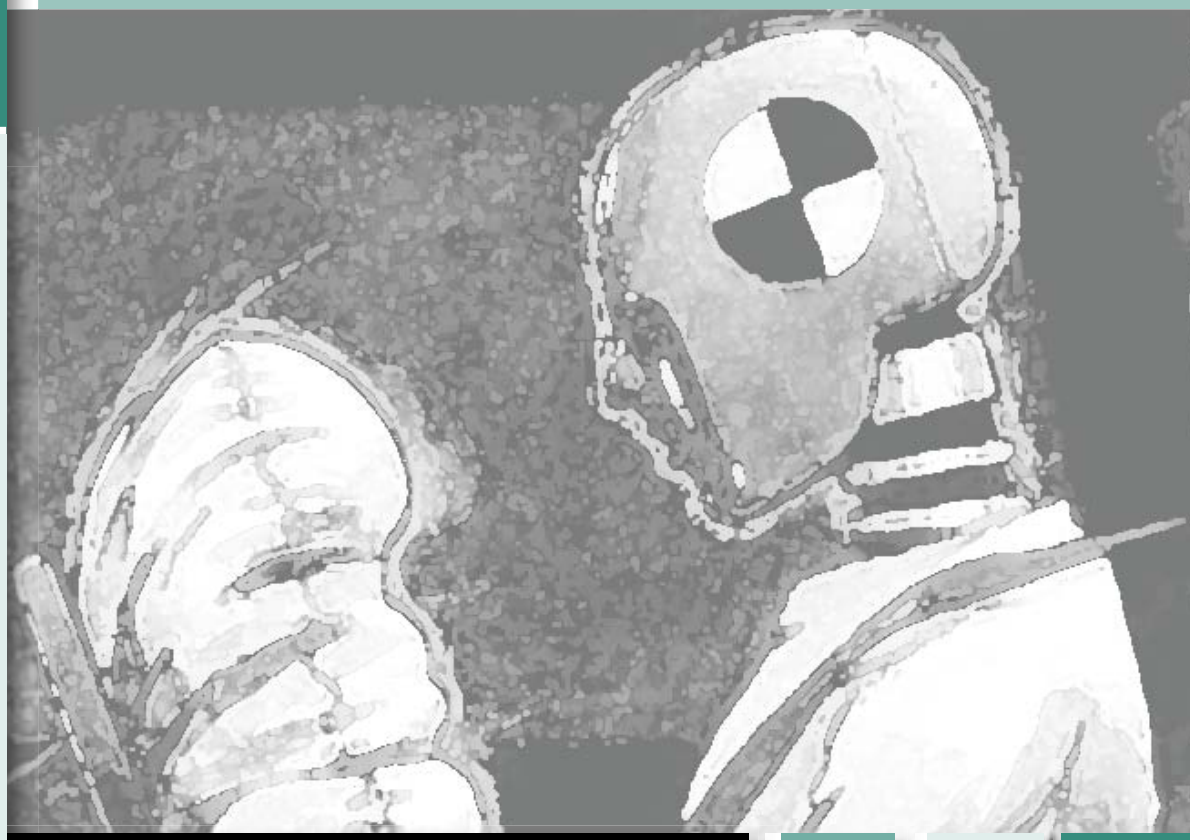
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



2003 Motor Vehicle Occupant Safety Survey

Volume 3

Air Bags Report

Technical Report Documentation Page

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16. Abstract

The 2003 Motor Vehicle Occupant Safety Survey was the fifth in a series of biennial 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 8, 2003 and ended March 30, 2003. 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 ("2003 Motor Vehicle Occupant Safety Survey. Volume 1. Methodology Report").

The percentage of drivers with air bags in their primary vehicles has continued to increase. In 2003, 77% reported air bags in their primary vehicles, compared to 67% in 2000. The vast majority of the public (95%) understood that safety belts still needed to be worn even when the vehicle they were riding in had an air bag.

Forty-three percent of the public had concerns about the safety of air bags. Despite the concerns, 83% of the public would prefer both driver and passenger air bags in their next vehicle, compared to 9% who would prefer not to have air bags in their next vehicle and 4% who were unsure what they would prefer.

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TABLE OF CONTENTS

FIGURES AND TABLES

SECTION 1: 2003 SURVEY RESULTS

Figures

Tables

FIGURES AND TABLES (cont'd)

SECTION 2: TRENDED RESULTS, 1994-2003

Figures

Tables

APPENDIX A: PRECISION OF SAMPLING ESTIMATES

Tables

INTRODUCTION

Background

The Motor Vehicle Occupant Safety Survey is conducted biennially 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 safety 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 2003 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 2003 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 2003 survey also included new questions such as an item designed to determine the presence of new types of air bags, and an item that asked the likelihood that a deploying air bag would injure a passenger if the passenger was not wearing a safety belt.

The following report presents findings from the 2003 Motor Vehicle Occupant Safety Survey pertaining to air bags. Section 1 presents the 2003 results. Section 2 compares findings across years, from 1994 through 2003.

Methodology

The 2003 Motor Vehicle Occupant Safety Survey was conducted by Schulman, Ronca & Bucuvalas, Inc. (SRBI), a national survey research organization. SRBI conducted a total of 12,377 telephone interviews among a national population sample. To reduce the burden on the respondents, the survey employed two questionnaires. A total of 6,180 interviews were completed in Version 1 and 6,197 were completed in Version 2. Although some questions were used in both versions (e.g., demographics, crash injury experience, safety belt use), each questionnaire had its own set of distinct topics. Each sample was composed of approximately 6,000 persons age 16 and older, including oversamples of persons ages 16-39. 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 8, 2003 to March 30, 2003. For a complete description of the methodology and sample disposition, including computation of weights, refer to the 2003 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.

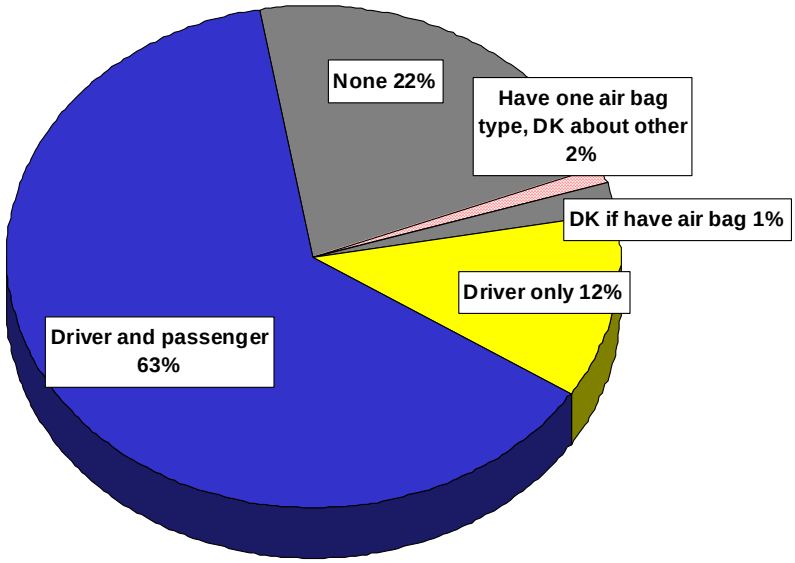
SECTION 1: 2003 SURVEY RESULTS

Prevalence Of Air Bags

By 2003, three-in-four drivers (77%) reported having an air bag in their primary driving vehicle. Nearly two-thirds (63%) reported having driver and passenger frontal air bags compared to 12% with driver frontal air bags but no passenger frontal air bags*. More than one-fifth of drivers (22%), however, 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, 2003



Qx: Does the (car/truck/van) you normally drive have an air bag?
Qx: Does that (car/truck/van) have an air bag in front of the driver?
Qx: Does that (car/truck/van) have an airbag in front of where a passenger would sit in the front seat?
Base: Drivers whose primary vehicle is not a motorcycle
Unweighted N=11,039

* The 2003 survey used separate questions to ask 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.

The 2000 survey added a question pertaining to side air bags. In 2003 this question was reworded to ask "If there is an air bag anywhere else [besides in front of the driver or passenger]." While 77% of drivers reported air bags in their primary vehicles, only 7% of drivers reported having other air bags, in addition to the driver or passenger frontal air bags.

Table 1
Front and Other Air Bags In Primary Vehicle, 2003

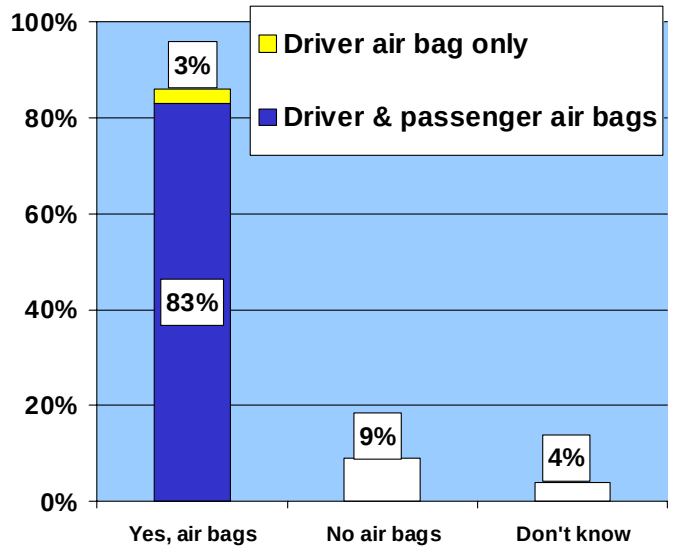
No air bags	**22%**
Not sure/Ref if have air bags	**1%**
Driver frontal air bags only	**12%**
Driver and passenger frontal air bags only	**55%**
Driver and passenger frontal air bags and other air bags	**7%**
In front seat car doors	5%
In rear seat car doors	2%
Descending curtain	1%
Other non-frontal airbags	2%
Have one air bag type, DK about other	**4%**

Qx: Does the (car/truck/van) you normally drive have an air bag?
Qx: Does that (car/truck/van) have an air bag in front of the driver?
Qx: Does that (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)? Where? Anywhere else? (reworded in 2003)
Base: Drivers whose primary vehicle is not a motorcycle
Unweighted N=11,039

Air Bag Demand

Most of the public (87%)* said they would prefer air bags on their next vehicle, compared to 9% who would prefer to not have air bags and 4% who were not sure. The majority of the public preferred vehicles with both driver and passenger air bags (83%).

Figure 2
Prefer Air Bags On Your Next Vehicle, 2003



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=6,180

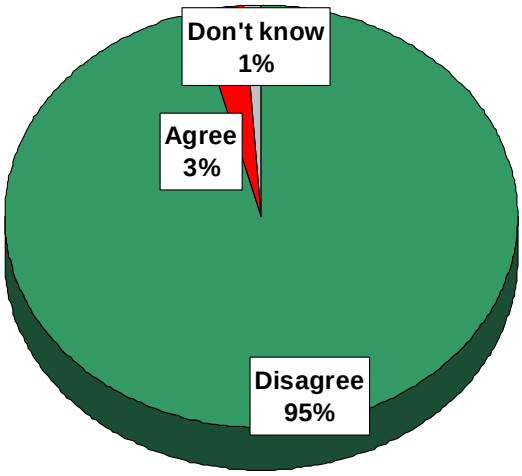
* When a percentage is cited in text that combines two or more response categories, it is combined using non-rounded numbers. That combined percentage may differ slightly from the sum of the listed percentages for the component categories because the category percentages are rounded numbers.

Air Bags And Safety Belt Use

Air bags and safety belts are two parts of a vehicle's passenger safety system. Safety experts emphasize that drivers and passengers should always wear their safety belts, regardless of whether or not the vehicle contains 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 (95%) did not view air bags as a substitute for safety belts.

Figure 3
Agree Or Disagree: Safety Belt Unnecessary When Air Bag Is Present, 2003



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).

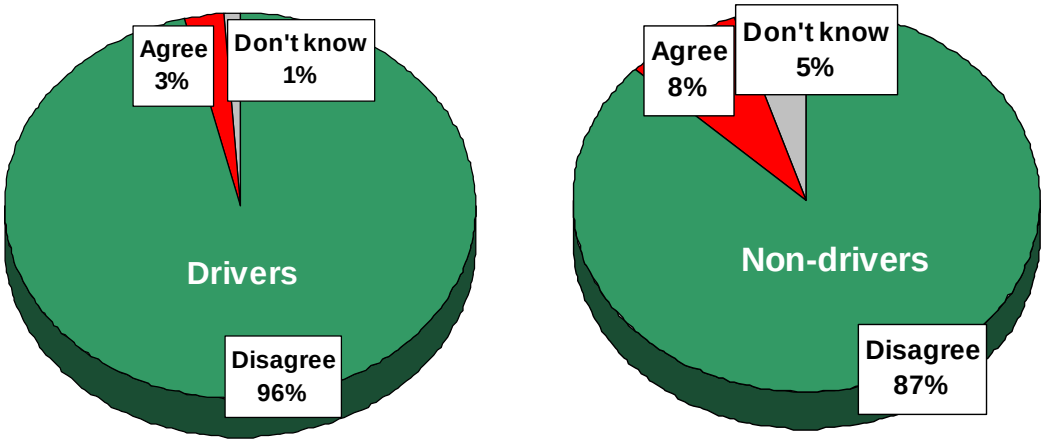
Base: Total population age 16+

Unweighted N=6,180

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

Drivers were more likely than non-drivers to believe that safety belts should still be used when the vehicle has an air bag. About 96% 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, 87% of non-drivers disagreed with the passenger air bag statement.

Figure 4
Agree Or Disagree:
Safety Belt Unnecessary When Air Bag Is Present:
Drivers Versus Non-Drivers, 2003



N=5,561 N=619

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+

Drivers with air bags in their primary vehicles were more likely to know that air bags do not eliminate the need for safety belts. Ninety-seven percent of drivers with air bags correctly disagreed that safety belts were unnecessary with air bags compared with 94% of drivers without air bags in their primary vehicles.

Figure 5
Agree Or Disagree:
Safety Belt Unnecessary When Air Bag Is Present:
Primary Vehicle Comparison For Drivers, 2003

N=4,328 **N=1,173**

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).

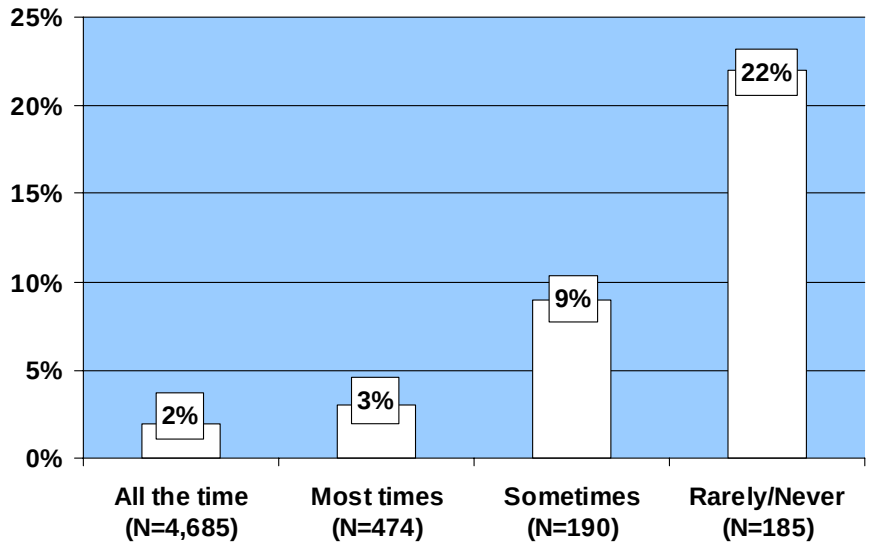
Qx: Does the vehicle you normally drive have an air bag?

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.*

Only 2% of drivers who said they use their safety 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 safety 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 safety belt incorrectly stated that safety belts don't need to be worn when an air bag is present.

Figure 6
Believe Safety Belt Unnecessary With Air Bag By Belt Use, 2003

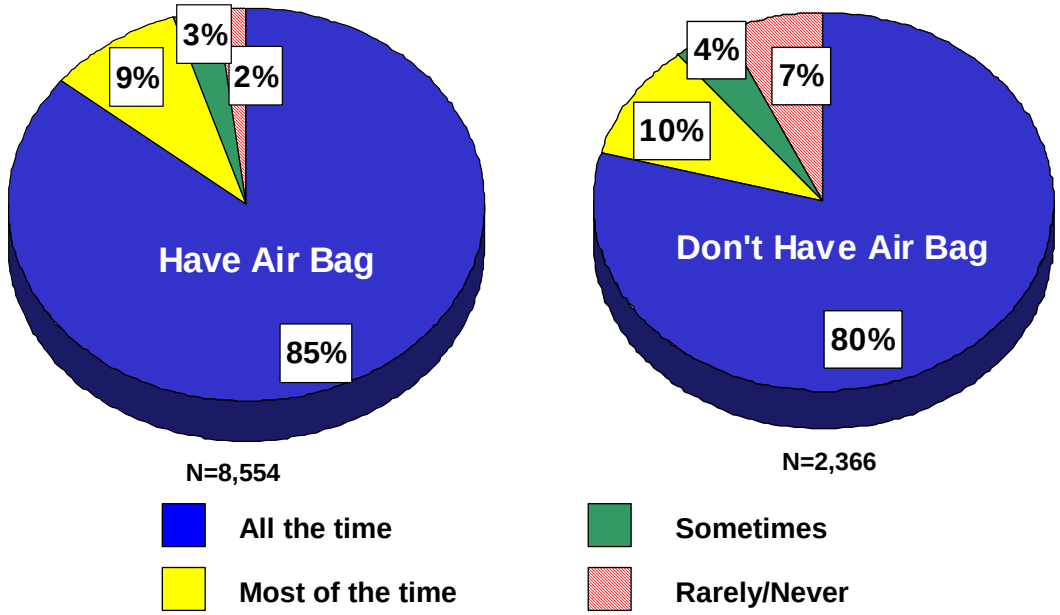


Qx: Please tell me whether you agree or disagree with the following statement. If my car has a (driver/passenger) side air bag, I don't need to wear my seat belt when (driving/riding).

Base: Drivers whose primary vehicle is not a motorcycle

Drivers whose primary vehicles had air bags were more likely than drivers without air bags to report frequent safety belt use. Eighty-five percent of drivers with air bags said they wore their safety belts all the time, compared to 80% of drivers whose primary vehicles did not have an air bag.

Figure 7
Frequency Of Driver Safety Belt Use By Whether Vehicle Has Air Bag, 2003



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

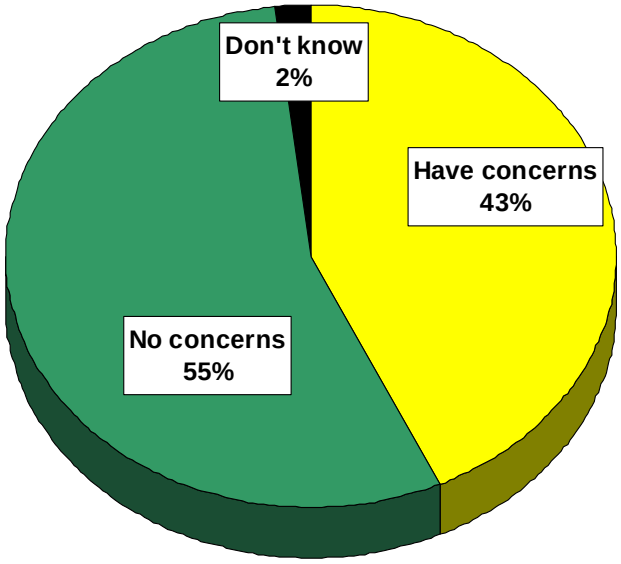
Base: Drivers whose primary vehicle is not a motorcycle

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

Safety Concerns

Even though 87% of the public said they preferred an air bag in their next vehicle, many still expressed concerns about air bag safety. In fact, more than four-in-ten respondents (43%) said that they had concerns about the safety of air bags.

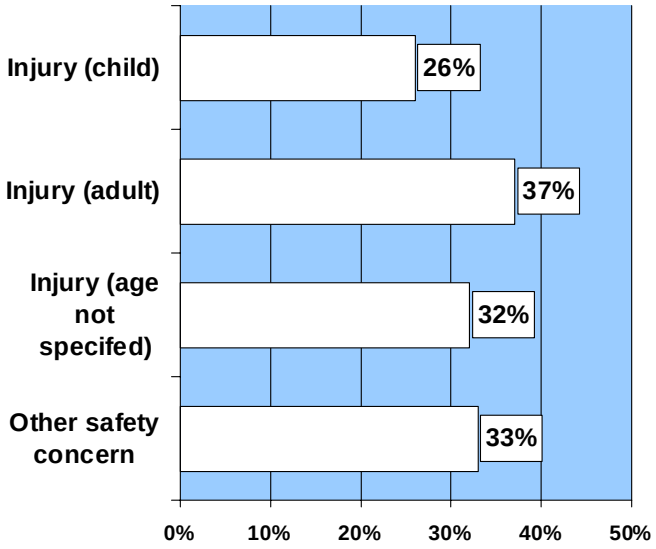
Figure 8
Safety Concerns About Air Bags, 2003



Qx: Do you have any concerns about the safety of air bags?
Base: Total population age 16+
Unweighted N=6,180

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 (26%) or to adults (37%).

Figure 9
Types Of Safety Concerns (Of Those Having Concerns), 2003



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=2,694

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

Table 2. Air Bag Concerns, 2003

Item	Percent
Child injury	**26%**
Injury, unspecified	19%
Injury if placed in front seat	6%
Killed	4%
Suffocate or smother	4%
Other child injury mentions	1%
Adult injury	**37%**
Adults can be injured	14%
Smaller adults can be injured	13%
Suffocating	8%
Killed	3%
Smaller adults killed	1%
Other adult injury mentions	2%
Other injury (age not specified)	**32%**
Injuries due to air bag deployment	14%
Broken bones	7%
Injuries due to speed of air bag deployment	6%
Injury to neck	5%
More injuries with air bags than without	4%
Any other injury mentions	2%
Other safety concerns	**33%**
Failure to deploy	7%
Rate of deployment too fast	6%
Split and release chemicals	6%
Deploys prematurely (no accident)	6%
Deploys in minor accident	4%
Other air bag safety mentions	8%
Other miscellaneous mentions	**3%**

Base: Those With Concerns About Air Bag Safety
Unweighted N=2,694 Percentages don't total 100% due to multiple responses

Likelihood Of Injury: Adult Versus Children

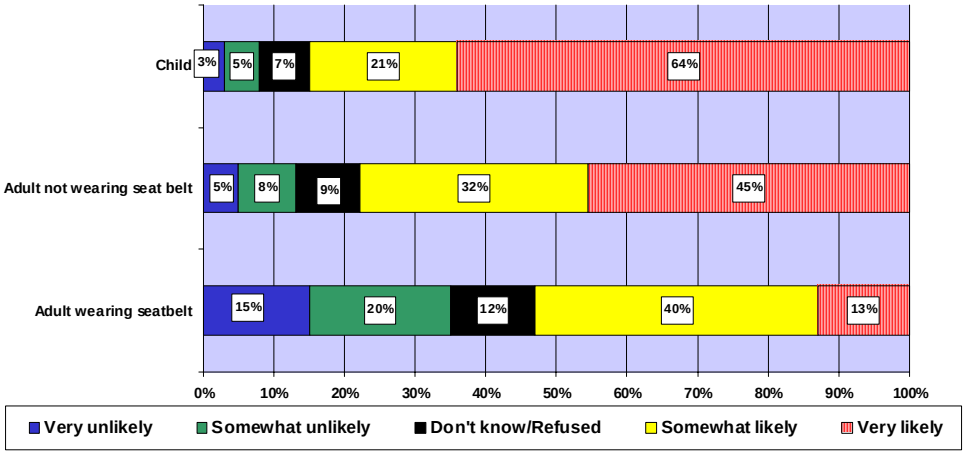
In 2000, respondents were asked what they thought was the likelihood that an adult sitting in the front seat would be injured *by* the air bag, when an air bag deploys normally. In 2003, this question was split into two questions: 1) how likely is it that an adult sitting in the front seat and wearing a safety 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 safety belt would be injured *by* the air bag?

Over half (53%) believed it either *somewhat likely* (40%) or *very likely (*13%*)* that an adult wearing a safety belt would be injured by an air bag. Thirty-five percent felt it was unlikely that an adult would be injured.

Many more, more than three-in-four (78%)*, believed it either *somewhat likely* (32%) or *very likely (45%)* that an adult NOT wearing a safety belt would be injured by an air bag. Only 14% felt it was unlikely that an adult without a safety belt would be injured by an air bag.

The public viewed children as more susceptible than adults to injury from air bags. The majority (64%) thought that it was *very likely* that a small child would be injured by an air bag. More than eight-in-ten people (85%) 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.

Figure 10
Likelihood Of Being Injured By An Air Bag, 2003



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

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?

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?

Base: Total population age 16+

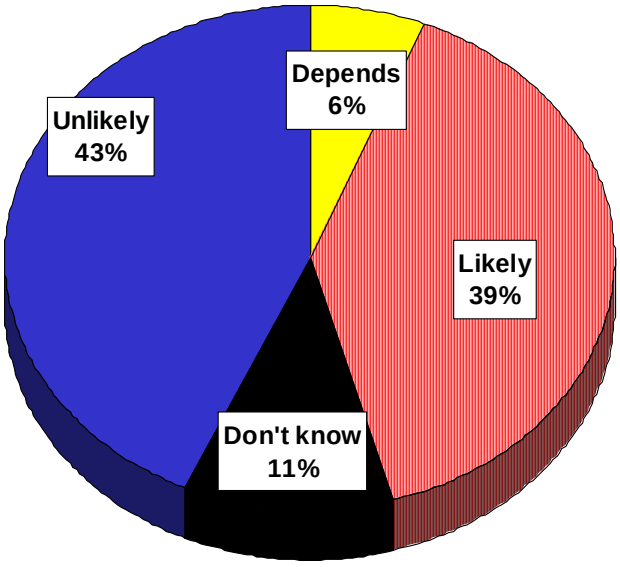
Unweighted N=6,197

* 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, about four-in-ten (39%) felt injuries were likely even with air bags. A fairly large proportion said they weren't sure (11%) or it depends (6%).

Figure 11
Likely Or Unlikely To Be Injured In Crash Involving Major Vehicle Damage When Air Bag Is Present, 2003



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

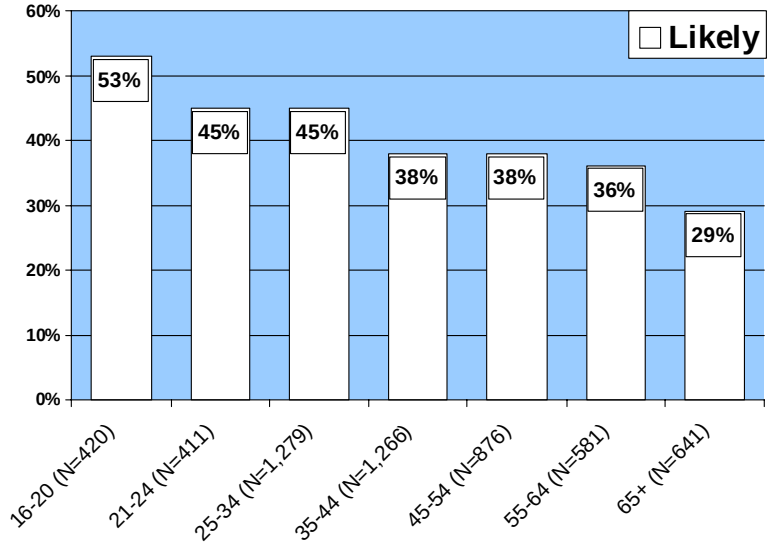
Unweighted N=5,546

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

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. More than half of drivers ages 16-20 (53%) believed that it is likely they would be injured, with the percentage decreasing steadily for older driver age groups to 29% of drivers 65 and older.

Figure 12
Believe Injury With Air Bag Likely In Crash Involving Major Vehicle Damage By Age, 2003



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

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 risky driving behaviors (speeding, drinking and driving, infrequent safety 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.

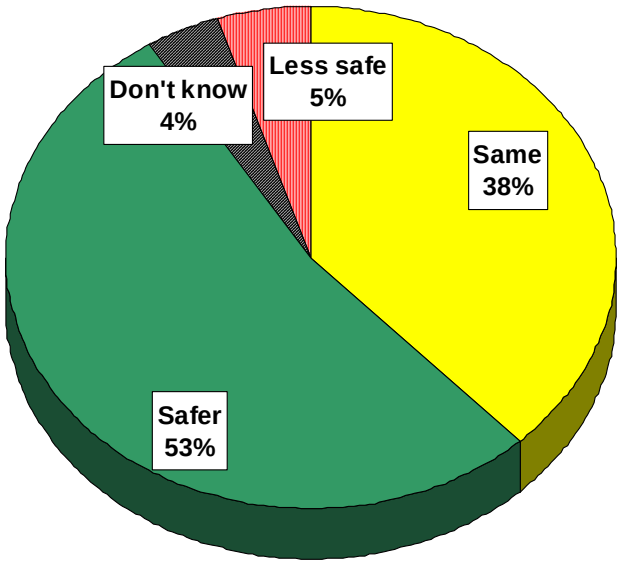
Table 3. Percent Believing Injury Likely In A Crash While In An Air Bag Equipped Vehicle By Driving Behavior, 2003

Driving Behavior	Believe Injury Likely	Unweighted N
Highway Passing		
Others tend to pass me	38%	3,280
I tend to pass others	44%	1,788
Highway Driving Speed		
Less than 55 mph	38%	227
55 mph	35%	686
56-60 mph	37%	878
61-65 mph	40%	1,479
Over 65 mph	43%	2,119
Drinking and Driving In Past 30 Days		
No, didn't drink in past 30 days	38%	2,561
No, but did drink in past 30 days	40%	2,257
Yes, drove after drinking in past 30 days	42%	706
Frequency of Seat Belt Use		
All the time	38%	4,685
Most of the time	46%	474
Some of the time	48%	190
Rarely/Never	47%	185

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 half (53%) said they felt safer with air bags compared to only 5% who said they felt less safe. About four-in-ten (38%) 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, 2003



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?

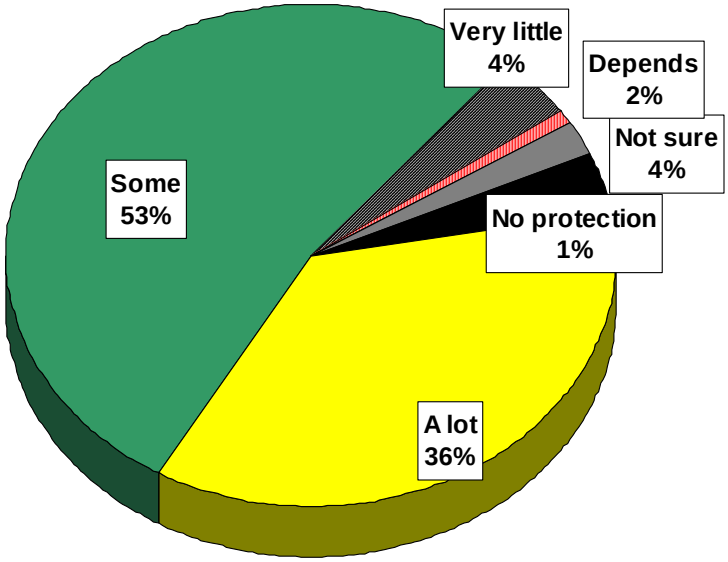
Base: Total population age 16+

Unweighted N=6,180

Protection From Air Bags

Nearly nine-in-ten said they felt that an air bag would provide at least some protection in a crash involving major motor vehicle damage (88%)*. More than one-in-three 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 (53%). Only 4% 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 4% did not know.

Figure 14
Air Bags Provide Protection From Injury, 2003



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=6,180

* 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. Nearly half of females (47%) said they had concerns about air bag safety compared to 37% 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 (49% compared to 57%).

Table 4. Safety Concerns By Gender, 2003

Item	Total	Males	Females
Have concerns about safety of air bags	43%	37%	47%
Likely to injure adult wearing safety belt	53%	48%	58%
Likely to injure adult NOT wearing safety belt	78%	74%	80%
Likely to injure small child	85%	82%	88%
Feels safer with air bags in vehicle	53%	57%	49%

Qx: Do you have any concerns about the safety of air bags? (N=6,180)
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=6,197)
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=6,197)
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=6,197)
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=6,180)

Base: Total population age 16+

Child Car Seats

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 adults who drive with children place child car seats and whether this is affected by the presence of air bags.

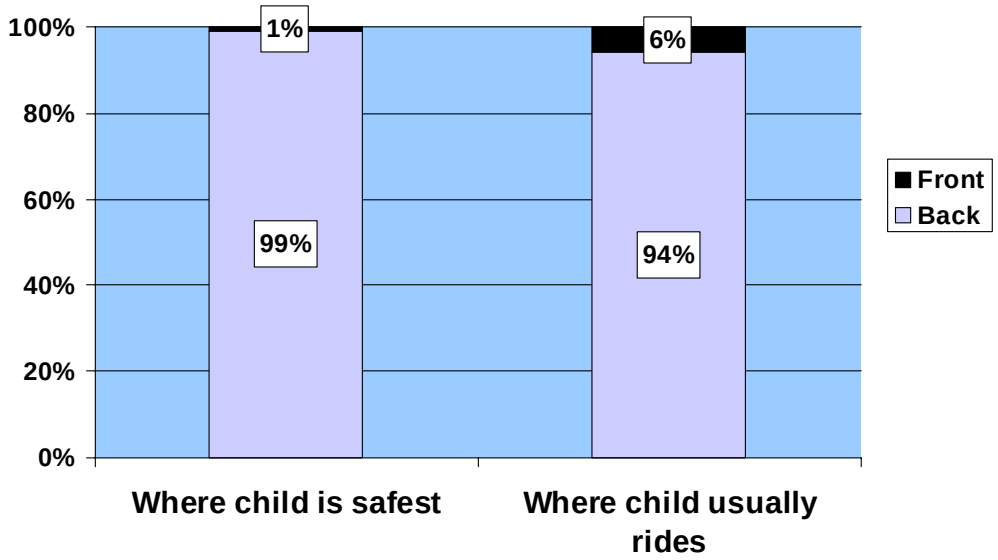
The 2003 Motor Vehicle Occupant Safety Survey asked a detailed set of child car seat questions to a subgroup in the sample for whom car seat issues were deemed especially relevant. These were parents of children under age 9, including some not living with their children but who still drove with them, 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 randomly selected one child. If the child at least sometimes rode in a car seat, an extensive series of questions about car seat use was asked for that child.

The following three pages present selected findings from this series of questions on car seats that relate to the air bag issue.

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, six percent still usually placed the child in the front seat when they drove.

Figure 15
Placement Of Child Car Seat, 2003



Qx: When you are driving and the (AGE) rides in the child car 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 in the vehicle…in the front seat or in the back seat?

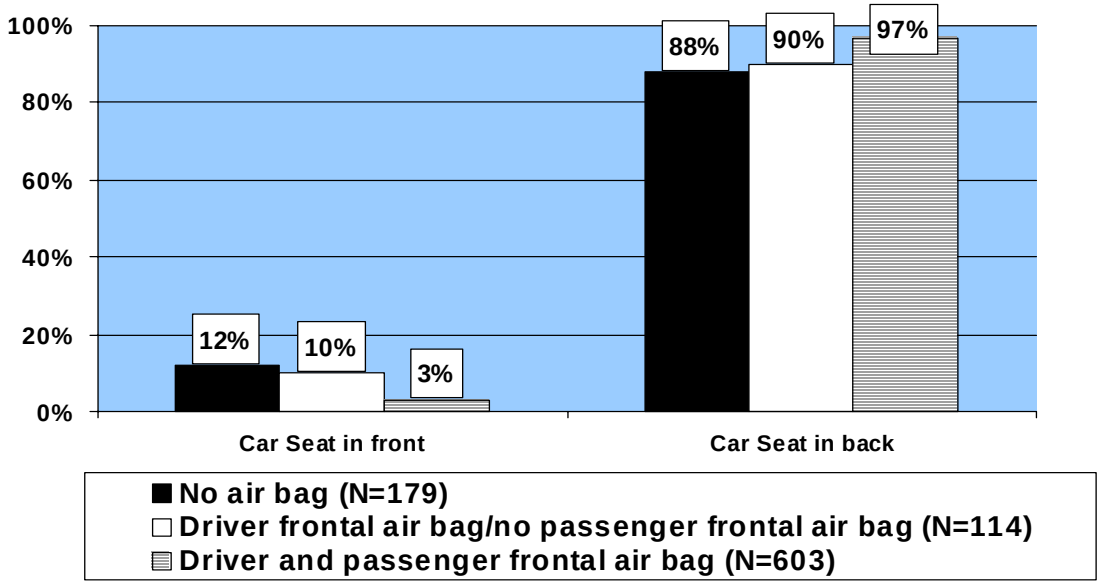
Base: Child at least sometimes rides in car seat

Unweighted N=915

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 didn't have air bags. About 3% of those having driver and passenger frontal air bags said they usually place the car seat in the front seat. By contrast, 10% of those with driver frontal air bags but no passenger frontal air bags and 12% 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, 2003



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

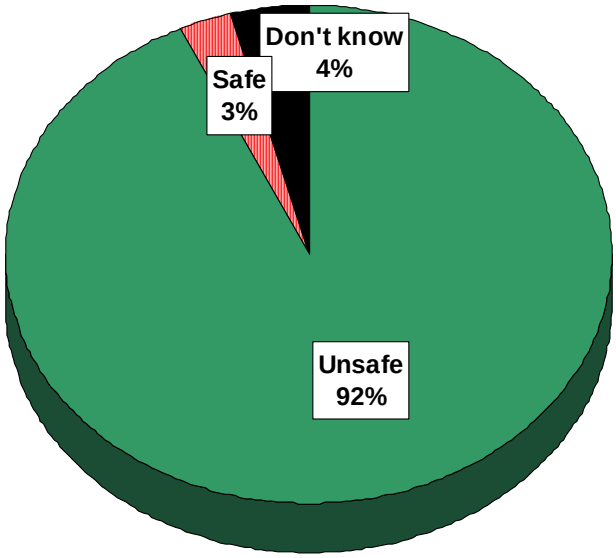
Base: Child at least sometimes rides in car seat

Unweighted N=915

Rear-Facing Child Car Seats In Vehicles With Air Bags

The parent/caregiver subsample was asked if they thought it was safe to place a rear-facing car seat in the front seat of a vehicle having passenger air bags. **The correct answer was no, because it could place the child in the air bag's path, with the force of impact being too great for the child.** While nearly all (92%) said it was unsafe, 3% believed it was safe, and 4% said they weren't sure.

Figure 17
Safety Of Child In Front With Air Bag When Child Car Seat Is Facing Backward, 2003



Qx: Some child car seats are designed so that the child faces backward, to the rear of the motor vehicle. Suppose a child is riding in a child car seat facing backward. If the vehicle has a passenger side air bag, is it safe or unsafe to have the child car seat in the front seat?

Base: Child at least sometimes rides in car seat

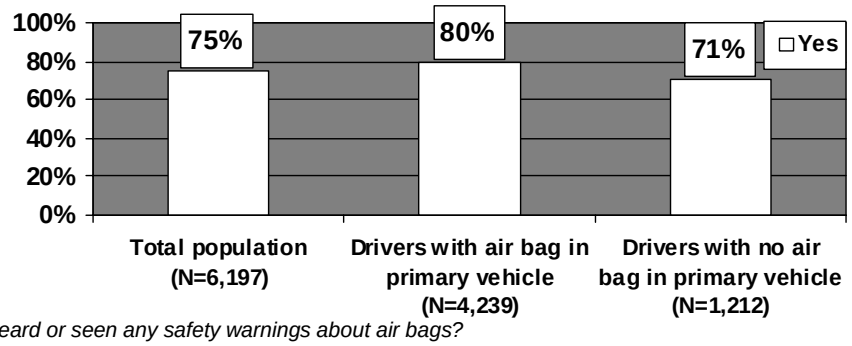
Unweighted N=915

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

Air Bag Safety Warnings

All respondents were asked if they had ever heard or seen any safety warnings about air bags. Three-in-four (75%) 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 (32%), air bags can kill children (13%), sit as far back from the air bag as possible (11%), air bags can cause injury, without reference to age or size (11%), never put a rear facing child seat in front of an air bag (10%), air bags can injure children and small adults (7%), and always wear your safety belt when around air bags (7%).

Figure 18
Have Heard Or Seen Safety Warnings About Air Bags, 2003



Qx: Have you heard or seen any safety warnings about air bags?
Base: Total Population 16+

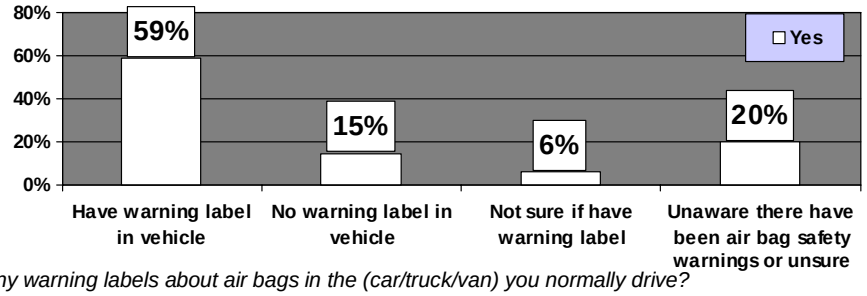
Table 5. Safety Warnings Heard And Seen, 2003

Safety Warnings	Total population (N=4,699)	Air bag (N=3,247)	No air bag (N=875)
Back seat is safest for children	32%	34%	30%
Air bags can kill children	13%	13%	14%
Sit as far back from air bag as possible	11%	12%	9%
Air bags can injure you (uspec)	11%	11%	13%
Never put a rear facing child seat in front of air bag	10%	10%	10%
Air bags can injure children/small adults	7%	8%	7%
Always wear your safety belt when around an air bag	7%	8%	7%

Qx: What safety warnings about air bags have you heard or seen?
Base: Heard/Seen safety warnings about air bags

More than half of drivers (59%) who had air bags in their primary vehicles reported that their vehicles had warning labels about air bags. 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 (81%). Other locations for safety warnings about air bags included the dashboard (13%), owner's manual (5%), glove compartment (5%), steering wheel (1%), and inside the door or on the door panel (1%). Three percent reported other locations, while 4% could not or would not say where the warning labels were located.

Figure 19
Have Warning Labels About Air Bags In Vehicle, 2003



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=4,239

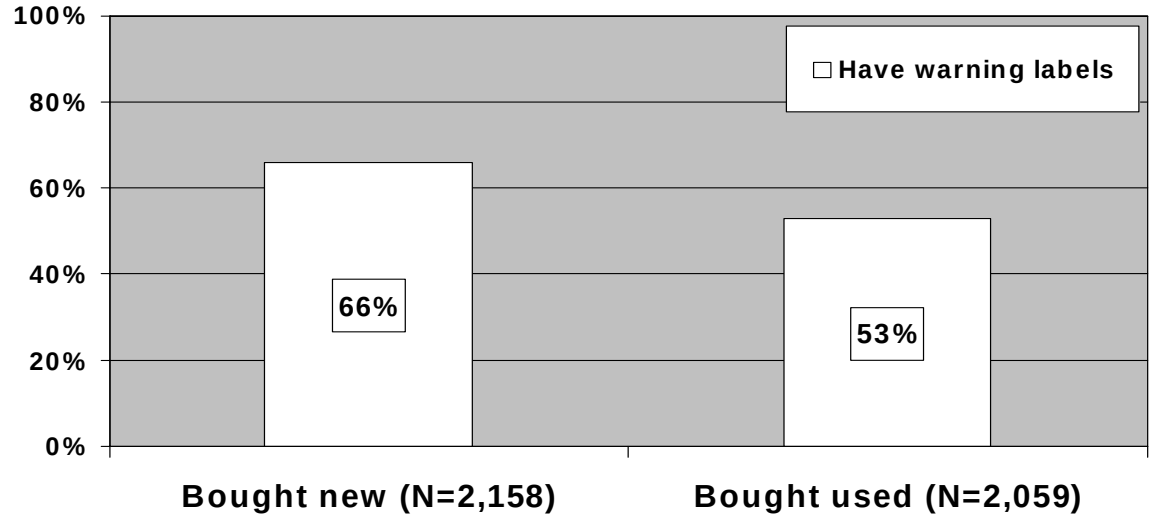
Table 6. Location Of Warning Labels In Primary Vehicle, 2003

Item	Total
Sun visor	81%
Dashboard	13%
Owner's manual	5%
Glove compartment	5%
Steering wheel	1%
Inside door/door panel	1%
Other	3%
Don't know	4%

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=2,569

Among drivers with air bags in their primary vehicles, 66% report warning labels in vehicles purchased new, compared to 53% of those purchased used.

Figure 20
Have Warning Labels About Air Bags In Vehicle By New/Used Vehicle, 2003



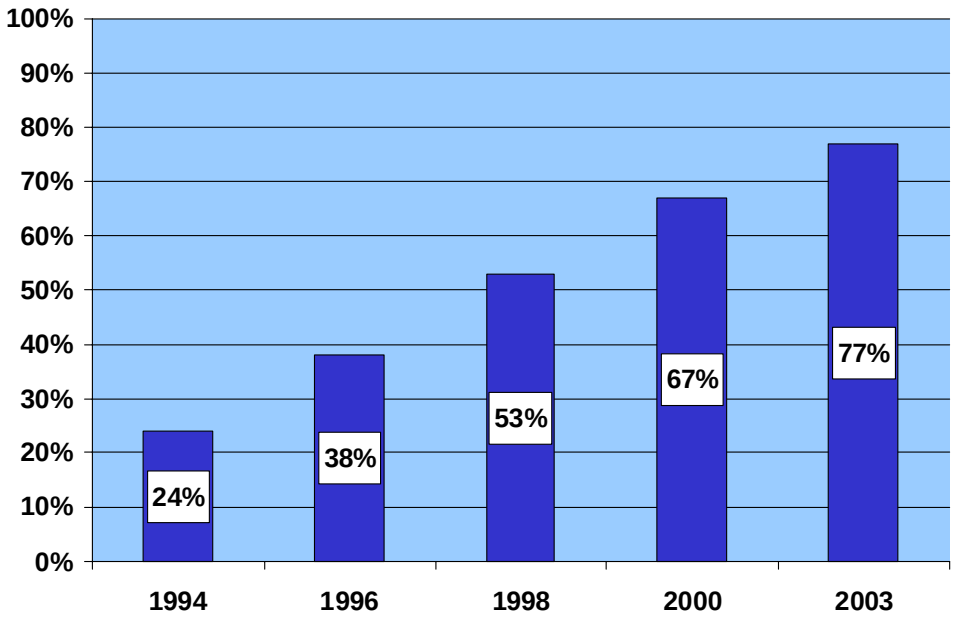
Qx: Are there any warning labels about air bags in the (car/truck/van) you normally drive?
Qx: When you got the (car/truck/van) did you get it new or used?
Base: Drivers whose primary vehicle has an air bag

SECTION 2: TRENDS 1994 - 2003

Prevalence Of Air Bags, 1994-2003

The percentage of drivers reporting air bags in their primary vehicles has continued to increase. In 2003, 77% reported air bags in their primary vehicles, increasing steadily from 24% in 1994.

Figure 21
Air Bags In Primary Vehicle, 1994-2003

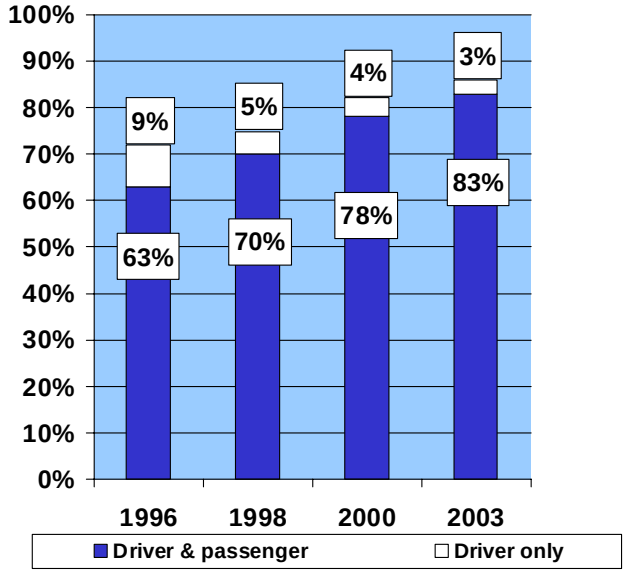


Qx: Does the (car/truck/van) you normally drive have an air bag?
Base: Drivers whose primary vehicle is not a motorcycle

Air Bag Demand, 1996-2003

The proportion of drivers who prefer that their next vehicle have air bags increased steadily from 72% in 1996 to 87%* in 2003. Preference for both driver and passenger air bags also increased steadily from 63% in 1996 to 83% in 2003.

Figure 22
Prefer Air Bags On Next Vehicle, 1996-2003



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

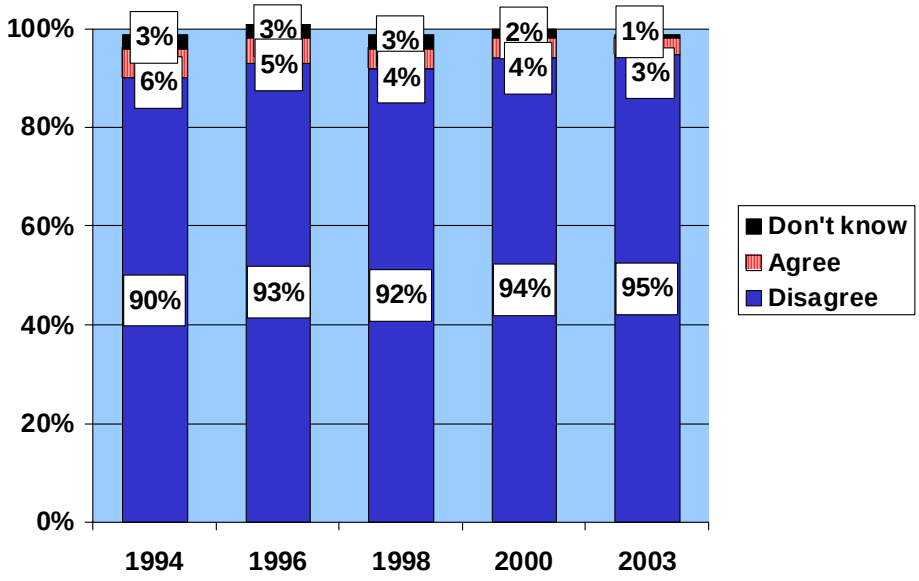
Base: Total Population Age 16+

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

Air Bags And Safety Belt Use, 1994-2003

The proportion of respondents who did not view air bags as a substitute for safety 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 2003, 95% disagreed with the statement. Drivers were referred specifically to driver air bags while non-drivers were referred specifically to passenger air bags.

Figure 23
Agree Or Disagree: Safety Belt Unnecessary When Air Bag Is Present, 1994-2003



Qx: Please tell me if 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+

Since 1994, more than nine-in-ten drivers have disagreed with the statement that safety belts were unnecessary with air bags, increasing slightly from 92% in 1994 to 96% in 2003. By contrast, only 71% of non-drivers disagreed with the statement in 1994, increasing to 89% in 2000 and 87% in 2003.

Table 7. Agree Or Disagree: Safety Belt Is Unnecessary With Air Bag Drivers Versus Non-drivers, 1994-2003

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

Qx: Please tell me if 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+

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 safety belts. Fully 97% with air bags in 2003 disagreed with the statement "If my car has a driver side air bag, I don't need to wear my seat belt when driving" compared with 94% of those without air bags in their primary vehicles.

Table 8. Agree Or Disagree: Safety Belt Is Unnecessary When Air Bag Is Present Primary Vehicle Comparison, 1994-2003

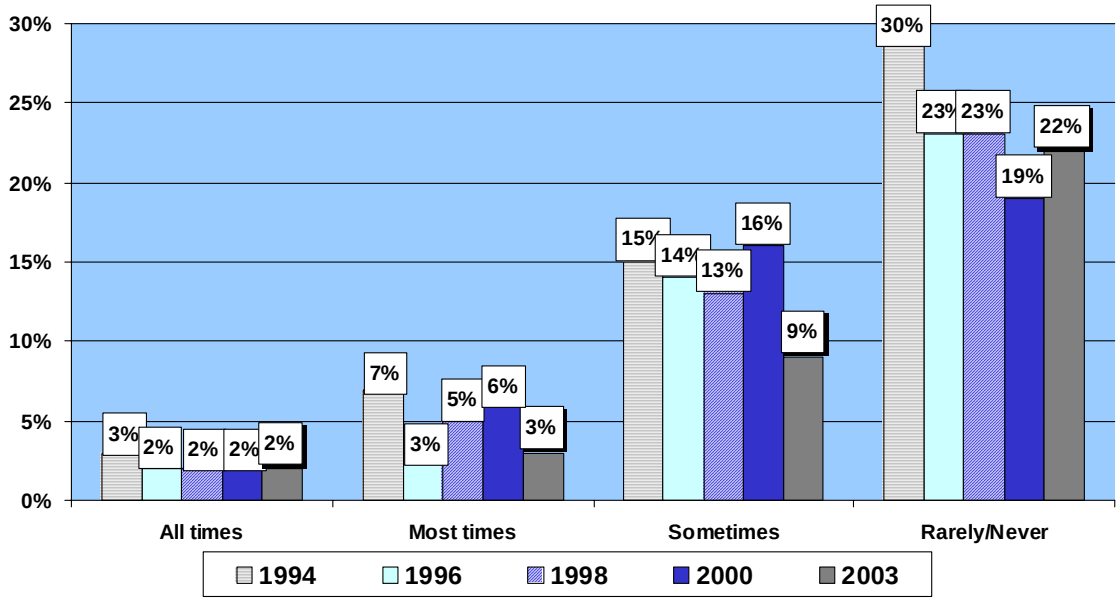
Have Air Bag						Don't Have Airbag					
If my car has an airbag, I don't need to wear my seat belt	**1994**	**1996**	**1998**	**2000**	**2003**	**If my car has an airbag, I don't need to wear my seat belt**	**1994**	**1996**	**1998**	**2000**	**2003**
Agree	4%	2%	3%	3%	2%	Agree	6%	5%	4%	4%	5%
Disagree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

Qx: Please tell me if 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

For those drivers who reported using their safety belt all of the time, there was no appreciable change from 1994 to 2003 in the proportion 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." In contrast, drivers who reported less frequent belt use became less likely over time to agree with the statement, although still more likely to agree with it than the all the time safety belt users.

Figure 24
Believe Safety Belt Unnecessary With Air Bag By Belt Use, 1994-2003



Qx: Please tell me if 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

Drivers with air bags in their primary vehicles continued to be more likely to use their safety belts than were those without air bags in their primary vehicles. In 2003, 85% of drivers with air bags reported that they used their safety belts all the time and 9% said they used them most of the time. By comparison, 80% of drivers whose primary vehicles did not have air bags said they used their safety belt all the time with an additional 10% reporting that they wore their belt most of the time.

Table 9. Frequency Of Driver Safety Belt Use By Whether Vehicle Has Air Bag, 1994-2003

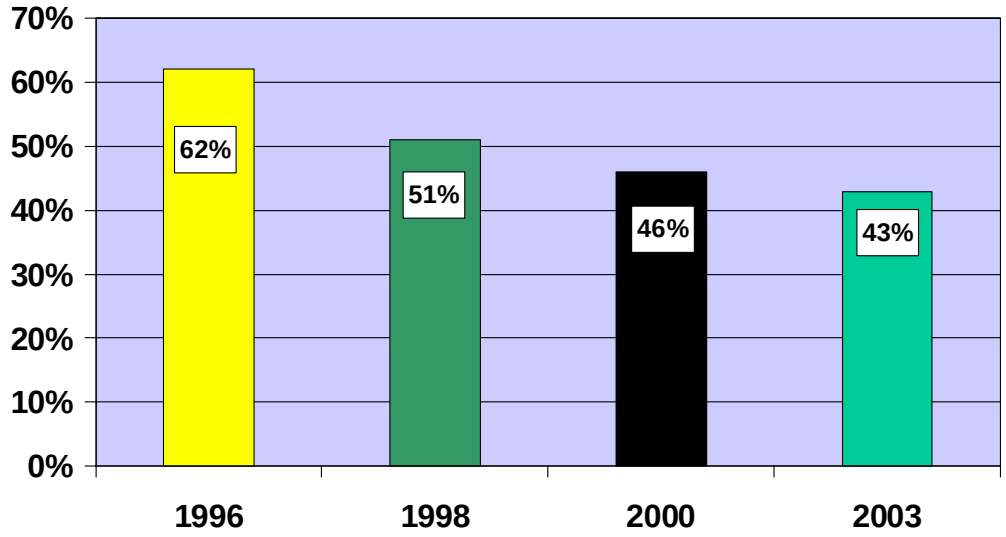
Have Air Bag						Don't Have Airbag					
Frequency of seat belt use	**1994**	**1996**	**1998**	**2000**	**2003**	**Frequency of seat belt use**	**1994**	**1996**	**1998**	**2000**	**2003**
All times	82%	80%	82%	85%	85%	All times	72%	74%	75%	80%	80%
Most times	10%	11%	11%	8%	9%	Most times	14%	13%	13%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

Qx: Does the (car/truck/van) you normally drive have an air bag
Base: Drivers whose primary vehicle is not a motorcycle

Safety Concerns, 1996-2003

Although more than four-in-ten (43%) still expressed concerns about the safety of air bags, this proportion with concerns has steadily declined from 62% in 1996.

Figure 25
Have Safety Concerns About Air Bags, 1996-2003



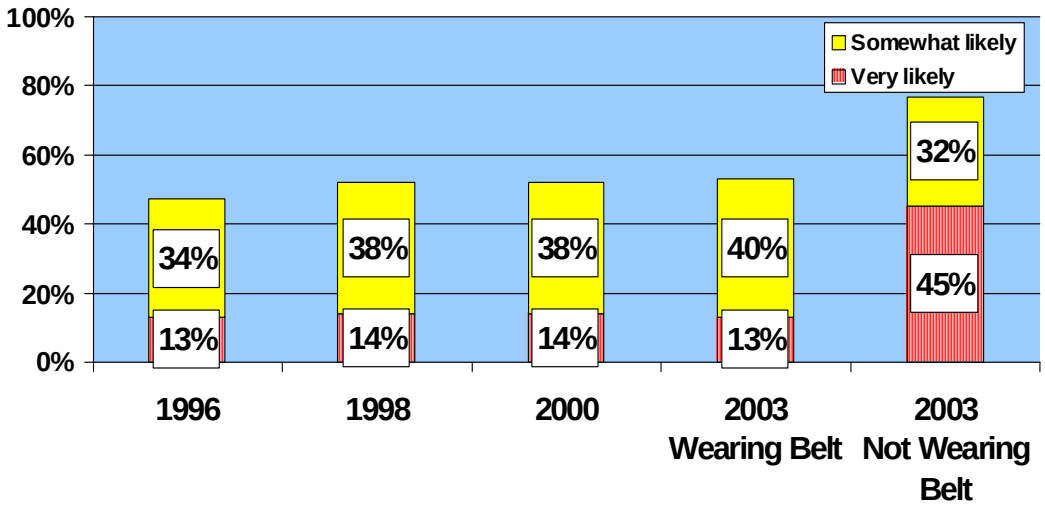
Qx: Do you have any concerns about the safety of air bags?
Base: Total population age 16+

Likelihood Of Injury To Adult From Air Bag, 1996-2003

In 2003, 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 safety belt was worn. The proportion 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 53%, similar to results obtained in previous years when the question did not refer to belt use status.

However, the proportion in 2003 who felt it was likely that an adult sitting in the front seat and NOT wearing a safety belt would be injured by an air bag when it opens normally was much larger (78%)*.

Figure 26
Likelihood Of Adult Being Injured By An Air Bag, 1996-2003



1996-2000 Qx: Based on what you know or have heard, how likely is it that an adult sitting in the front seat would be injured by an air bag when it opens normally?

2003 Qx: Based on what you know or have heard, how likely is it that an adult sitting in the front seat and wearing a seat belt would be injured by an air bag when it opens normally?

2003 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?

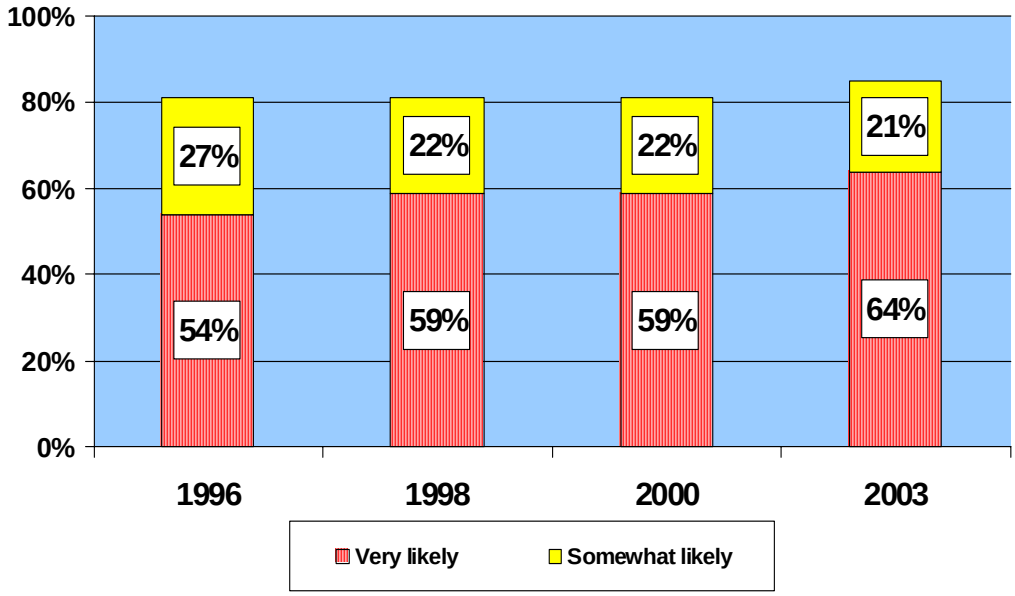
Base: Total population age 16+

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

Likelihood Of Injury To Child From Air Bag, 1996-2003

The proportion of the public that thought it was very likely (64%) or somewhat likely (21%) that a small child sitting in the front seat would be injured by an air bag when it opens normally increased slightly from 2000 to 2003. The combined very and somewhat likely percentages were the same in 1996, 1998 and 2000 (81%), but increased to 85% in 2003.

Figure 27
Likelihood Of Child Being Injured By An Air Bag, 1996-2003



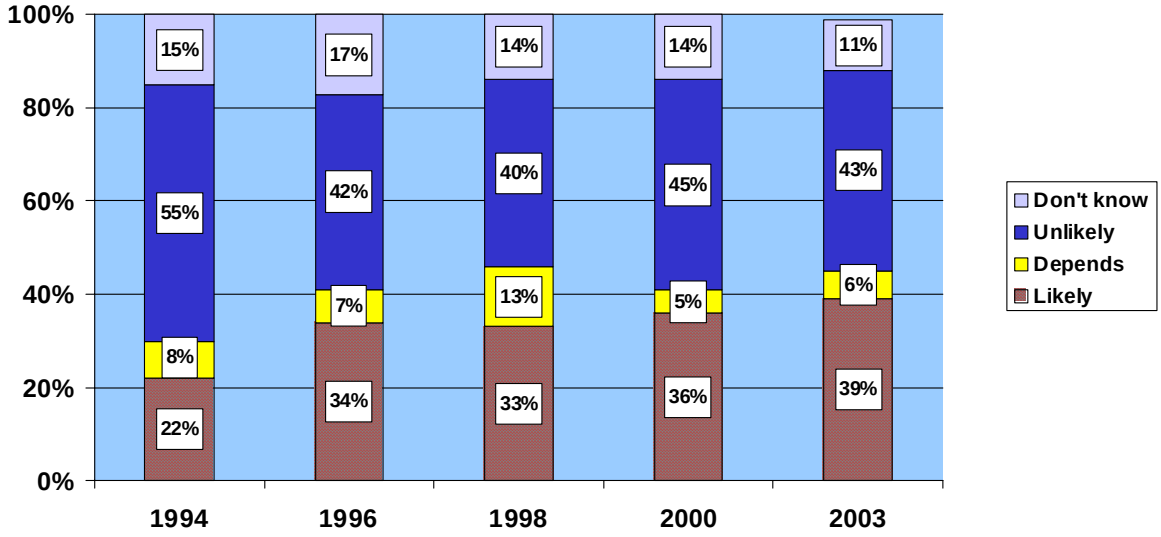
Qx: Based on what you know or have heard, how likely is it that a small child sitting in the front seat would be injured by an air bag when it opens normally?

Base: Total population age 16+

Likelihood Of Injury With Air Bag In Crash Involving Major Vehicle Damage, 1994-2003

In 2003, 43% of drivers felt an injury was unlikely in a crash involving major vehicle damage in an air bag-equipped vehicle, compared to 45% in 2000. At the same time 39% felt an injury was likely in such a crash, compared to 36% in 2000.

Figure 28
Likelihood Of Being Injured By Air Bag In Crash With Major Vehicle Damage, 1994-2003

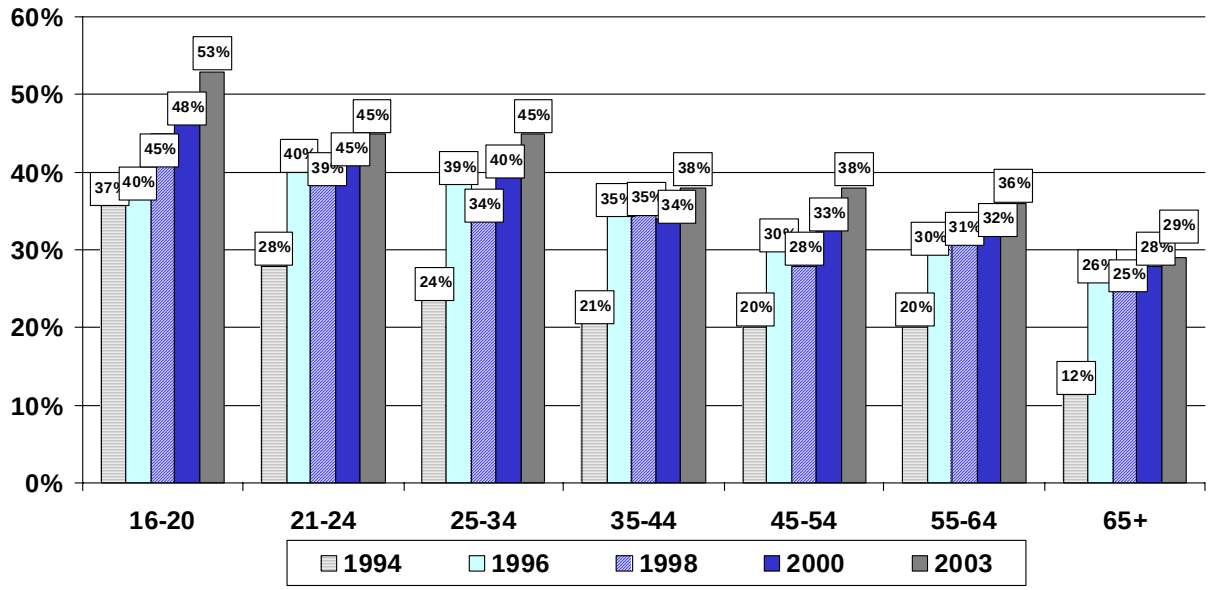


Qx: If you are driving in a vehicle that has an air bag and you get into an accident involving major vehicle damage, is it likely or unlikely that you would be injured?

Base: Drivers

As in previous years, younger drivers in 2003 were more likely than older adults to believe they would be injured if they had a serious crash in an air bag-equipped vehicle. All age groups showed an increased likelihood across the years to believe that they would be hurt in such a situation. In 1994, 12% in the 65+ age group thought injury likely. In 2003, the figure was 29%. Likewise, 37% of drivers 16-20 years old thought injury likely in 1994, while 53% thought this was the case in 2003.

Figure 29
Believe Injury With Air Bag Likely In Crash With Major Vehicle Damage By Age, 1994-2003



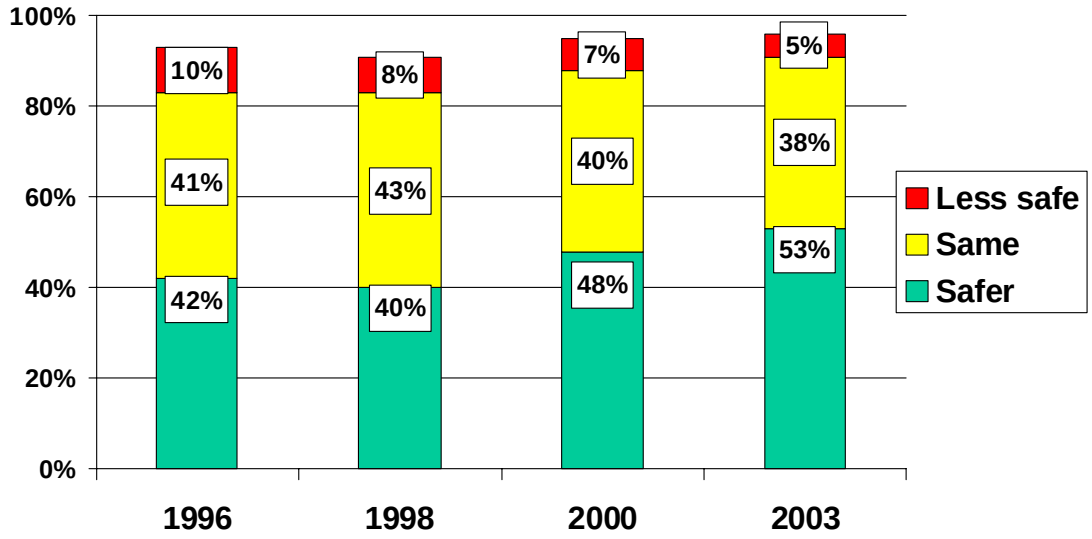
Qx: If you are driving in a vehicle that has an air bag and you get into an accident involving major vehicle damage, is it likely or unlikely that you would be injured?

Base: Drivers

Feeling Safer With Air Bags, 1996-2003

The public tended to feel safer with air bags in 2003 than they did in previous years. The proportion who said they felt safer in motor vehicles with air bags increased from 42% in 1996 to 53% in 2003.

Figure 30
Feel Safer, About The Same, Or Less Safe With Air Bags, 1996-2003



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+

CONCLUSIONS

Despite concerns about their safety, there is broad public support for air bags. The proportion 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 safety belts, in fact, the presence of air bags in vehicles has not caused a decline in safety belt usage. On the contrary, those with air bags in their primary vehicles are more likely than those without air bags to wear their safety belts.

APPENDIX A: PRECISION OF SAMPLING ESTIMATES

*Reprinted from:

Boyle, J. and P. Vanderwolf. 2003 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:

$$z * \left[se(x) = \sqrt{\frac{(p * q)}{(n-1)}} \right]$$

Where:

se (x)	=	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	=	the standardized normal variable, given a specified confidence level (1.96 for samples of this size).

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 8,000 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)

Size of Sample or Subsample	Percentage Of The Sample Or Subsample Giving A Certain Response Or Displaying A Certain Characteristic For Percentages Near:				
	10 or 90	20 or 80	30 or 70	40 or 60	50
8,000	0.7	0.9	1.0	1.1	1.1
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:

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

where:

ASE	=	allowance for sampling error at the 95% confidence level;
h	=	a sample stratum;
g	=	number of sample strata;
W_h	=	stratum h as a proportion of total population;
f_h	=	the sampling fraction for group h - the number in the sample divided by the number in the universe;
s^2_h	=	the variance in the stratum h - for proportions this is equal to p_h (1.0 - p_h);
n_h	=	the sample size for the stratum h.

Although Table 10 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 (h^1 and h^2) 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 (w^1) was 53.0 percent while the proportion for the 40 and over stratum (w^2) was 47.0 percent.

As shown in Table 11, the disproportionate sampling increases the confidence interval by an average of 0.7 percent, compared to a simple random sample of the same size. This means the sample design slightly decreases the sampling precision for total population estimates, while increasing the precision of sampling estimates for the sub-sample aged 16-39 years old. Since the average difference in the confidence interval between the stratified disproportionate sample and a simple random sample is less than one 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		
VARIABLE (Version 1 only)	p=	HYPOTHETICAL PROPORTIONATE SAMPLING*	CURRENT DIS-PROPORTIONATE SAMPLING ESTIMATES	DIFFERENCE IN CONFIDENCE INTERVALS ABOUT
Driven in the past year	*89.2%*	*0.77*	*0.78*	*1.3%*
Drunk alcohol in past year	*63.4%*	*1.21*	*1.23*	*1.7%*
Always use safety belt (N=5502)	*85.1%*	*0.94*	*0.94*	----
Dislike safety belts (N=5505)	*33.1%*	*1.24*	*1.26*	*1.6%*
Always use passenger belt (N=5655)	*82.7%*	*0.98*	*0.98*	----
Favor (a lot) safety belt laws	*69.3%*	*1.15*	*1.16*	*.9%*
Should be primary enforcement	*63.9%*	*1.20*	*1.22*	*.9%*
Ever ticketed by police for seatbelt	*9.3%*	*0.73*	*0.72*	*-1.4%*
Ever injured in vehicle crash	*23.6%*	*1.06*	*1.08*	*1.9%*
Drives a car for work almost every day	*17.2%*	*0.94*	*0.96*	*2.1%*
Set a good example for others (N=5413) (reason for using safety belts)	*74.1%*	*1.17*	*1.19*	*1.7%*
Driver Air Bag in vehicle (N=5551)	*76.5%*	*1.12*	*1.14*	*1.8%*
Race: Black/African American	*8.6%*	*0.70*	*0.70*	----
Ethnicity: Hispanic	*13.2%*	*0.84*	*0.81*	*-3.6%*
Gender: Male	*48.0%*	*1.24*	*1.27*	*2.4%*
AVERAGE DIFFERENCE IN CONFIDENCE INTERVALS				*0.7%*

* Total sample proportions using SRS formula
Unless specified otherwise N=6180

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:

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

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.

TABLE 12. Pooled Sampling Error Expressed As Percentages For Given Sample Sizes (Assuming P=Q)

Sample Size																	
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			
2003	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	2003	2500	3000	3500	4000
Sample Size																	

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