree or disagree with the following statement. If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Drivers whose primary vehicle is not a motorcycle

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Drivers whose primary vehicles had air bags were more likely than drivers without air bags to report frequent seat belt use. Eighty-eight percent of drivers with air bags said they wore their seat belts all the time, compared to 81% of drivers whose primary vehicles did not have an air bag.

**Figure 7
Frequency Of Driver Seat Belt Use
By Whether Vehicle Has Air Bag, 2007**



Qx: Does the (car/truck/van) you normally drive have an air bag?

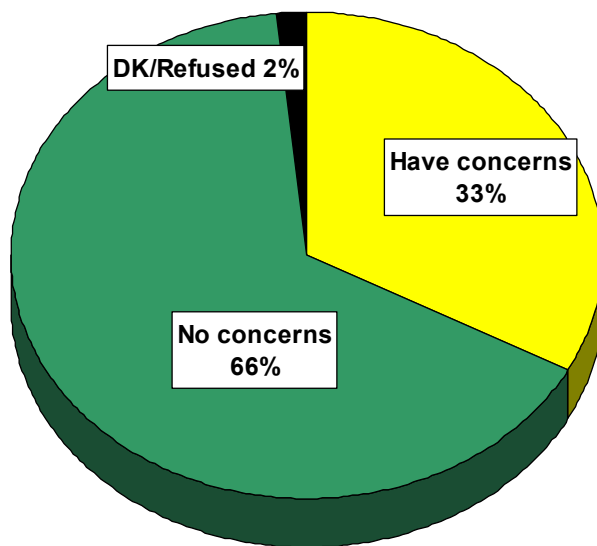
Base: Drivers whose primary vehicle is not a motorcycle

*The sum of the percentages in the pie chart do not equal 100% because the numbers are rounded.

Safety Concerns

Even though 92% of the public said they preferred an air bag in their next vehicle, many still expressed concerns about air bag safety. In fact, one-third of the respondents (33%) said that they had concerns about the safety of air bags.

Figure 8
Safety Concerns About Air Bags, 2007



Qx: Do you have any concerns about the safety of air bags?

Base: Total population age 16+

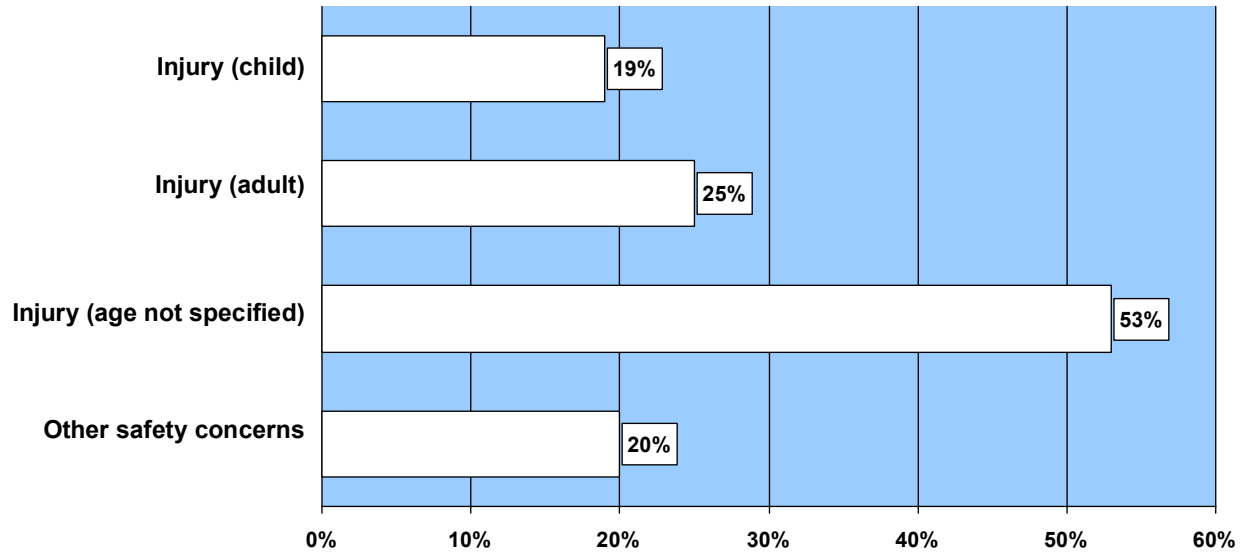
Unweighted N=5,908

*The sum of the percentages in the pie chart do not equal 100% because the numbers are rounded.

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

When asked what concerns they had, the respondents referred specifically to injuries from air bags, or else described some functional characteristic of the air bag that they considered a safety issue. Many explicitly mentioned injuries to children (19%) or to adults (25%).

Figure 9
Types Of Safety Concern
(Of Those Having Concerns), 2007



Qx: Do you have any concerns about the safety of air bags?

Qx: What are those concerns?

Base: Those with concerns about the safety of air bags

Unweighted N=1,988

Table 2 provides a more detailed breakout of the concerns expressed by respondents.

Table 2. Air Bag Concerns, 2007

Item	Percent
Child injury	19%
Adult injury	25%
Smaller adults can be injured	12%
Adults can be injured by air bags	8%
Suffocating	6%
Other injury (age not specified)	53%
Injuries due to air bag deployment	22%
Injury to neck	14%
Chemical powder that burns	10%
Injuries due to speed of air bag deployment	9%
Broken bones	8%
Other safety concerns	20%
Deploys prematurely (no accident)	11%
Failure to deploy	9%
Other air bag safety mentions	1%
Other miscellaneous mentions	3%

*Base: Those With Concerns About Air Bag Safety
Unweighted N=1,988*

**Percentages don't total 100% due to multiple responses*

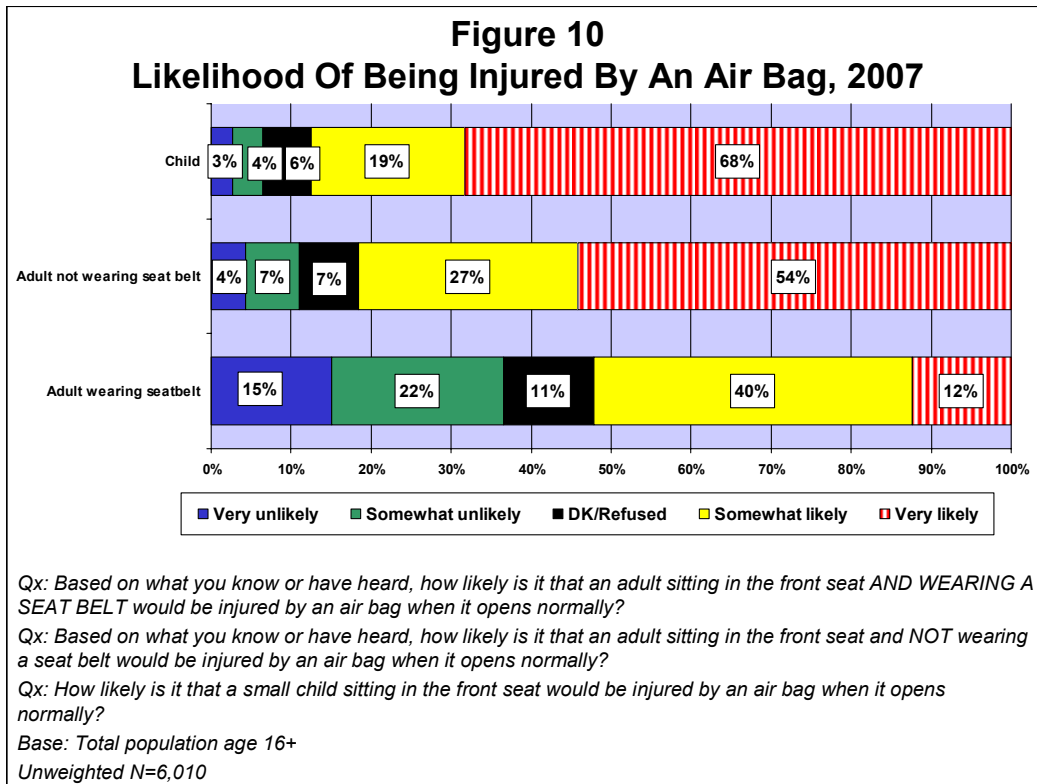
Likelihood of Injury: Adult versus Children

In 2000, respondents were asked what they thought was the likelihood that an adult sitting in the front seat would be injured by the air bag, when an air bag deploys normally. In 2003 and 2007, this question was split into two questions: 1) how likely is it that an adult sitting in the front seat and wearing a seat belt would be injured by the air bag, and 2) how likely is it that an adult sitting in the front seat and NOT wearing a seat belt would be injured by the air bag?

For 2007 over half (52%) believed it either *somewhat likely* (40%) or *very likely* (12%) that an adult wearing a seat belt would be injured by an air bag. Thirty-seven percent felt it was unlikely that an adult would be injured.

More than four-in-five (82%)⁴, believed it either *somewhat likely* (27%) or *very likely* (54%) that an adult NOT wearing a seat belt would be injured by an air bag. Only 11% felt it was unlikely that an adult without a seat belt would be injured by an air bag.

The public viewed children as more susceptible than adults to injury from air bags. The majority (68%) thought that it was *very likely* that a small child would be injured by an air bag. More than eight-in-ten people (88%)⁵ believed it was either *somewhat likely* or *very likely* a small child sitting in the front seat would be injured by an air bag opening normally.



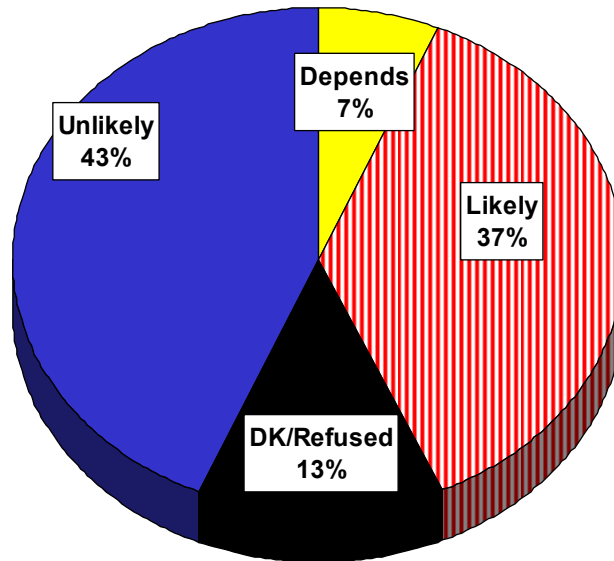
⁴ When a percentage is cited in the text that combines two or more response categories, it is combined using non-rounded numbers. That combined percentage may differ slightly from the sum of the listed percentages for the component categories because the category percentages are rounded numbers.

⁵ The number does not equal the sum of the components in the Figure due to rounding.

Likelihood of Injury With Air Bag in Vehicle

Drivers were divided on whether they would be injured in a crash with major vehicle damage while in an air bag-equipped vehicle. More than four-in-ten (43%) felt injury was unlikely with air bags; however, almost four-in-ten (37%) felt injuries were likely even with air bags. A fairly large percentage said they were not sure (13%) or it depends (7%).

Figure 11
Likely Or Unlikely To Be Injured In Crash
Involving Major Vehicle Damage
When Air Bag Is Present, 2007



Qx: If you are driving in a vehicle that has an air bag and you get into an accident involving major vehicle damage, is it likely or unlikely that you would be injured?

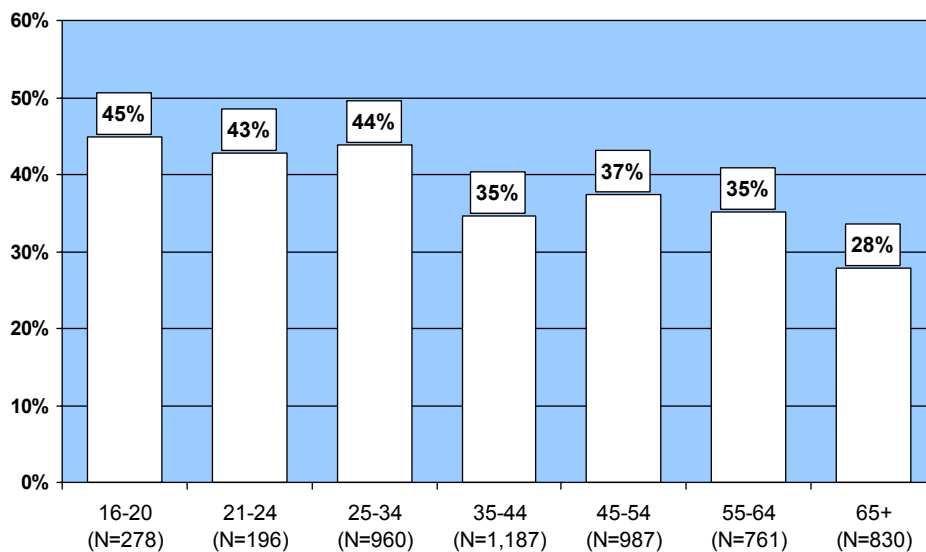
Base: Drivers whose primary vehicle is not a motorcycle

Unweighted N=5,295

Likelihood of Injury With Air Bag in Vehicle by Age

Youth and young adults were more likely than older drivers to believe they would be injured if they were in a crash in an air bag-equipped vehicle. Forty-five percent of drivers ages 16-20 believed that it is likely they would be injured, with the percentage fluctuating but generally decreasing for older driver age groups to 28% of drivers 65 and older.

Figure 12
Believe Injury With Air Bag Likely In Crash Involving Major Vehicle Damage By Age, 2007



Qx: If you are driving in a vehicle that has an air bag and you got into an accident involving major vehicle damage, is it likely or unlikely that you would be injured?

Base: Drivers whose primary vehicle is not a motorcycle

Unweighted N's listed above

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

This age correlation may have been more a function of risky driving behavior than an indication of people's confidence in air bags. The data suggested that those who engaged in some risky driving behaviors (frequent passing, infrequent seat belt use) were more likely than those who didn't to believe they were vulnerable to injury in a crash involving major vehicle damage while in an air bag-equipped vehicle.

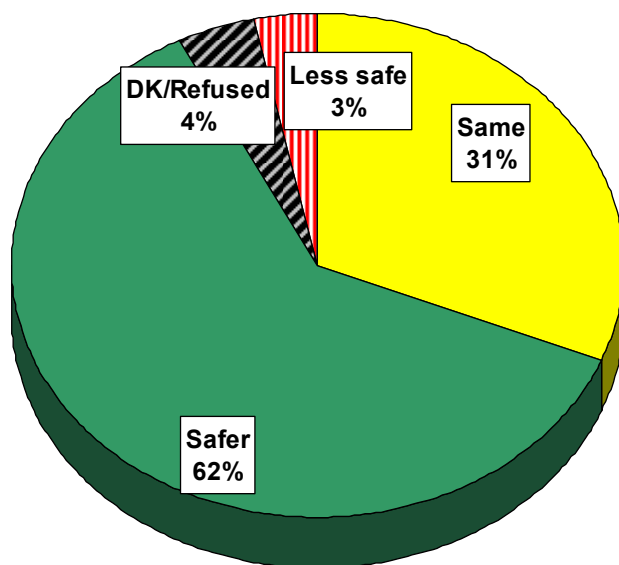
Table 3. Percent Believing Injury Likely In A Crash While In An Air Bag-Equipped Vehicle By Driving Behavior, 2007

Driving Behavior	Believe Injury Likely	Unweighted N
Highway Passing		
Others tend to pass me	35%	3,164
I tend to pass others	42%	1,606
Highway Driving Speed		
Less than 55 mph	36%	203
55 mph	34%	628
56-60 mph	36%	798
61-65 mph	35%	1,391
Over 65 mph	39%	1,999
Drinking and Driving In Past 30 Days		
No, didn't drink in past 30 days	36%	2,529
No, but did drink in past 30 days	38%	2,130
Yes, drove after drinking in past 30 days	36%	597
Frequency of Seat Belt Use		
All the time	36%	4,694
Most of the time	38%	354
Some of the time	43%	114
Rarely/Never	40%	119

Feeling Safer With Air Bags

All respondents were asked whether they felt safer or less safe in vehicles with air bags. Despite some concerns about air bag safety, the public did not appear to regard air bags as dangerous to them personally. More than six-in-ten (62%) said they felt safer with air bags compared to only 3% who said they felt less safe. About three-in-ten (31%) said they felt about as safe with air bags as without them.

Figure 13
Feel Safer, About The Same, Or Less Safe With Air Bags, 2007



Qx: In general, do you feel safer in motor vehicles with air bags, about the same, or less safe in vehicles with air bags than those without air bags?

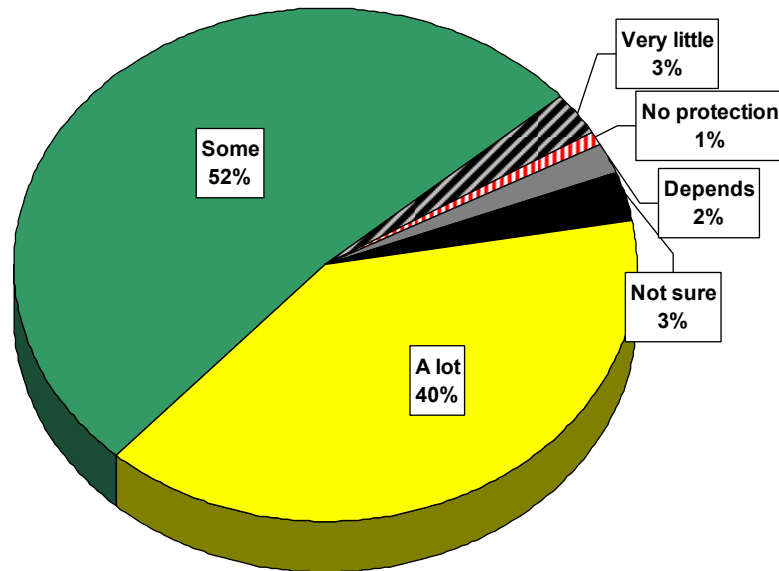
Base: Total population age 16+

Unweighted N=5,908

Protection From Air Bags

More than nine-in-ten said they felt that an air bag would provide at least some protection in a crash involving major motor vehicle damage (91%),⁶ Four-in-ten said they felt an air bag would provide a lot of protection from injury, while more than half said they felt an air bag would provide some protection from injury (52%). Only 3% said they felt an air bag would provide very little protection and 1% felt it would offer no protection. Two percent said it depended on the type of crash and 3% did not know.

Figure 14
Air Bags Provide Protection From Injury, 2007



Qx: In general, how much protection from injury do you feel an air bag would provide in an accident involving major motor vehicle damage? Would the air bag provide... ?

Base: Total population age 16+

Unweighted N=5,908

*The sum of the percentages in the pie chart do not equal 100% because the numbers are rounded.

⁶ The number does not equal the sum of the components in the Figure due to rounding.

Gender Differences: Safety Concerns

Females were more likely to be concerned about air bag safety than were males. Almost four-in-ten females (37%) said they had concerns about air bag safety compared to 28% of all males. In addition, more females than males believed that children and adults would likely be injured by an air bag if it deployed. Females were less likely than males to feel safer in a vehicle with air bags (59% compared to 64%).

Table 4. Safety Concerns By Gender, 2007

Item	Total	Males	Females
Have concerns about safety of air bags	33%	28%	37%
Likely to injure adult wearing safety belt	52%	46%	60%
Likely to injure adult NOT wearing safety belt	82%	80%	84%
Likely to injure small child	88%	86%	90%
Feels safer with air bags in vehicle	62%	64%	59%

Qx: Do you have any concerns about the safety of air bags? (N=5,908)

Qx: Based on what you know or have heard, how likely is it that an adult sitting in the front seat AND WEARING A SEATBELT would be injured by an air bag when it opens normally? (N=6,010)

Qx: Based on what you know or have heard, how likely is it that an adult sitting in the front seat and NOT wearing a seat belt would be injured by an air bag when it opens normally? (N=6,010)

Qx: How likely is it that a small child sitting in the front seat would be injured by an air bag when it opens normally? (N=6,010)

Qx: In general, do you feel safer in motor vehicles with air bags, about the same, or less safe in vehicles with air bags than those without air bags? (N=5,908)

Base: Total population age 16+

Child Car Seats⁷

A number of well-publicized injuries involving air bags have occurred to children sitting in the vehicle's front seat. In some cases, the injuries involved small children in car seats. Therefore, it is important to know where child car seats are placed and whether this is affected by the presence of air bags.

The 2007 Motor Vehicle Occupant Safety Survey asked a detailed set of child restraint questions to a subgroup in the sample for whom child restraint issues were deemed especially relevant. These were parents of children under age 9, including some not living with their children but who still drove with them, and non-parents living with children under age 9 who at least sometimes drove with those children. For each of these respondents, a specific child was selected as a referent about whom questions were asked. In households where multiple children were eligible as referents, the interview program randomly selected one child. If the child at least sometimes rode in a child restraint, an extensive series of questions about child restraints use was asked for that child.

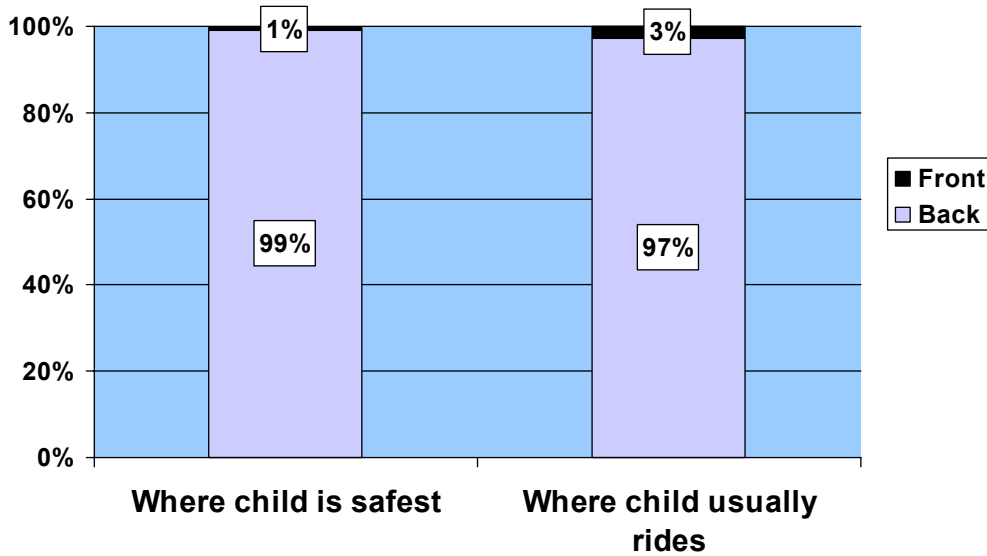
The following two pages present selected findings from this series of questions on child restraints that relate to the air bag issue.

⁷ MVOSS defined child car seat as any child restraint appropriate for an infant, toddler, or older child too small for a seat belt alone to fit the child properly.

Placement of Child Car Seat

Nearly all of the parent/caregiver subsample (99%) knew that the back seat was the safest part of the vehicle to place a child's car seat. Only 1% felt that the front seat was the safest place for a child car seat. Nonetheless, three percent still usually placed the child in the front seat when they drove.

**Figure 15
Placement Of Child Car Seat, 2007**



Qx: When you are driving and the (AGE) rides in the (child car seat/booster seat), is (he/she) usually in the front seat or the back seat?

Qx: Where would you say it is safest to place a (child car seat/booster seat) in the vehicle...in the front seat or in the back seat?

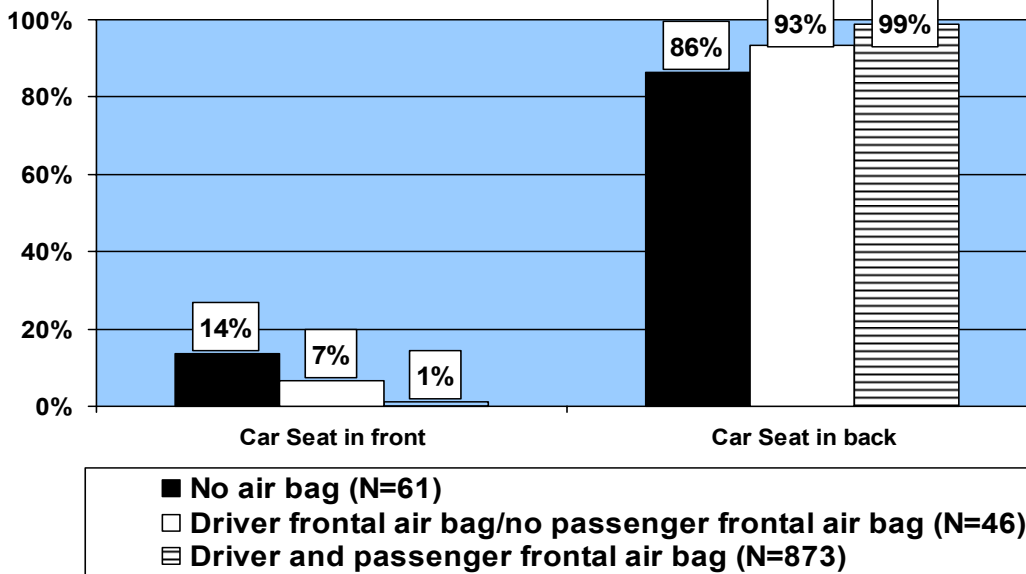
Base: Child at least sometimes rides in car seat

Unweighted N=1,009

Placement of Child Car Seat in Vehicles With Air Bags

Children are safer when placed in the back seat, especially if the vehicle has passenger frontal air bags. Children riding in the front seat can be seriously injured or killed by a passenger frontal air bag if it deploys. The parents/caregivers were more likely to place car seats in the front seat if their primary vehicles did not have air bags. Only 1% of those having driver and passenger frontal air bags said they usually place the car seat in the front seat. By contrast, 7% of those with driver frontal air bags but no passenger frontal air bags and 14% of those without any air bags said they put the child car seat in the front seat.

**Figure 16
Placement Of Child Car Seat
By Primary Vehicle Comparison, 2007**



Qx: When you are driving and the (AGE) rides in the (child car seat/booster seat), is (he/she) usually in the front seat or the back seat?

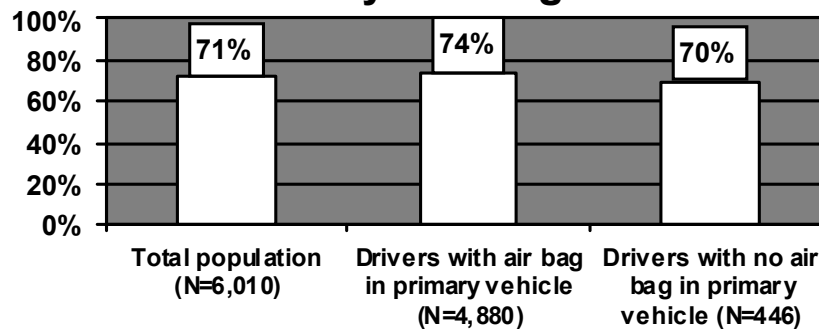
Base: Child at least sometimes rides in car seat

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Air Bag Safety Warnings

Respondents were asked if they had ever heard or seen any safety warnings about air bags. Slightly more than seven-in-ten respondents (71%) had heard or seen safety warnings. Those respondents were asked specifically what warnings they had heard or seen. The most common warnings were: the back seat is safest for children (29%), air bags can cause injury, without reference to age or size (16%), air bags can kill children or smaller adults (15%), never put a rear facing child seat in front of an air bag (10%), always wear your seat belt when around air bags (9%), and sit as far back from the air bag as possible (8%).

Figure 17
Have Heard Or Seen Safety Warnings About Air Bags, 2007



Qx: Have you heard or seen any safety warnings about air bags?

Base: Total Population 16+

Table 5. Safety Warnings Heard And Seen, 2007

Safety Warnings	Total (N=4,397)	Drivers with Air bag (N=3,726)	Drivers with no air bag (N=296)
Back seat is safest for children	29 %	30 %	31 %
Air bags can injure you (uspec)	16 %	15 %	17 %
Air bags can kill children/smaller adults	15 %	16 %	14 %
Never put a rear facing child seat in front of air bag	10 %	10 %	6 %
Always wear your seat belt when around an air bag	9 %	9 %	15 %
Sit as far back from air bag as possible	8 %	8 %	7 %

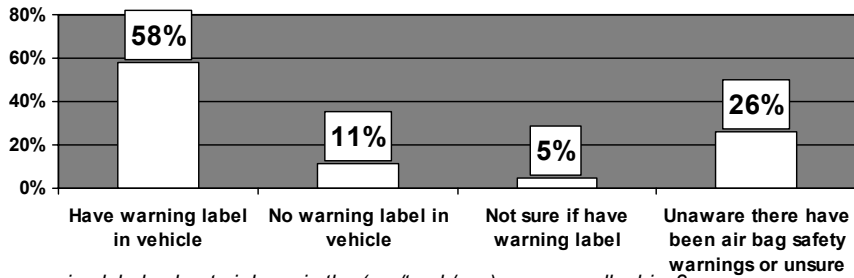
Qx: What safety warnings about air bags have you heard or seen?

Base: Heard/Seen safety warnings about air bags

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

More than half of drivers who had air bags in their primary vehicles (58%) reported that their vehicles had warning labels about air bags, 11% said there were no warning labels. About one-quarter (26%) said they had not heard or seen any safety warnings about air bags (or did not know), and therefore were not asked if their vehicle had warning labels. Those who said there was a warning label in their primary vehicle most often reported that the warning label was located on the sun visor (79%).⁸ Other reported locations for safety warnings about air bags included the dashboard (12%), glove compartment (8%), owner’s manual (7%), steering wheel (2%), and inside the door or on the door panel (2%). Three percent reported other locations, while 3% could not or would not say where the warning labels were located.

Figure 18
Have Warning Labels About Air Bags In Vehicle, 2007



Qx: Are there any warning labels about air bags in the (car/truck/van) you normally drive?

Qx: Have you heard or seen any safety warnings about air bags?

Base: Drivers whose primary vehicle has an air bag Unweighted N=4,880

Table 6. Location Of Warning Labels In Primary Vehicle, 2007

Item	Total
Sun visor	79%
Dashboard	12%
Glove compartment	8%
Owner's manual	7%
Steering wheel	2%
Inside door/door panel	2%
Other	3%
Don't know	3%

Qx: Where in the vehicle are the warning labels?

Base: Drivers who said there was a safety warning label about air bags in their air bag equipped vehicle

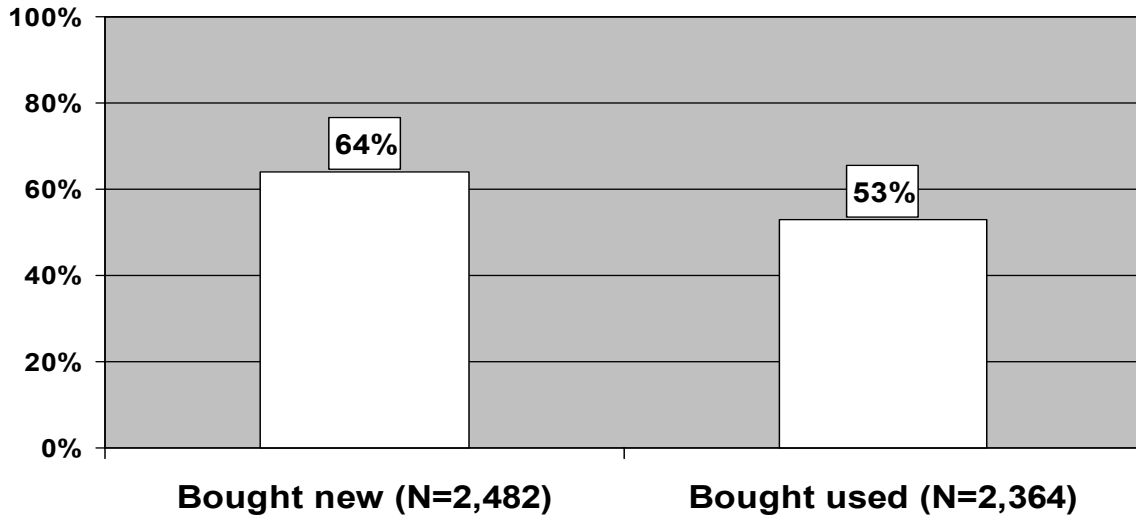
Unweighted N=2,852

⁸ Air bag warning labels typically are located on the sun visor.

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Among drivers with air bags in their primary vehicles, 64% report warning labels in vehicles purchased new, compared to 53% of those purchased used.

Figure 19
Have Warning Labels About Air Bags In Vehicle
By New/Used Vehicle, 2007



Qx: Are there any warning labels about air bags in the (car/truck/van) you normally drive?

Qx: When you got the (car/truck/van) did you get it new or used?

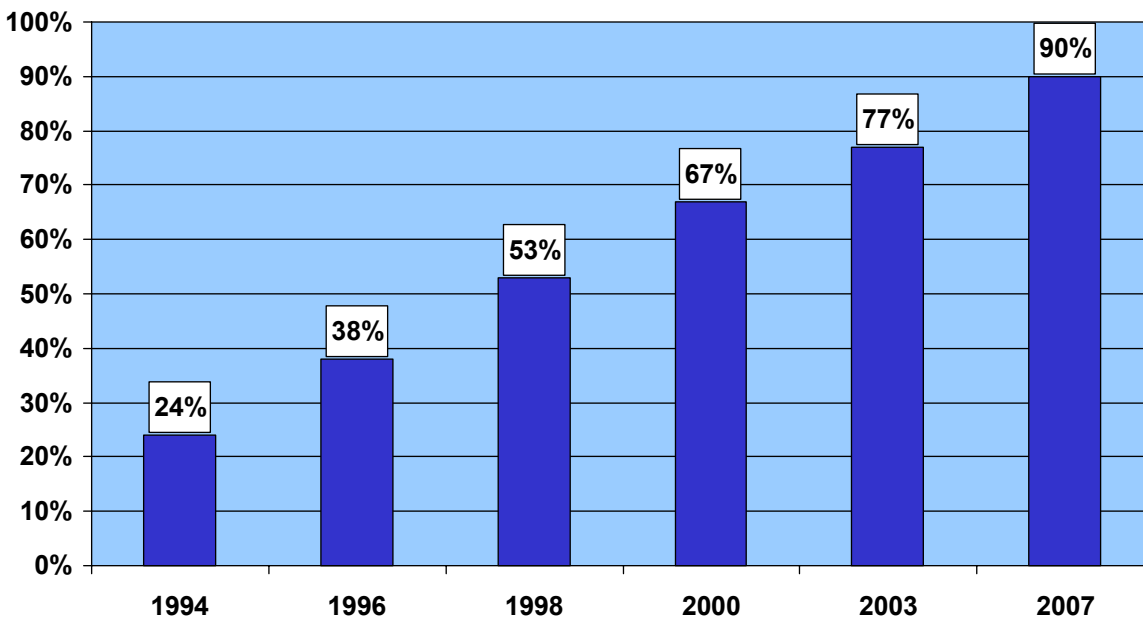
Base: Drivers whose primary vehicle has an air bag

SECTION 2: TRENDS 1994 - 2007

Prevalence of Air Bags, 1994-2007

The percentage of drivers reporting air bags in their primary vehicles has continued to increase. In 2007, 90% reported air bags in their primary vehicles, increasing steadily from 24% in 1994.

Figure 20
Air Bags In Primary Vehicle, 1994-2007



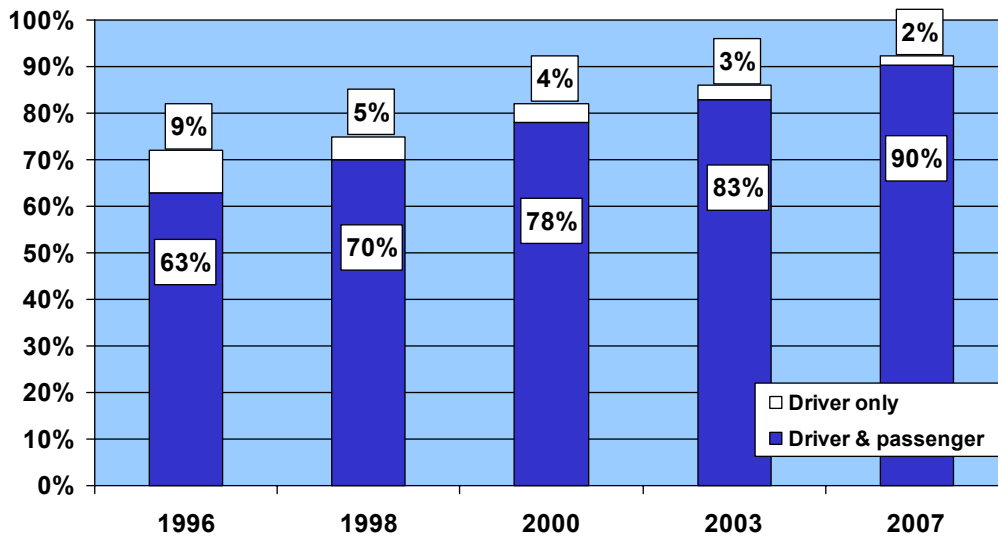
Qx: Does the (car/truck/van) you normally drive have an air bag?

Base: Drivers whose primary vehicle is not a motorcycle

Air Bag Preference, 1996-2007

The percentage of drivers wanting air bags in their next vehicle increased steadily from 1996 to 2007. In 1996, 72% wanted air bags, with 63% preferring driver and passenger air bags and 9% preferring driver air bags only. By 2007, 92% wanted air bags, with almost all (90%) preferring both driver and passenger air bags.

Figure 21
Prefer Air Bags On Next Vehicle, 1996-2007



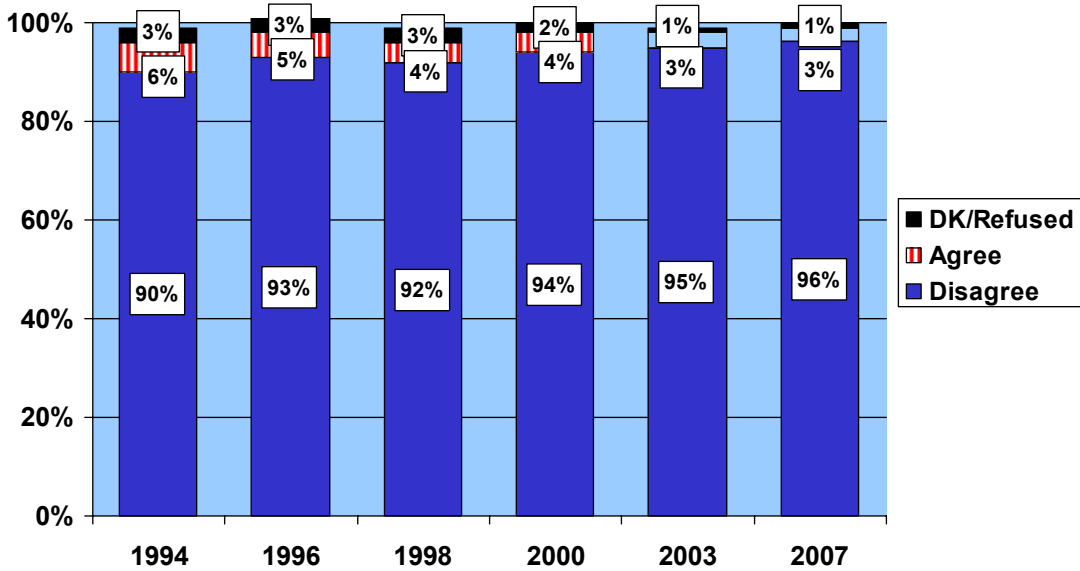
Qx: Would you prefer that your next vehicle have driver air bags only, driver and passenger air bags, or no air bags?

Base: Total Population Age 16+

Air Bags and Seat Belt Use, 1994-2007

The percentage of respondents who did not view air bags as a substitute for seat belts increased slightly. In 1994, 90% disagreed with the statement “If my car has a (driver/passenger) side air bag, I don’t need to wear my seat belt when (driving/riding).” In 2007, 96% disagreed with the statement. Drivers were referred specifically to driver air bags while non-drivers were referred specifically to passenger air bags.

Figure 22
Agree Or Disagree: Seat Belt Unnecessary
When Air Bag Is Present, 1994-2007



Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Total population age 16+

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Since 1994, more than nine-in-ten drivers have disagreed with the statement that seat belts were unnecessary with air bags, increasing slightly from 92% in 1994 to 96% in 2007. By contrast, only 71% of non-drivers disagreed with the statement in 1994, increasing to 91% in 2007.

**Table 7. Agree Or Disagree:
Seat Belt Is Unnecessary With Air Bag
Drivers Versus Non-drivers, 1994-2007**

Driver							Non-driver						
If my car has an airbag, I don't need to wear my seat belt	1994	1996	1998	2000	2003	2007	If my car has an airbag, I don't need to wear my seat belt	1994	1996	1998	2000	2003	2007
Agree	6%	4%	4%	4%	3%	3%	Agree	14%	12%	8%	6%	8%	6%
Disagree	92%	94%	94%	95%	96%	96%	Disagree	71%	79%	82%	89%	87%	91%
Don't know	2%	2%	2%	2%	1%	1%	Don't know	15%	9%	11%	4%	5%	3%

Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Total population age 16+

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

As in earlier years, those with air bags in their primary vehicles were slightly more likely to know that air bags do not eliminate the need for seat belts. There was not much change in the percentages across study years.

Table 8. Agree Or Disagree: Seat Belt Is Unnecessary When Air Bag Is Present Primary Vehicle Comparison, 1994-2007

Have Air Bag							Don't Have Airbag						
If my car has an airbag, I don't need to wear my seat belt	1994	1996	1998	2000	2003	2007	If my car has an airbag, I don't need to wear my seat belt	1994	1996	1998	2000	2003	2007
Agree	4%	2%	3%	3%	2%	3%	Agree	6%	5%	4%	4%	5%	4%
Disagree	96%	97%	95%	96%	97%	97%	Disagree	91%	92%	92%	93%	94%	92%
Don't know	0%	1%	1%	1%	1%	1%	Don't know	3%	3%	4%	3%	2%	4%

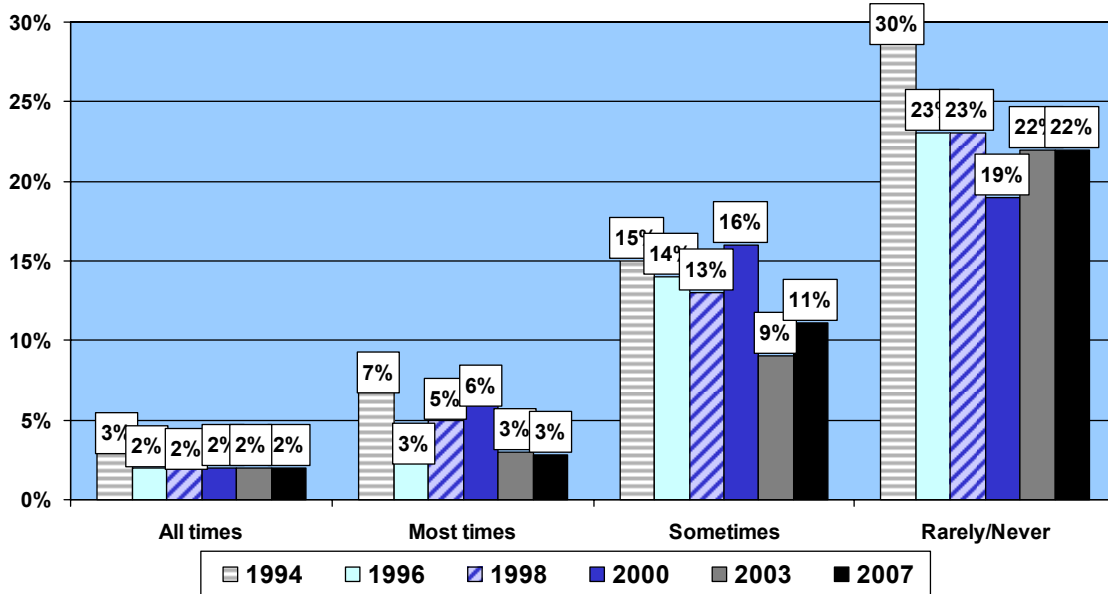
Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Drivers whose primary vehicle is not a motorcycle

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

For those drivers who reported using their seat belt all of the time, there was no appreciable change from 1994 to 2007 in the percentage who agreed with the statement, "If my car has a driver side air bag, I don't need to wear my seat belt when driving." Some slight variation occurred across years among drivers who reported less frequent seat belt use.

**Figure 23
Believe Seat Belt Unnecessary With Air Bag
By Belt Use, 1994-2007**



Qx: Please tell me whether you agree or disagree with the following statement: If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).
Base: Drivers whose primary vehicle is not a motorcycle

2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

Drivers with air bags in their primary vehicles continued to be more likely to use their seat belts than were those without air bags in their primary vehicles. Reported seat belt use increased for both groups from 1994 to 2007, reflecting the general increase in seat belt use across the population over that time.

Table 9. Frequency Of Driver Seat Belt Use By Whether Vehicle Has Air Bag, 1994-2007

Have Air Bag							Don't Have Airbag						
Frequency of seat belt use	1994	1996	1998	2000	2003	2007	Frequency of seat belt use	1994	1996	1998	2000	2003	2007
All times	82%	80%	82%	85%	85%	88%	All times	72%	74%	75%	80%	80%	81%
Most times	10%	11%	11%	8%	9%	7%	Most times	14%	13%	13%	10%	10%	10%
Sometimes	4%	5%	4%	3%	3%	2%	Sometimes	7%	6%	6%	4%	4%	5%
Rarely / Never	4%	4%	4%	3%	2%	2%	Rarely / Never	8%	6%	7%	5%	7%	5%

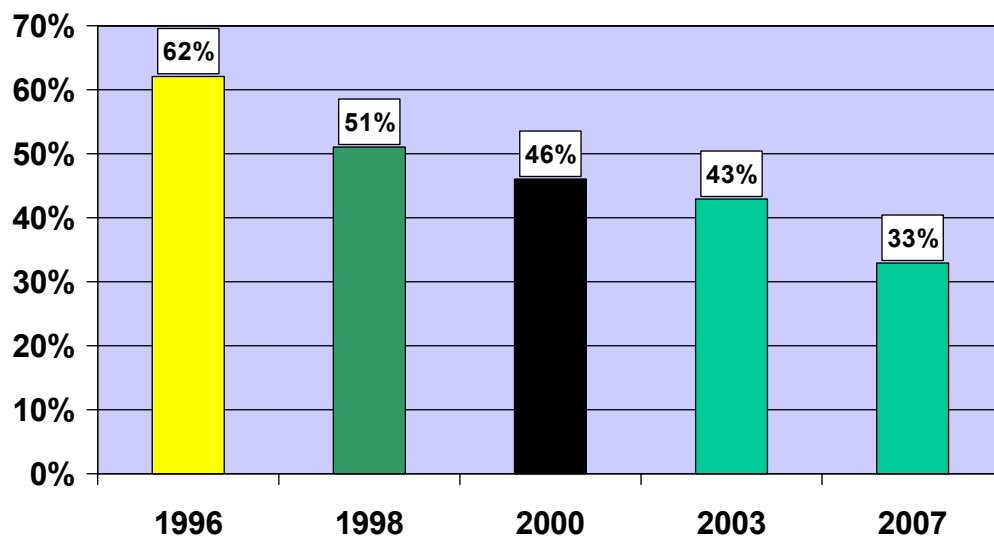
Qx: Does the (car/truck/van) you normally drive have an air bag

Base: Drivers whose primary vehicle is not a motorcycle

Safety Concerns, 1996-2007

Although one-third (33%) still expressed concerns about the safety of air bags, the percentage with concerns has steadily declined from 62% in 1996.

Figure 24
Have Safety Concerns About Air Bags, 1996-2007



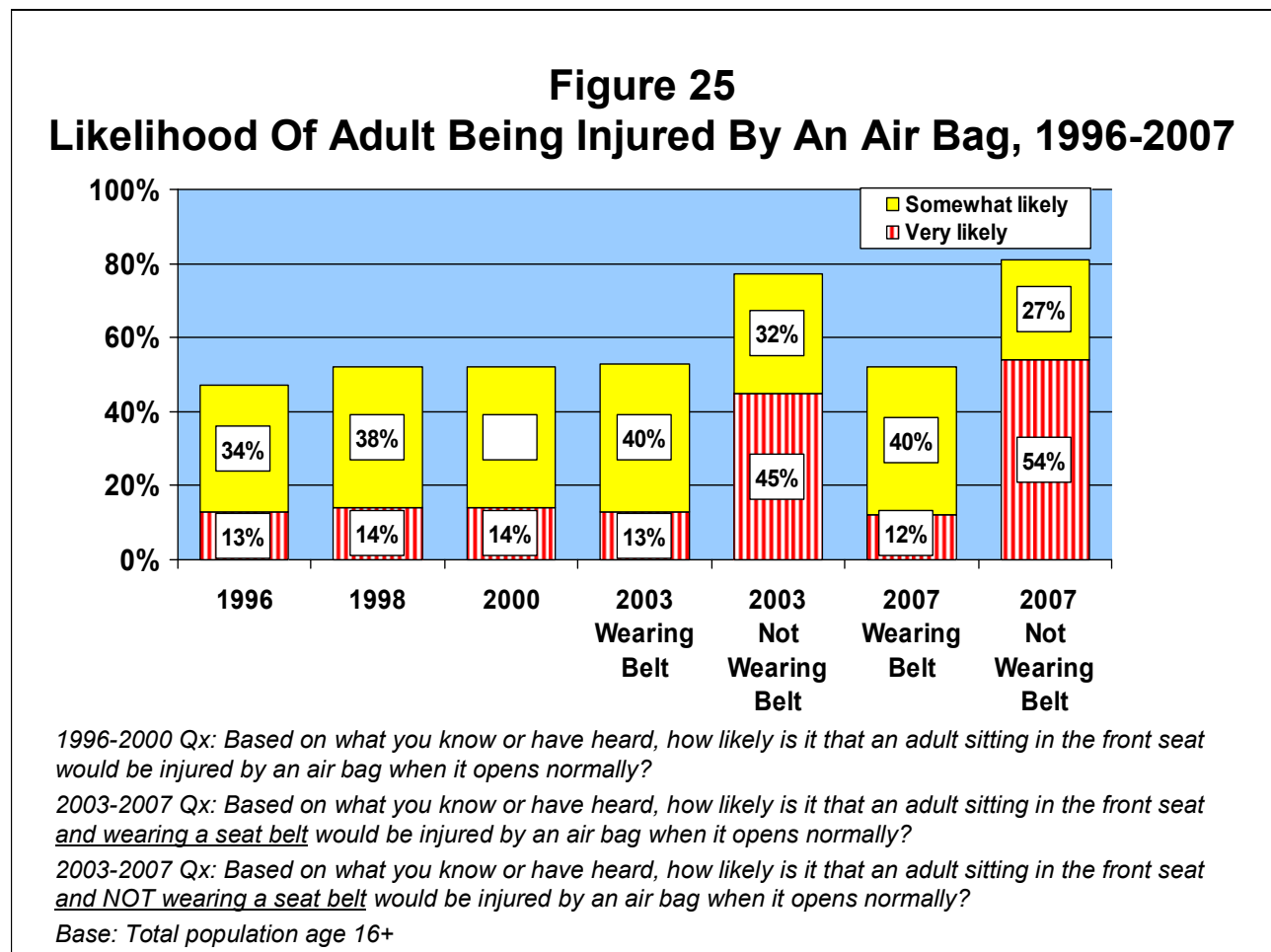
Qx: Do you have any concerns about the safety of air bags?

Base: Total population age 16+

Likelihood of Injury to Adult From Air Bag, 1996-2007

In 2003 and 2007, the question “How likely is it that an adult sitting in the front seat would be injured by an air bag when it opens normally?” was split into 2 questions specifying whether a seat belt was worn. The percentage who felt it was likely that an adult sitting in the front seat and wearing a seat belt would be injured by an air bag when it opens normally was 52% in 2007 and 53% in 2003, similar to results obtained in previous years when the question did not refer to belt use status.

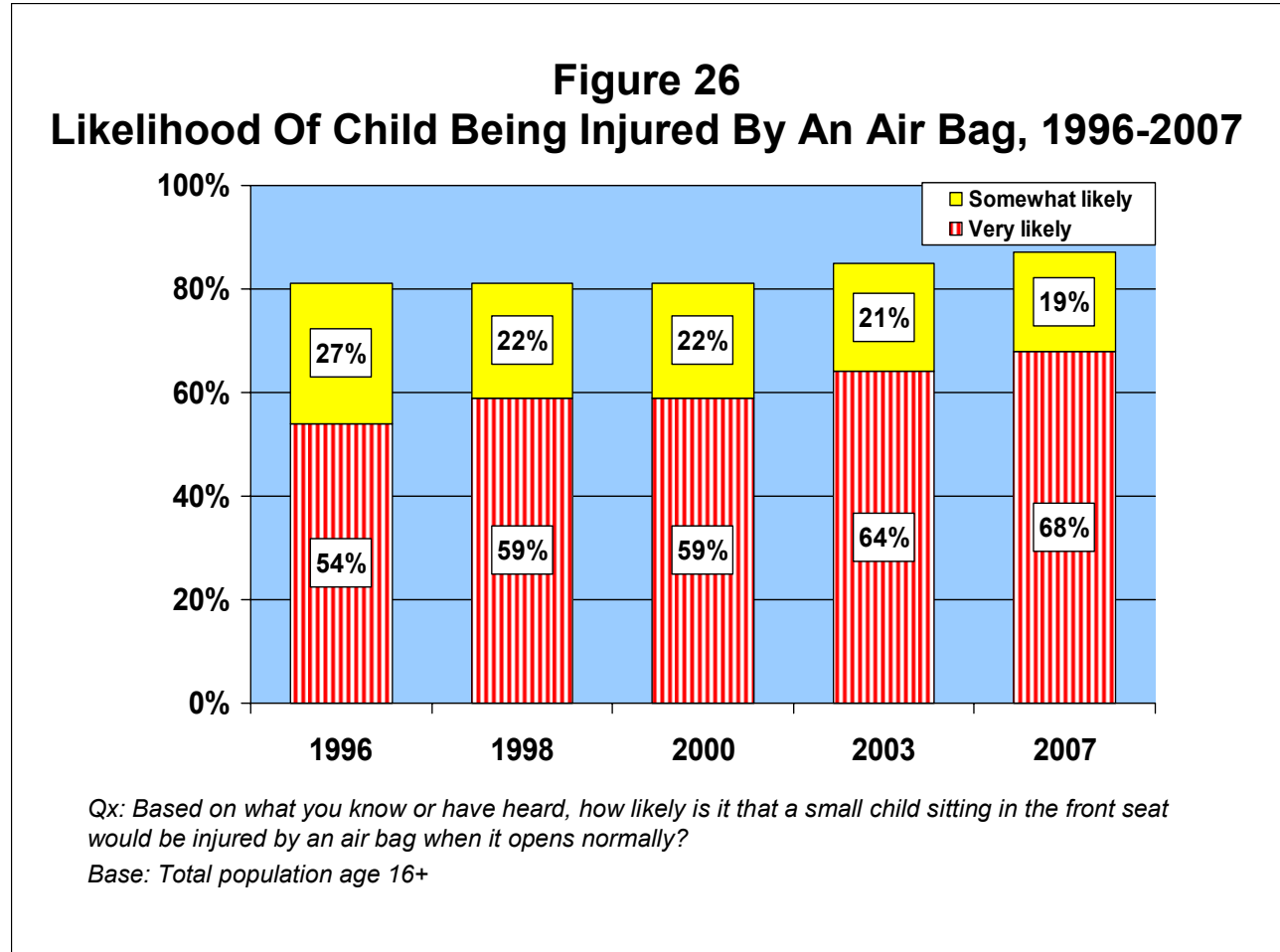
However, the percentage in 2007 who felt it was likely that an adult sitting in the front seat and NOT wearing a seat belt would be injured by an air bag when it opens normally was much larger (82%), and slightly higher than the percentage found in 2003 (78%).⁹



⁹ The number does not equal the sum of the components in the Figure due to rounding.

Likelihood of Injury to Child From Air Bag, 1996-2007

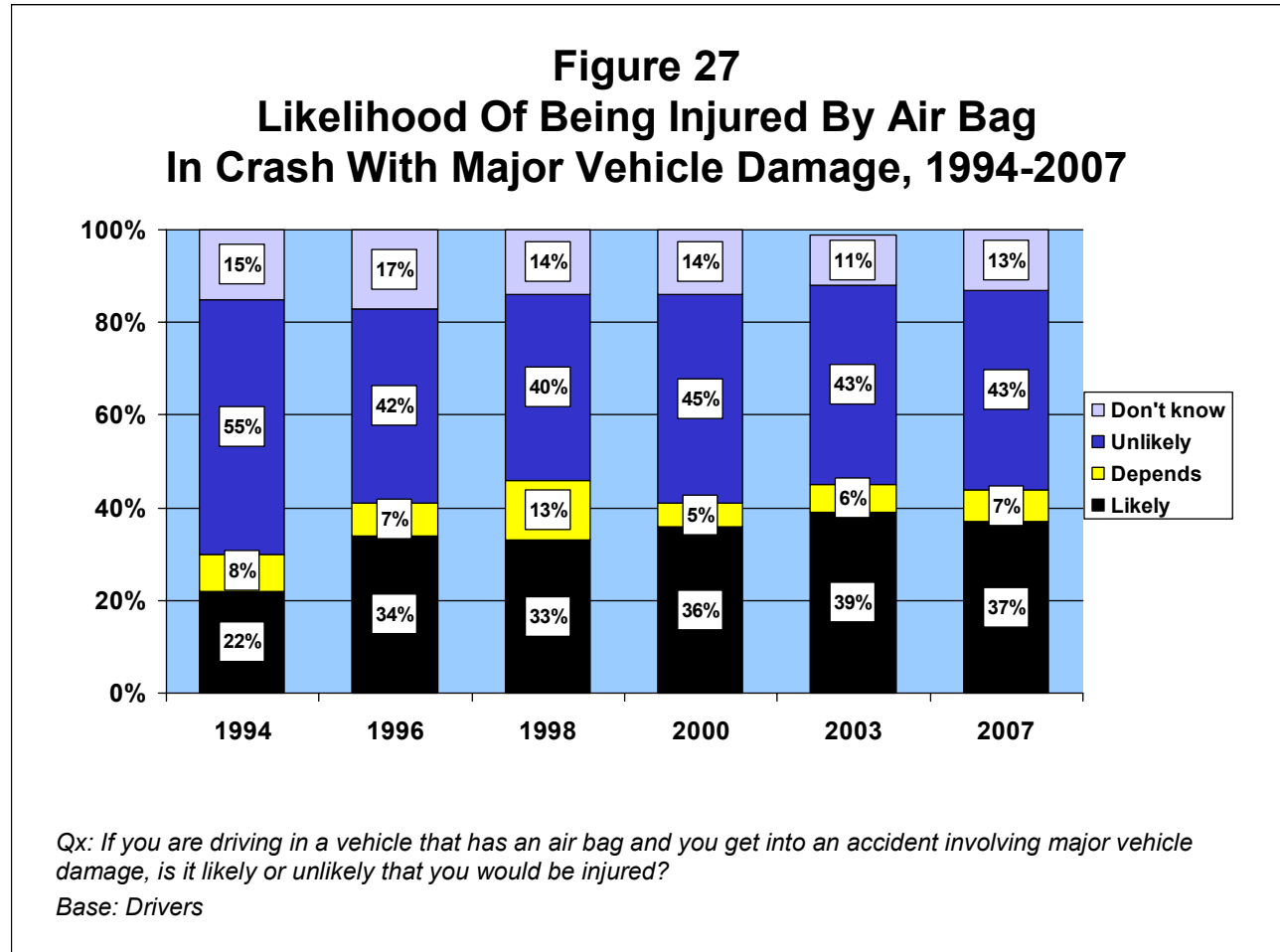
The percentage of the public who thought it was very likely or somewhat likely that a small child sitting in the front seat would be injured by an air bag when it opens normally increased from 81% in survey years 1996-2000 to 85% in 2003 and 88%¹⁰ in 2007.



¹⁰ The number does not equal the sum of the components in the Figure due to rounding.

Likelihood of Injury With Air Bag in Crash Involving Major Vehicle Damage, 1994-2007

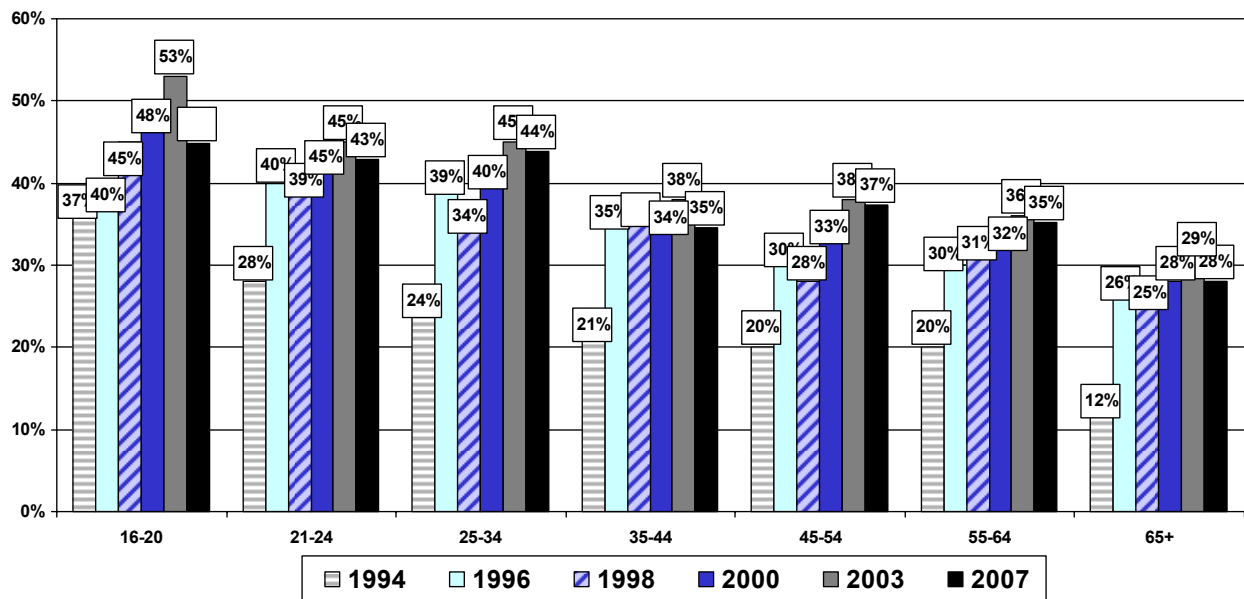
The percentage of drivers who felt it was likely that they would be injured by an air bag in a crash with major vehicle damage has remained about the same since 2000.



2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Air Bags

In 2007, there was little to no change across age groups compared to the 2003 survey in the percentage who thought an injury would be likely in a serious crash when driving an air bag-equipped vehicle, except for the youngest drivers. The percentage for drivers age 16 to 20 returned to a level comparable to the years preceding a spike in 2003.

Figure 28
Believe Injury With Air Bag Likely In Crash With Major Vehicle Damage By Age, 1994-2007

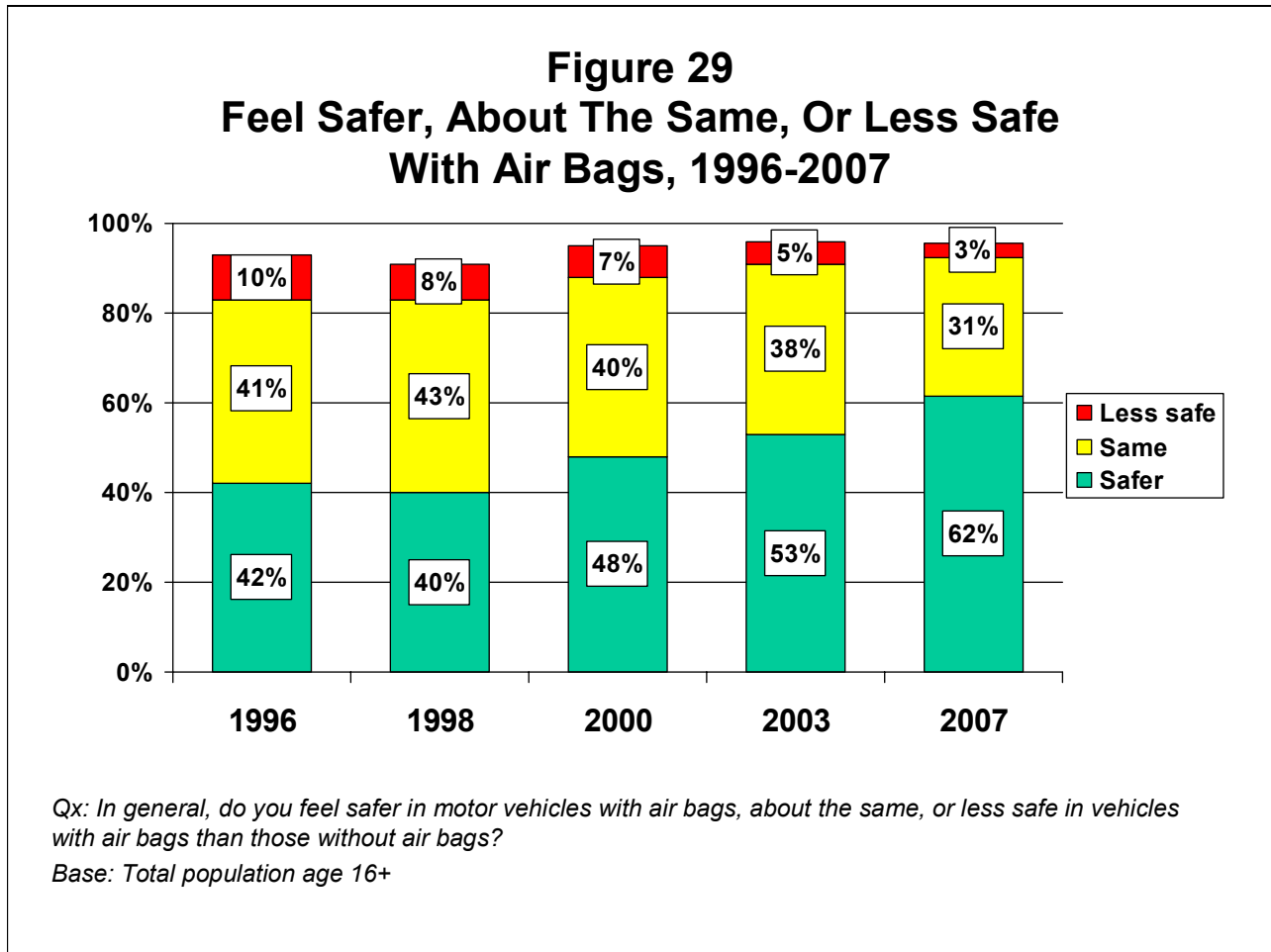


Qx: If you are driving in a vehicle that has an air bag and you get into an accident involving major vehicle damage, is it likely or unlikely that you would be injured?

Base: Drivers

Feeling Safer With Air Bags, 1996-2007

The public tended to feel safer with air bags in 2007 than they did in previous years. The percentage who said they felt safer in motor vehicles with air bags increased from 42% in 1996 to 62% in 2007. Likewise, the percentage who said they felt less safe with air bags has decreased from 10% in 1996 to 3% in 2007.



CONCLUSIONS

Despite concerns about their safety, there is broad public support for air bags. The percentage of primary vehicles with air bags continues to increase. Most consumers said they would like their next vehicle to have driver and passenger air bags. Only a small percentage said they felt less safe in vehicles with air bags than in vehicles without air bags. It appears that most of the public wants the added safety that air bags offer.

The public does not regard air bags as a substitute for seat belts, in fact, the presence of air bags in vehicles has not caused a decline in seat belt usage. On the contrary, those with air bags in their primary vehicles are more likely to wear their seat belts than those without air bags.

2007 SURVEY RESULTS

APPENDIX A: *PRECISION OF SAMPLE ESTIMATES

***Reprinted from:**

Boyle, J. and C. Lampkin. 2007 Motor Vehicle Occupant Safety Survey. Volume I. Methodology Report. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration.

Precision of Sample Estimates

The objective of the sampling procedures used on this study was to produce a random sample of the target population. A random sample shares the same properties and characteristics of the total population from which it is drawn, subject to a certain level of sampling error. This means that with a properly drawn sample we can make statements about the properties and characteristics of the total population within certain specified limits of certainty and sampling variability.

The confidence interval for sample estimates of population proportions, using simple random sampling without replacement, is calculated by the following formula:

$$p \pm z_{\alpha/2} \cdot SE(p) = p \pm z_{\alpha/2} \cdot \sqrt{\frac{(p \cdot q)}{(n - 1)}}$$

Where:

- SE(p) = the standard error of the sample estimate for a proportion
- p = some proportion of the sample displaying a certain characteristic or attribute
- q = (1 - p)
- n = the size of the sample
- $z_{\alpha/2}$ = (1- α /2)-th percentile of the standard normal distribution (1.96 for 95% CI)

The sample sizes for the surveys are large enough to permit estimates for sub-samples of particular interest. Table 10, on the next page, presents the expected size of the sampling error for specified sample sizes of 12,000 and less, at different response distributions on a categorical variable. As the table shows, larger samples produce smaller expected sampling variances, but there is a constantly declining marginal utility of variance reduction per sample size increase.

TABLE 10
Expected Sampling Error (Plus or Minus)
At the 95% Confidence Level
(Simple Random Sample)

Percentage of the Sample or Sub-Sample Giving
 A Certain Response or Displaying a Certain
 Characteristic for Percentages Near:

<u>Size of Sample or Sub-Sample</u>	<u>10 or 90</u>	<u>20 or 80</u>	<u>30 or 70</u>	<u>40 or 60</u>	<u>50</u>
12,000	0.5	0.7	0.8	0.9	0.9
6,000	0.8	1.0	1.2	1.2	1.3
4,500	0.9	1.2	1.3	1.4	1.5
4,000	0.9	1.2	1.4	1.5	1.5
3,000	1.1	1.4	1.6	1.8	1.8
2,000	1.3	1.8	2.0	2.1	2.2
1,500	1.5	2.0	2.3	2.5	2.5
1,300	1.6	2.2	2.5	2.7	2.7
1,200	1.7	2.3	2.6	2.8	2.8
1,100	1.8	2.4	2.7	2.9	3.0
1,000	1.9	2.5	2.8	3.0	3.1
900	2.0	2.6	3.0	3.2	3.3
800	2.1	2.8	3.2	3.4	3.5
700	2.2	3.0	3.4	3.6	3.7
600	2.4	3.2	3.7	3.9	4.0
500	2.6	3.5	4.0	4.3	4.4
400	2.9	3.9	4.5	4.8	4.9
300	3.4	4.5	5.2	5.6	5.7
200	4.2	5.6	6.4	6.8	6.9
150	4.8	6.4	7.4	7.9	8.0
100	5.9	7.9	9.0	9.7	9.8
75	6.8	9.1	10.4	11.2	11.4
50	8.4	11.2	12.8	13.7	14.0

NOTE: Entries are expressed as percentage points (+ or -)

However, the sampling design for this study included a separate, concurrently administered over-sample of youth and young adults (age 16-39). Both the cross-sectional sample and the over-sample of the youth/younger adult population were drawn as simple random samples; however, the disproportionate sampling of the age 16-39 population introduces a design effect that makes it inappropriate to assume that the sampling error for total sample estimates will be identical to those of a simple random sample.

In order to calculate a specific interval for estimates from a sample, the appropriate statistical formula for calculating the allowance for sampling error (at a 95% confidence interval) in a stratified sample with a disproportionate design is:

$$ASE = 1.96 \sqrt{\sum_{h=1}^g \left[W_h^2 \left\{ (1-f_h) \left(\frac{s_h^2}{n_h} \right) \right\} \right]}$$

where:

- ASE = allowance for sampling error at the 95% confidence level;
- h = a stratum;
- g = number of strata;
- W_h = proportion of stratum h to total population (N_h/N);
- f_h = sampling fraction in stratum h – sample size divided by population size in stratum h (n_h/N_h);
- n_h = the sample size for the stratum h.
- s²_h = sample variance in stratum h – for proportions, this is equal to $\frac{n_h}{n_h - 1} p_h(1 - p_h)$

Although Table 10 above provides a useful approximation of the magnitude of expected sampling error, precise calculation of allowances for sampling error requires the use of this formula. To assess the design effect for sample estimates, we calculated sampling errors for the disproportionate sample for a number of key variables using the above formula. These estimates were then compared to the sampling errors for the same variables, assuming a simple random sample of the same size. The two strata (h₁ and h₂) in the disproportionate sample were all respondents age 16-39 and all respondents age 40 and over respectively. The proportion for the 16-39 year old stratum (w₁) was 42.2 percent while the proportion for the 40 and over stratum (w₂) was 57.8 percent.

As shown in Table 11, the disproportionate sampling increases the confidence interval for total sample estimates by an average of 17.1 percent, compared to a simple random sample of the same size. This means the sample design decreases the sampling precision for total population estimates somewhat, while increasing the precision of sampling estimates for the sub-sample aged 16-39 years old. Since the maximum difference in the point estimate between the stratified disproportionate sample and a simple random sample is less than .34 of a percentage point, the sampling error table for a simple random sample will provide a reasonable approximation of the precision of sampling estimates in the survey.

TABLE 11
Design Effect on Confidence Intervals for Sample Estimates
Between Disproportionate Sample Used in Occupant Protection Survey
And a Proportionate Sample of Same Size

----- CONFIDENCE INTERVALS -----
 PERCENTAGE POINTS ± AT 95% CONFIDENCE LEVEL

<i>VARIABLE (Version 1 only)</i>	p=	HYPOTHETICAL PROPORTIONATE SAMPLING*	CURRENT DIS- PROPORTIONATE SAMPLING	DIFFERENCE IN CONFIDENCE INTERVALS
<i>Driven in the past year</i>	89.3%	0.79	0.89	12.7%
<i>Drank alcohol in past year</i>	61.2%	1.24	1.42	14.5%
<i>Always use seat belt (N=5252)</i>	75.1%	1.17	1.37	17.1%
<i>Dislike seat belts (N=5258)</i>	30.4%	1.17	1.39	18.8%
<i>Always use passenger belt (N=5376)</i>	85.7%	0.93	1.11	19.4%
<i>Favor (a lot) seat belt laws</i>	71.4%	1.15	1.32	14.8%
<i>Should be primary enforcement</i>	67.3%	1.19	1.38	16.0%
<i>Ever ticketed by police for seatbelt</i>	9.4%	0.74	0.91	23.0%
<i>Ever injured in vehicle accident</i>	26.3%	1.12	1.28	14.3%
<i>Drives a car for work almost every day</i>	52.3%	2.27	2.61	15.0%
<i>Set a good example for others (N=5192)</i> <i>(reason for using seat belts)</i>	77.8%	1.12	1.28	14.3%
<i>Driver-side air bag in vehicle (N=4755)</i>	99.0%	0.28	0.33	17.9%
<i>Race: Black/African American</i>	9.9%	0.76	0.89	17.1%
<i>Ethnicity: Hispanic</i>	13.4%	0.87	1.1	26.4%
<i>Gender: Male</i>	48.4%	1.27	1.46	15.0%
<i>AVERAGE DIFFERENCE IN CONFIDENCE INTERVALS</i>				17.1%
Total sample proportions using SRS formula				
Unless specified otherwise N=5908				

Estimating Statistical Significance

The estimates of sampling precision presented in the previous section yield confidence bands around the sample estimates, within which the true population value should lie. This type of sampling estimate is appropriate when the goal of the research is to estimate a population distribution parameter. However, the purpose of some surveys is to provide a comparison of population parameters estimated from independent samples (e.g., annual tracking surveys) or between subsets of the same sample. In such instances, the question is not simply whether or not there is any difference in the sample statistics that estimate the population parameter, but rather is the difference between the sample estimates statistically significant (i.e., beyond the expected limits of sampling error for both sample estimates).

To test whether or not a difference between two sample proportions is statistically significant, a rather simple calculation can be made. The maximum expected sampling error (i.e., confidence interval in the previous formula) of the first sample is designated $s1$ and the maximum expected sampling error of the second sample is $s2$. The sampling error of the difference between these estimates is sd and is calculated as:

$$sd = \sqrt{(s1^2 + s2^2)}$$

Any difference between observed proportions that exceeds sd is a statistically significant difference at the specified confidence interval. Note that this technique is mathematically equivalent to generating standardized tests of the difference between proportions.

An illustration of the pooled sampling error between sub-samples for various sizes is presented in Table 12. This table can be used to determine the size of the difference in proportions between drivers and non-drivers or other sub-samples that would be statistically significant.

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**TABLE 12. Pooled Sampling Error Expressed as Percentages for Given Sample Sizes
(Assuming P=Q)**

Sample																	
4000	14.1	10.0	7.1	5.9	5.1	4.7	4.3	4.0	3.8	3.6	3.5	3.0	2.7	2.5	2.4	2.3	2.2
3500	14.1	10.0	7.1	5.9	5.2	4.7	4.3	4.1	3.8	3.7	3.5	3.0	2.7	2.6	2.4	2.3	
3000	14.1	10.0	7.2	5.9	5.2	4.7	4.4	4.1	3.9	3.7	3.6	3.1	2.8	2.7	2.5		
2500	14.1	10.0	7.2	6.0	5.3	4.8	4.5	4.2	4.0	3.8	3.7	3.2	2.9	2.8			
2000	14.2	10.1	7.3	6.1	5.4	4.9	4.6	4.3	4.1	3.9	3.8	3.3	3.1				
1500	14.2	10.2	7.4	6.2	5.5	5.1	4.7	4.5	4.3	4.1	4.0	3.6					
1000	14.3	10.3	7.6	6.5	5.8	5.4	5.1	4.8	4.7	4.5	4.4						
900	14.4	10.4	7.7	6.5	5.9	5.5	5.2	4.9	4.8	4.6							
800	14.4	10.4	7.8	6.6	6.0	5.6	5.3	5.1	4.9								
700	14.5	10.5	7.9	6.8	6.1	5.7	5.5	5.2									
600	14.6	10.6	8.0	6.9	6.3	5.9	5.7										
500	14.7	10.8	8.2	7.2	6.6	6.2											
400	14.8	11.0	8.5	7.5	6.9												
300	15.1	11.4	9.0	8.0													
200	15.6	12.1	9.8														
100	17.1	13.9															
50	19.8																
	50	100	200	300	400	500	600	700	800	900	1000	1500	2000	2500	3000	3500	4000
Sample Size																	

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