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2003 Motor Vehicle Occupant Safety Survey

Volume 5

Child Safety Seat Report

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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 child restraint use. 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").

Among drivers who lived with children age 12 or younger, most indicated that the youngest child typically rode in the back seat. Parents/caregivers of children under the age of 9 usually said the (referent) child either used a child car seat all the time (60%) or never (32%). If the child never used a car seat, it usually was because the child had graduated to safety belt use. However, 29% of the children who never used a car seat but wore safety belts said the shoulder belt cut across their face or neck on most trips, 25% usually put the shoulder belt behind their back, and 17% put the shoulder belt under their arm. Most children ages 6 through 8 discontinued using child car seats (including booster seats). Although booster seats are recommended for most children ages 4 through 8, the survey found only 21% of children in that age range using them and another 19% using front-facing child safety seats. While most parents/caregivers (85%) had heard of booster seats, 22% of these had concerns about their safety.

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EXECUTIVE SUMMARY

The 2003 Motor Vehicle Occupant Safety Survey (MVOSS) 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 the firm Schulman, Ronca, & Bucuvalas, Inc. (SRBI), a national survey research organization. The survey employed two questionnaires, each administered to a randomly selected national sample of approximately 6,000 persons age 16 and older (with younger ages over-sampled). Interviewing began January 8, 2003 and ended March 30, 2003.

This report presents the survey findings pertaining to child restraints and child occupant protection. The data are weighted to yield national estimates. Readers are cautioned that some subgroup analyses are based on small numbers of cases. Technical information on confidence intervals is presented in Appendix A so that readers may judge the precision of sample estimates. A full description of the methodology, and the questionnaires, is presented in a separate report (Volume 1).

Seating Position Of Children Age 12 and Younger

- **Usual Seating Location Of Children Age 12 And Younger.** For safety reasons, NHTSA and other organizations maintain that children age 12 and younger should ride in the back seat of the motor vehicle. Among drivers who lived with one or more children in this age range, most indicated that the youngest child typically rode in the back when riding with them with 63% saying the child never rode in the front seat in the past 30 days and 12% claiming it occurred just a few times. Children were more likely to sit in the front seat if the child was older, if there was no frontal passenger air bag in the respondent's primary vehicle, and if the respondent lived in a rural area.

- **Change From A Year Ago In Youngest Child's Seating Position.** Slightly more than half (53%) of children ages 1 to 12 were reported less likely now than a year ago to ride in the front seat. Another 27% were thought to be just as likely as they were a year ago to ride in the front, while 14% were considered more likely now than a year ago to ride in the front.

- **Reasons Why Child Is More/Less Likely To Ride Up Front.** The most frequently given reasons why children were more likely to ride up front were that the child was older or bigger (34%), there was no other place for the child in the vehicle (18%), and the child preferred the front (14%). The most often given reasons why children were less likely to ride up front were that it was safer in back (46%) and the danger from air bags (20%).

Transporters Of Young Children Under Age 9

- **Driving A Young Child Not In Household.** About half of all drivers had driven a motor vehicle in the past year with a child under the age of 9 as a passenger, but most of these (29%) did not actually live with a child in that age range. If drivers had transported children under age 9 but did not live with the children, their frequency of driving young children tended to be low: 52% said they did this only a few days a year and 32% said they did it a few days a month.

- **Relationship To Young Child Not In Household (Drivers Who Did Not Live With A Young Child That They Drove).** Most often, the driver transporting a child not living in the household was a grandparent (43%). When asked the frequency they drove young children, grandparents tended to report a greater amount compared to other relatives.

2003 Car/Booster Seat Use

- **Parent/Caregiver Analytic Group.** The survey selected a subgroup of drivers to ask detailed questions about children's use of child car seats, designated "parents/caregivers." These were: (a) parents of children under age 9 (usually parents living with the child, but also cases of parents not living with the child but who drove the child at least on occasion in the past year), and (b) non-parents living with children under age 9 who at least on occasion drove with them.

- **Frequency Of Child Car Seat Use.** Parents/caregivers usually said either that the selected child used a car seat "all of the time" (60%) or else never used a car seat (32%). If the child never used a car seat, it usually was because the child had graduated to safety belt use. More than 90% of children under 40 pounds in weight reportedly used car seats (including booster seats) "all of the time." Discontinuation of car seat use by most children occurred by 6 years of age.

- **Type Of Car Seat By Age.** Children should ride rear facing until at least 20 pounds and one year of age. Children who reach 20 pounds before one year of age should ride rear facing in a child safety seat recommended at a higher weight. Most infants who used car seats (72%) did ride in a rear facing position. But 20% reportedly rode in front facing child safety seats. Front facing child safety seats predominated among one-year-olds (87% of those using car seats), two-year-olds (89%), three-year-olds (83%), and four-year-olds (64%). Booster seats accounted for 13% of car seat users among three-year-olds, and then nearly tripled to 35% at age 4. After age 4, booster seats became the predominant child restraint used by children, though the percentages exaggerate booster seat use because of the far fewer children past age 5 using any type of child seat.

- **Usual Location In Vehicle Where Child's Car Seat Is Placed.** The vast majority of parents/caregivers (94%) stated that the child usually sat in the back when riding in a car seat in a vehicle that the parent/caregiver was driving. This was true regardless of whether the child used a rear facing infant seat (93%), a front facing toddler seat (96%), or a booster seat (91%). If there was a frontal passenger air bag in the respondent's primary vehicle, then 97% of children in car seats usually rode in the back.

- **Safest Perceived Location To Place A Child's Car Seat.** Among parents/caregivers who drove a child that used a car seat, almost all (99%) considered the back seat the safest location to place a child car seat in a vehicle. One percent incorrectly believed the front seat was the safest.

- **Child Car Seats In Vehicles With Air Bags.** Parents/caregivers who drove a child that used a car seat were asked if they thought it was safe to place a rear facing car seat in the front seat of a vehicle having a frontal passenger air bag. The correct answer is no, because it could place the child in the air bag's path, with the force of impact being too great for the child. Most parents/caregivers (92%) said it was unsafe while 3% considered it safe.

- **Acquisition Of Car Seat.** Most car seats (92%) were obtained new; less than one-in-ten (7%) were acquired used. More than three-fourths of car seats (77%) were purchased, while 20% were acquired as a gift or loaner from a relative or friend.

- **Mailing Back Car Seat Registration Cards.** Almost three-quarters (73%) of parents/caregivers who said they obtained the car seat new also said that a registration card came with the seat. Of these, 53% mailed back the card.

- **Source Of Information**. Of several information sources read by the interviewers, parents/caregivers who drove a child that used a car seat most often said that they had heard about the need to use car seats from books or articles (61%), from family or friends (60%), or from TV or radio (59%).

- **Ease Of Attaching Car Seat To Vehicle**. Parents/caregivers reported that they had relatively little difficulty installing their children's car seats regardless of the type of seat. Nearly two-thirds (62%) said it was very easy to attach the car seat to the vehicle they usually drove; 31% considered it somewhat easy. However, 31% of parents/caregivers acknowledged that they had in the past driven with the child in the car seat and later found the car seat was not securely attached. Most often, respondents said they learned how to attach the child car seat to the vehicle by reading the instructions (71%), usually from the owner's manual.

- **Frequency Car Seat Moved To Another Vehicle**. Transfer of car seats from one vehicle to another occurs with regularity for some parents/caregivers. One-in-eight respondents (12%) said they move the child car seat from one vehicle to another at least a few days a week. An additional 26% do so a few days a month.

- **LATCH System.** In 2003, a series of questions was added to the survey to assess knowledge and use of the new attachment system called LATCH (Lower Anchors and Tethers for Children). LATCH is intended to make safety seat installation easier by providing a means of attaching the car seat to the vehicle seat without having to use the vehicle safety belt. LATCH child safety seats have a lower set of attachments that connect to bars ("anchors") in the vehicle seat of LATCH-equipped motor vehicles, and most of the child seats have an upper tether to attach to a top anchor in the vehicle. LATCH is required in passenger vehicles and child safety seats manufactured after September 1, 2002, although it was available in some models before that date. Thus awareness and use of the LATCH system at this time is in its early stages. Among parents/caregivers of children that were using child car seats, 27% had heard of LATCH. A few others were aware there had been a change in the way car seats are designed to attach to motor vehicles, but were unfamiliar with the term LATCH. About one-quarter (26%) of those who had heard of LATCH said they had used the LATCH system. In general, parents/caregivers of children using infant or toddler seats were still using the vehicle safety belt to attach the car seat to the vehicle (97%). However, slightly more than one-half (53%) of parents/guardians of children using front facing toddler seats reported that the seat had an upper tether, which they usually reported using. In cases where respondents said they did not use the tether on all trips, most often they indicated that it was because there was no place in the vehicle to which they could attach it (50%).

- **Ease Of Buckling Child In Car Seat**. As with installing the car seat in the vehicle, most parents/caregivers considered it easy to properly buckle the child into the car seat. Almost all parents/caregivers answered either that it was very easy (71%) or somewhat easy (27%).

- **Use Of Safety Seat Inspection Stations.** Inspection stations are places where parents and other caregivers can go to have trained technicians check whether they are correctly installing the child seat in their vehicle and properly buckling their child into the seat. More than one-in-five (22%) of the parents/caregivers driving a child who uses a car seat said they had gone to an inspection station. Most often, it was sponsored by local police (38%) or fire or rescue units (23%). About one-in-five (21%) parents/caregivers who had gone to an inspection station indicated that the technician had found something wrong with how they attached the seat or buckled in their child. However, 36% of parents/caregivers said the person checking the car seat suggested they do something differently in how they attach the seat. Most often the suggestion was to make the seat belt that secures the child seat to the vehicle tighter. Most (70%) said that they had

been given the opportunity at the inspection station to attach the seat and buckle in their child under the guidance of the technician. And in the majority of cases (52%) the respondent was the last person to adjust the car seat.

- **Frequency That Persons Outside Household Drive Child Who Uses Car Seat.** Parents/caregivers who lived with a child that used a car seat were asked if the child had ridden in a vehicle driven by someone outside the household in the past month. More than four-in-ten (45%) answered that this had occurred. Children were transported on a far less regular basis by non-household members compared to the parents/caregivers who lived with the children. When asked the identity of the driver outside the household who transported the child in the past 30 days, parents/caregivers most often answered that it was a grandparent (45%) or a parent/step-parent (20%).

Reasons For Non-Use Of Car Seats

- **Children Who Use Car Seats, But Not All The Time.** The reasons most frequently mentioned for non-use of car seats among part time users were that they were only going to be in the car a short time (50%), the seat was not available (41%), and the child did not like the seat (34%). Most children who were part time car seat users wore a safety belt when they were not in their car seat (83% “all the time”).

- **Children Who Never Use Car Seats.** When asked the reason why the child never uses a car seat, the respondents usually answered that it was because the child was using a safety belt (94%) and was too big (85%). Yet when wearing a safety belt with a shoulder strap, 29% of the children had the belt cut across their face or neck on most trips, 25% usually put the shoulder belt behind the back, and 17% usually put the shoulder belt under the arm.

- **Age At Which Child Is Believed Ready To Begin Wearing Safety Belt.** Parents/caregivers of children who did not use child safety seats at all leaned towards a slightly younger age than the user groups as the threshold point when a child is ready to begin wearing a safety belt. They most frequently gave age 5 as the transition point, compared to age 6 by parents/caregivers of part time and full time car seat users. Overall, 40% of the parents/caregivers of non-users gave an age of 5 or younger as the point when a child is ready to begin wearing a safety belt compared to 32% of the part time users and 31% of the full time users.

Booster Seat Issues

- **Use Of Booster Seats.** Booster seats are considered the appropriate restraint for most children roughly between the ages of 4 and 8*. However, the data collected from the parents/caregivers showed only 21% of children in that age range using booster seats, with another 19% using front facing child safety seats. Booster seat usage peaked at ages 4 (29%), 5 (32%), and 6 (27%), and declined sharply thereafter.

- **Awareness Of Booster Seats.** Most parents/caregivers (85%) had heard of booster seats, although 12% had not and 3% were unsure. Of those who were aware of booster seats, 60% said they had used them at some time when driving their child(ren). The most frequent age at which parents/caregivers started using booster seats with their child(ren) was age four (35%); the most frequent weight was 30-39 pounds (33%).

- **Most Important Reason To Use Booster Seats.** About one-third of respondents said the most important reason for using a booster seat was to make the child safer (32%) and another third (34%) said it was to make the safety belt fit the child properly.

- **Concerns About Booster Seats.** Among the parents/caregivers who had seen or heard of booster seats, over one-fifth (22%) had concerns about their safety and another 4% were unsure. When asked what concerns they had, the parents/ caregivers criticized them as loose fitting and unstable systems that would not adequately restrain the child in a crash.

- **Expected Restraint System After Outgrowing Current Seat.** If the referent child in the survey at least on occasion rode in a child safety seat, then the interviewers asked the respondents if they expected the child to use “a different type of car seat, a safety belt, or something else” after outgrowing the current seat. Four-in-five children in rear facing seats were expected to move on to other safety seats (80%), although 16% expected the child to use safety belts. Expectations became more varied with front facing safety seats, as 67% said that the child would use a different seat or booster seat while 31% either answered that the child would graduate to safety belts or else that they did not know what would happen.

* NHTSA recommends that all children who have outgrown child safety seats should be properly restrained in booster seats until they are at least 8 years old, unless they are 4’9” tall.

Attitudes Toward Enforcement Of Child Restraint Laws

- **Support For Enforcement.** The public (age 16 and older) favors stringent enforcement of car seat laws. Almost three-in-five persons (59%) believed that the police should issue a ticket at every opportunity. Just as many (59%) believed the fine should be $50 or more. Indeed, more than one-third (36%) said the fine should be $100 or more.

- **Legal Requirements For Children Who Outgrow Car Seats.** Ninety-four percent of persons age 16 and older agreed that children should be required by law to wear safety belts once they have outgrown car seats, while 3% disagreed. Those respondents who agreed that children should be required to wear safety belts after outgrowing car seats, or said it depended on the child's age, were asked if there was an upper age limit beyond which children should not be required to wear safety belts. The vast majority (86%) rejected the notion of an upper age limit by saying that safety belt use should be required for all children (which equated to 82% of the total population age 16 and older).

Trends (1994-2003)

- **Children In Back.** The 1998 survey introduced questions asking about the seating position of the youngest child in the household age 12 or younger. In 1998, 30% reportedly rode in the front seat on half or more of their trips with the respondent during the past 30 days. The figure dropped to 19% in 2003.

- **Change In Definition Of Parents/Caregivers.** Criteria for defining parents/ caregivers were expanded for the 2000 survey in order to include all ages where booster seats are the recommended restraint system for children. Thus respondents entered the question series for parents/caregivers if there was a referent child under the age of 9, as opposed to under the age of 6 in the earlier surveys. As a consequence, 2000 and 2003 survey results came from a somewhat different subgroup than in 1994-1998, thereby affecting comparability of results. But since the majority of child restraint questions were asked only of parents or caregivers of children who used a car seat, and the 2003 survey showed that child car seat users were predominantly under the age of 6, the effect on survey results of the change in definition may have been negligible for most questionnaire items. Therefore, some trend data are presented.

- **Car Seat Use.** Data collected from parents/caregivers suggested continued increase in child restraint use among children ages 2 to 5 (particularly ages 4 and 5), and children weighing 30-39 pounds. Restraint use among children under age 2, and children weighing less than 30 pounds has been consistently high.

- **Placement Of Child's Car Seat.** Parents/caregivers of children using car seats were asked the seating location of the child when riding with them. The percentage that said that the child is usually in the back seat when riding in a car seat has increased from 78% in 1994 to 94% in 2000 and 2003.

- **Safest Perceived Location For A Car Seat.** Similar to the 1996, 1998 and 2000 surveys, almost all parents/caregivers in 2003 whose (referent) child used a car seat knew that the back seat was the safest location to place a child car seat in the vehicle (99% in 2003).

- **Child Car Seat In Vehicles With Air Bags.** As in 1998 and 2000, 92% of parents/caregivers in 2003 whose referent child used a car seat were aware of the danger of placing a rear facing infant seat in the front seat of a vehicle having a frontal passenger air bag. A large jump in awareness occurred between the 1994 and 1996 surveys (from 56% to 88%).

- **Support For Enforcement.** In 2003, 59% of the public believed that police should give a ticket at every opportunity for violations of car set laws. This was little changed from 2000 (58%).

- **Legal Requirements For Children Who Outgrow Car Seats.** In each survey year, 94% of the public agreed that children who have outgrown child car seats should be required by law to wear safety belts when riding in a motor vehicle.

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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 areas 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 allowing 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 dealing with such areas as wireless phone features and use while driving, inspection stations for child restraints, and new LATCH and tether child car seat attachments.

The following report presents findings from the 2003 Motor Vehicle Occupant Safety Survey pertaining to child car seats. Specifically, it explores the following areas: 1) seating position of children age 12 and younger in motor vehicles; 2) transporters of young children; 3) car seat use by children under age 9; 4) car seat installation, inspection, and training; 5) reasons for non-use of car seats by children; 6) booster seat issues; and 7) enforcement of child restraint laws. An eighth section examines MVOSS trends between 1994 and 2003 on selected child restraint issues.

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 respondents, the survey employed two questionnaires. A total of 6,180 interviews were completed with Version 1 and 6,197 interviews were completed with Version 2. Although some questions appeared 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 age 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 I. Methodology Report. This report includes English and Spanish language versions of the questionnaires.

The percentages presented in this report are weighted to reflect accurately the national population age 16 and older. 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 (fewer than 350 out of more than 12,000 cases) were analyzed as a separate multi-racial group that could include both Hispanics and non-Hispanics, and the Hispanic analytic subgroup included both African Americans/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.

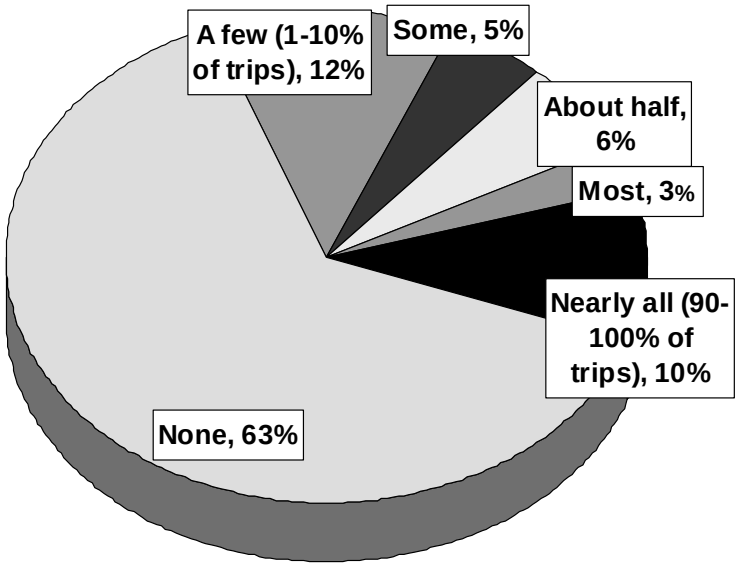
2003 SURVEY RESULTS

CHAPTER 1: SEATING POSITION OF CHILDREN

Proportion of Trips That Child Age 12 or Younger Rides In Front Seat Of Vehicle

For safety reasons, NHTSA and other organizations maintain that **children age 12 and younger should ride in the back seat of the motor vehicle** while using the appropriate restraint for their size. Drivers in the survey who lived with children in this age range were asked about the seating position of the youngest child, **using the front seat (the more dangerous position) as the reference point.** Sixty-three percent said the child never rode in the front seat in the past 30 days when riding with them, and 12% claimed it occurred just a few times. Ten percent of children rode in the front seat nearly all of the time.

Figure 1
Proportion Of Trips That The Youngest Child Rode In The Front Seat In The Past 30 Days



Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

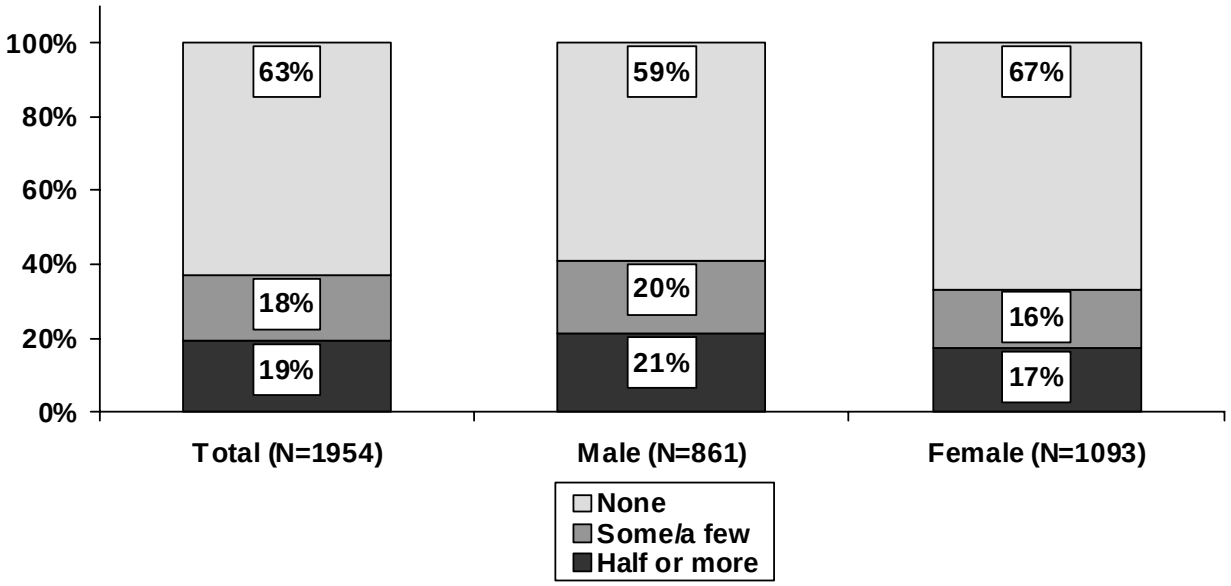
Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger.

Unweighted N=1954

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

Male drivers were slightly more likely than female drivers to report that the child rode half or more of the time in the front seat (21% versus 17%). Sixty-seven percent of female drivers said the child never rode in the front versus 59% of male drivers.

Figure 2
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Sex Of Adult Respondent

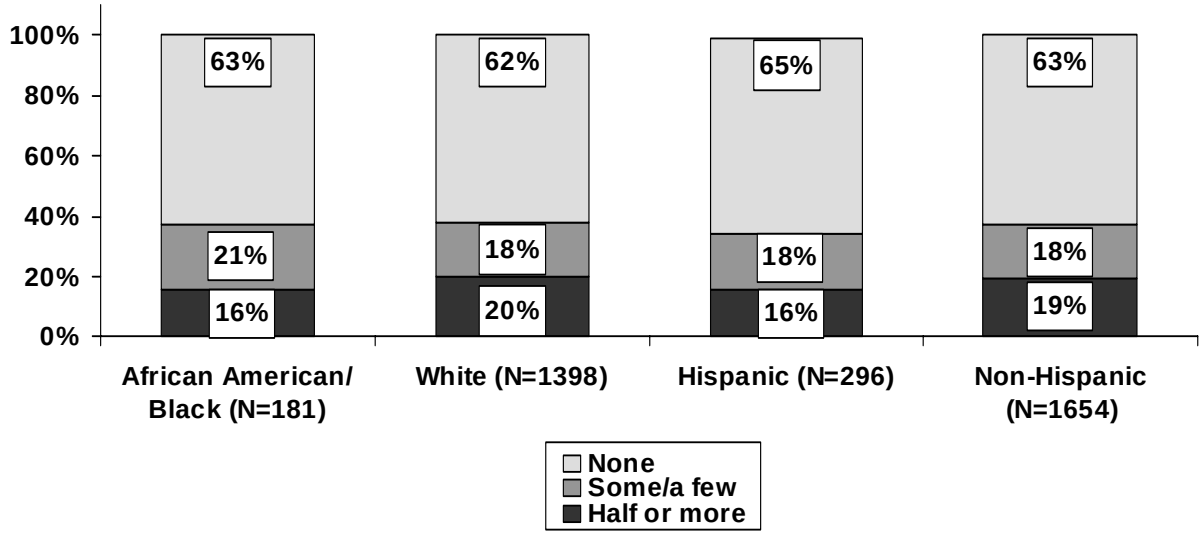


Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

African American/Black and Hispanic drivers who resided with children age 12 and younger comprised a relatively small number of cases in the sample. Thus readers are cautioned against over-interpreting the results. The data suggested that African American/Black children were slightly less likely than White children to ride (most of the time) in the front seat. The same was true for Hispanic children compared to non-Hispanic children.*

Figure 3
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Race/Ethnicity Of Adult Respondent



Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

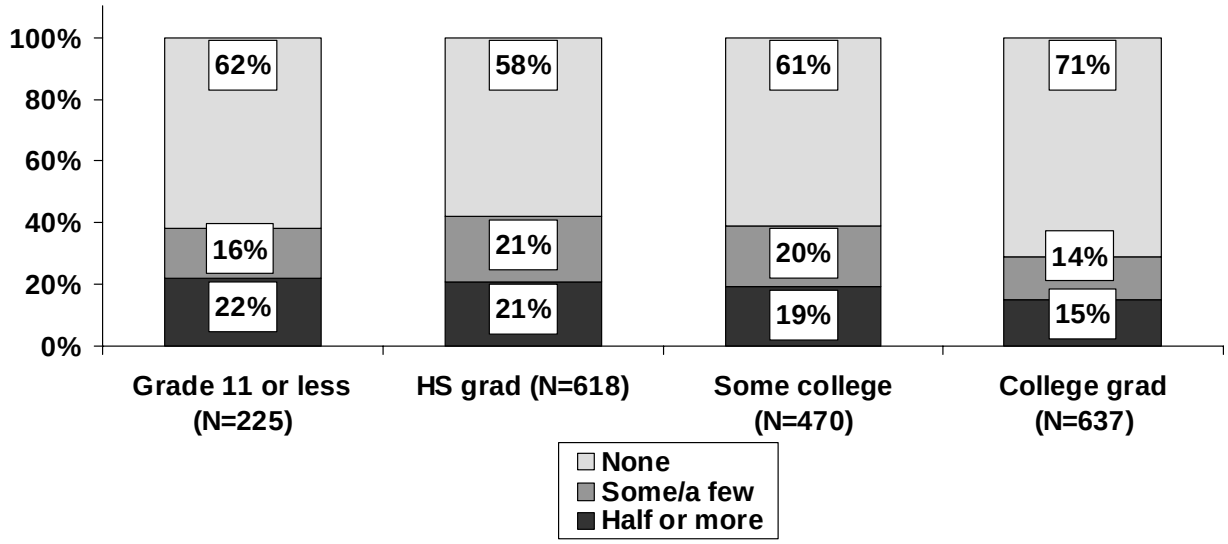
Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

See page xx for background information on racial and ethnic categories.

* The Motor Vehicle Occupant Safety Survey collects data from all races. However, because of their small numbers in the survey sample and the resulting reduction in the precision of associated sample estimates, this report does not include breakouts of the data for American Indians and Alaskan Natives, Asians, and Native Hawaiians and Other Pacific Islanders.

Children were least likely to sit in the front seat if the driver was a college graduate (71% said the child never rode in the front seat compared to 62% or less among groups with fewer years of formal schooling). There was little appreciable difference in child's seating position between drivers with some college experience versus those who completed high school but did not enter college versus those who did not graduate high school.

Figure 4
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Education Of Adult Respondent

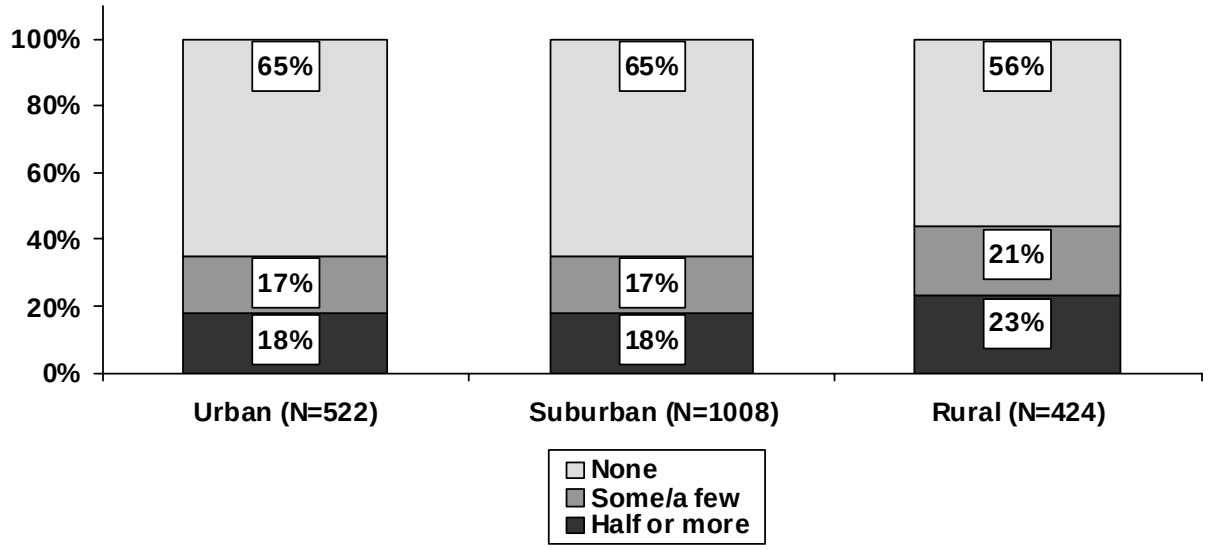


Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

Children in rural areas were more likely to sit in the front seat than children in urban or suburban areas. Almost one-fourth (23%) of drivers in rural areas said the child rode in the front seat half or more of the time when riding with them compared to 18% of drivers in urban areas and 18% of those in suburban areas.

Figure 5
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Urbanicity

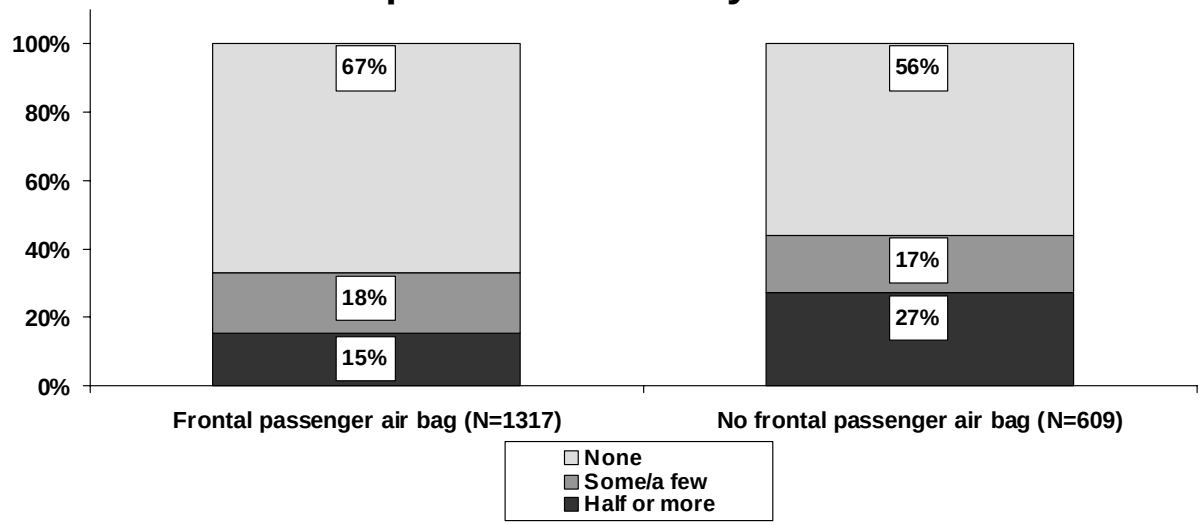


Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

The data suggested that public information campaigns warning about the danger of frontal passenger air bags to children sitting in the front seat have had an impact on the public. Among drivers whose primary vehicle had a frontal passenger air bag, 67% said that the child never sat in the front during the past 30 days. This was about 11 percentage points higher than among drivers who had no frontal passenger air bag in the primary vehicle (56%).

Figure 6
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Frontal Passenger Air Bag In Respondent's Primary Vehicle

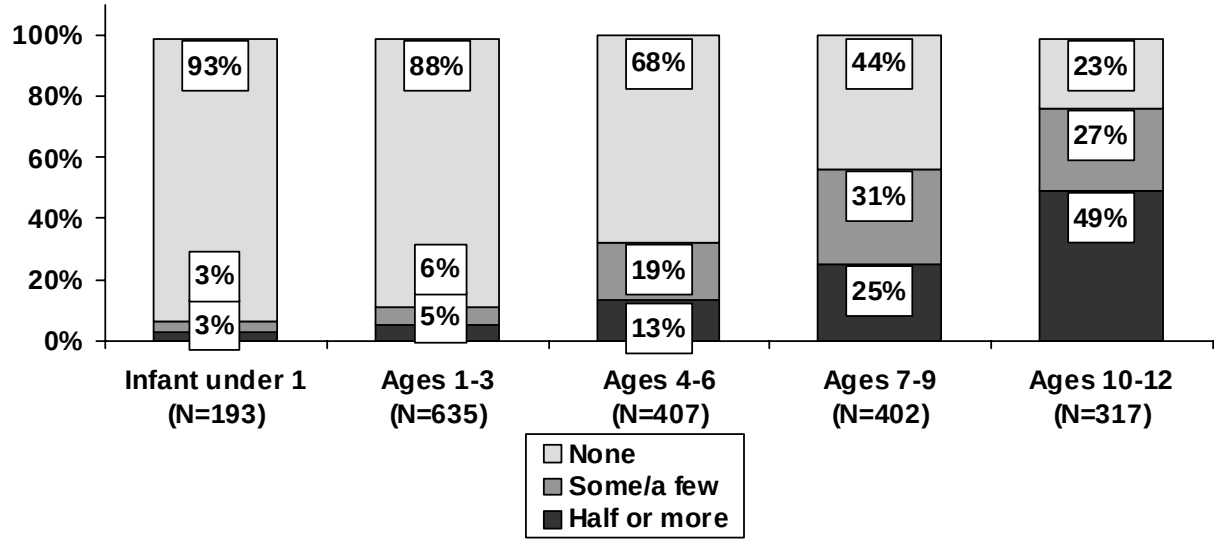


Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

As children became older, they became increasingly likely to ride in the front seat of the vehicle. Whereas about nine-in-ten infants and toddlers reportedly never sat at all in the front seat during the past 30 days, the percentage fell to 68% among 4-to-6 year olds and then to 44% of 7-to-9 year olds. Among 10-to-12 year olds, about half (49%) reportedly rode in the front seat half or more of the time.

Figure 7
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Age Of Child

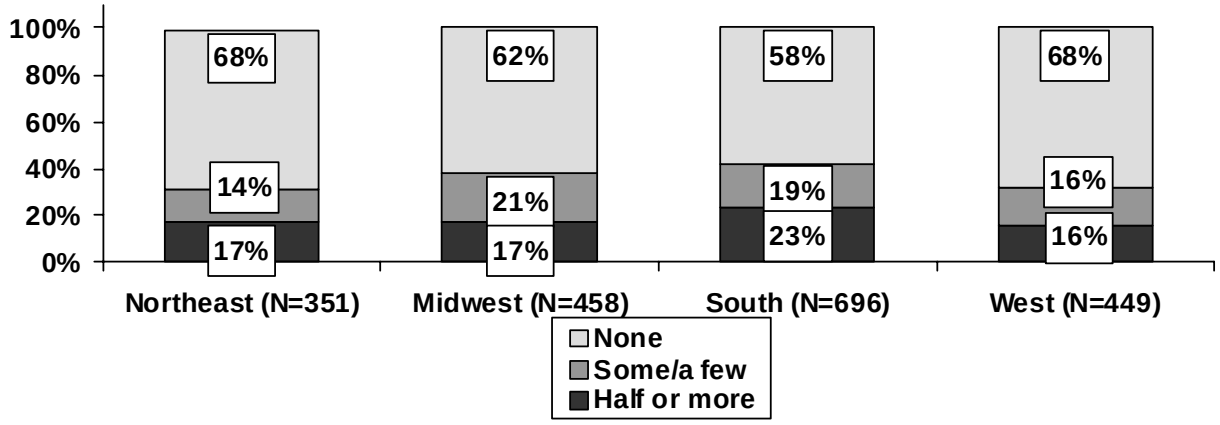


Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

Respondents in the Northeast (68%) and West regions (68%) of the country were more likely to report that the child never rode in the front seat during the past 30 days than those in the Midwest (62%) and South (58%).

Figure 8
Proportion Of Youngest Child's Trips In Front Seat In Past 30 Days By Region Of Country



Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger.

Unweighted N's listed above.

Northeast: CT, ME, MA, NH, NJ, NY, PA, RI, VT

Midwest: IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI

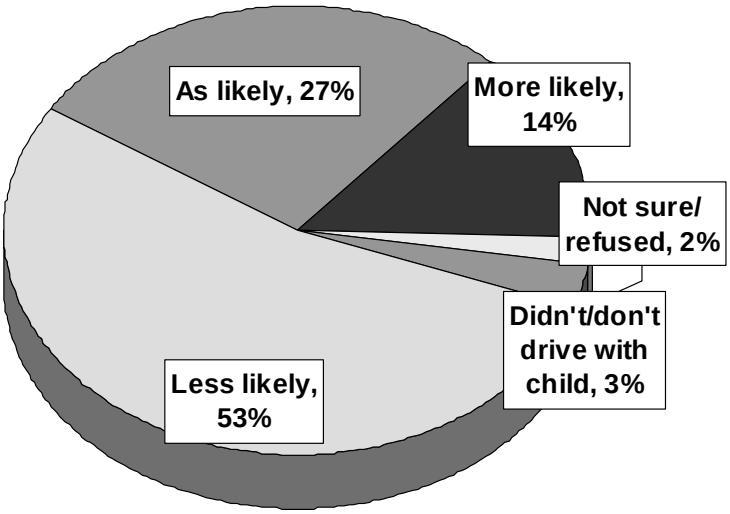
South: AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV

West: AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY

Change In Seating Position Of Child Age 12 or Younger From 12 Months Ago

Besides asking about the youngest child's seating position during the most recent 30-day time period, the interviewers asked if the child's usual seating position when riding with the respondent had changed from a year earlier. Slightly more than half (53%) of the children were now less likely than a year ago to ride in the front seat. Another 27% were said to be just as likely to ride in the front compared to a year earlier, while 14% were said to be more likely to ride in the front.

Figure 9
Is The Youngest Child More Likely, Less Likely, Or Just As Likely To Ride In Front Seat Than 12 Months Ago?



Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

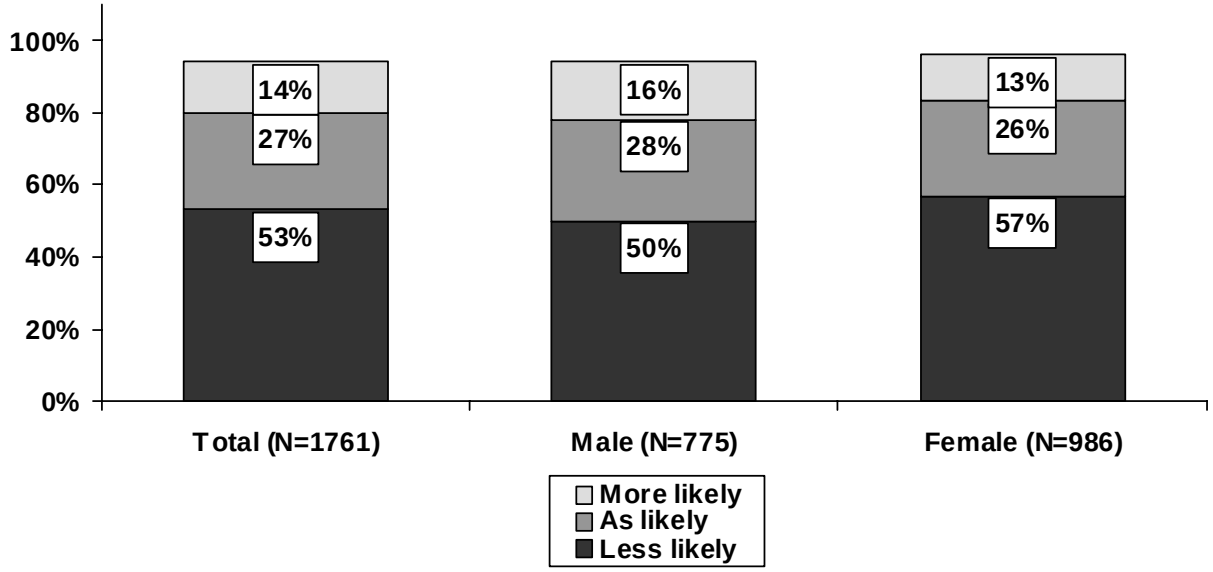
Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12.

Unweighted N=1761

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

Fifty-seven percent of female drivers reported that the child was now less likely to ride in the front compared to 50% of male drivers.

Figure 10
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Sex Of Adult Driver

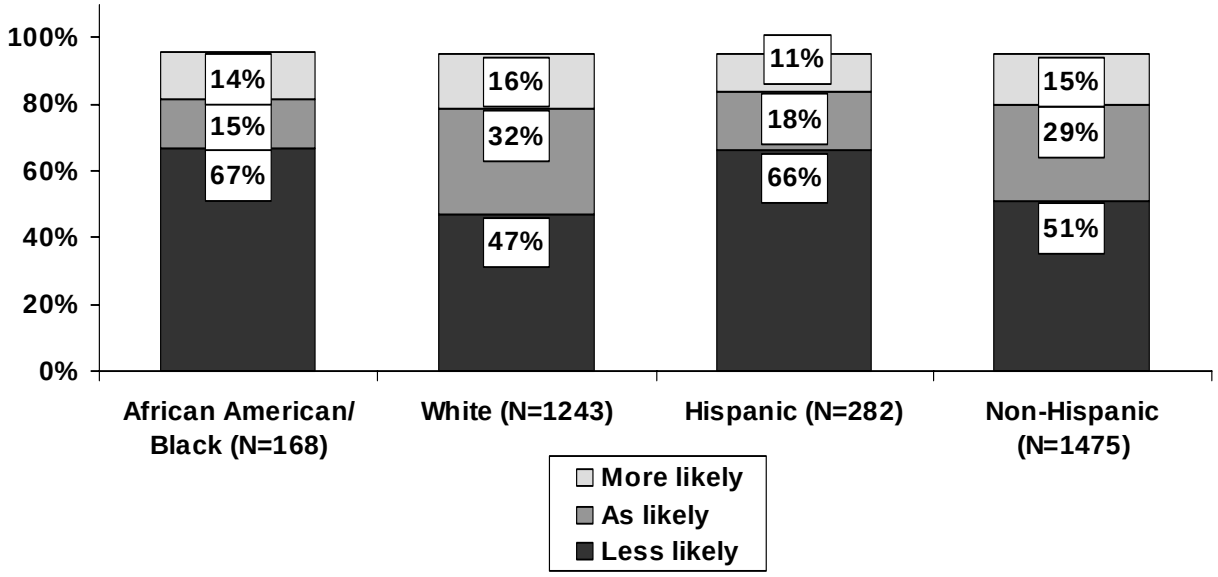


Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12. Unweighted N's listed above.

As noted on page 4, the numbers of African American/Black and Hispanic drivers in the sample who resided with children age 12 and younger were relatively small. Thus readers once again are cautioned against over-interpreting the results. About two-thirds of African American/Black drivers (67%) reported that the youngest child was now less likely to ride in the front compared to less than half (47%) of White drivers. About two-thirds of Hispanic drivers (66%) reported that the youngest child was now less likely to ride in the front compared to about half (51%) of non-Hispanic drivers.

Figure 11
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Race/Ethnicity Of Adult Driver



Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

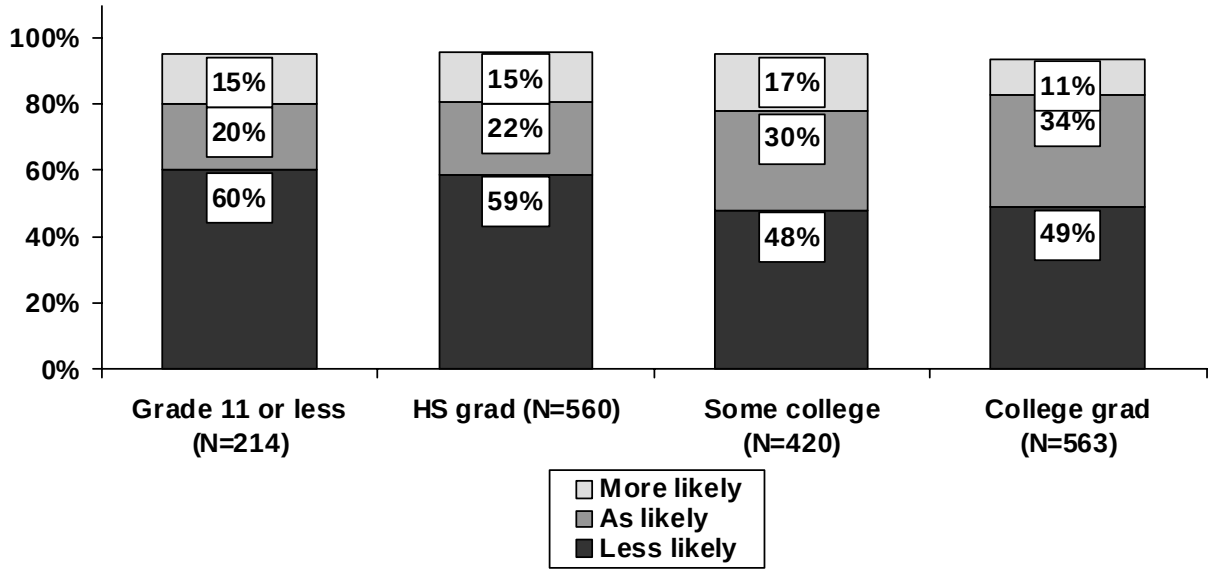
Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12.

Unweighted N's listed above.

See page xx for background information on racial and ethnic categories.

Drivers with no college education were more likely to indicate movement of the child from the front seat to the back (59%-60%) than drivers with some college (48%) or a college degree (49%).

Figure 12
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Education Of Adult Driver

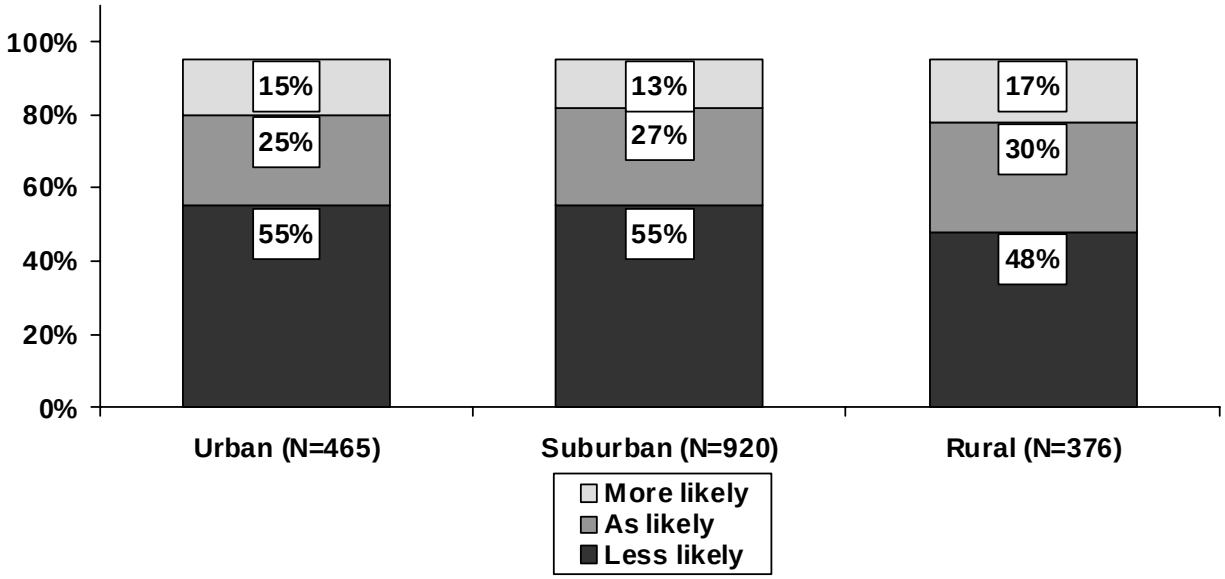


Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12. Unweighted N's listed above.

More than half of drivers in urban and suburban areas (55%) said that the child was now less likely to ride in the front seat. Just under half of drivers in rural areas said the youngest child was now less likely to ride in the front seat.

Figure 13
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Urbanicity

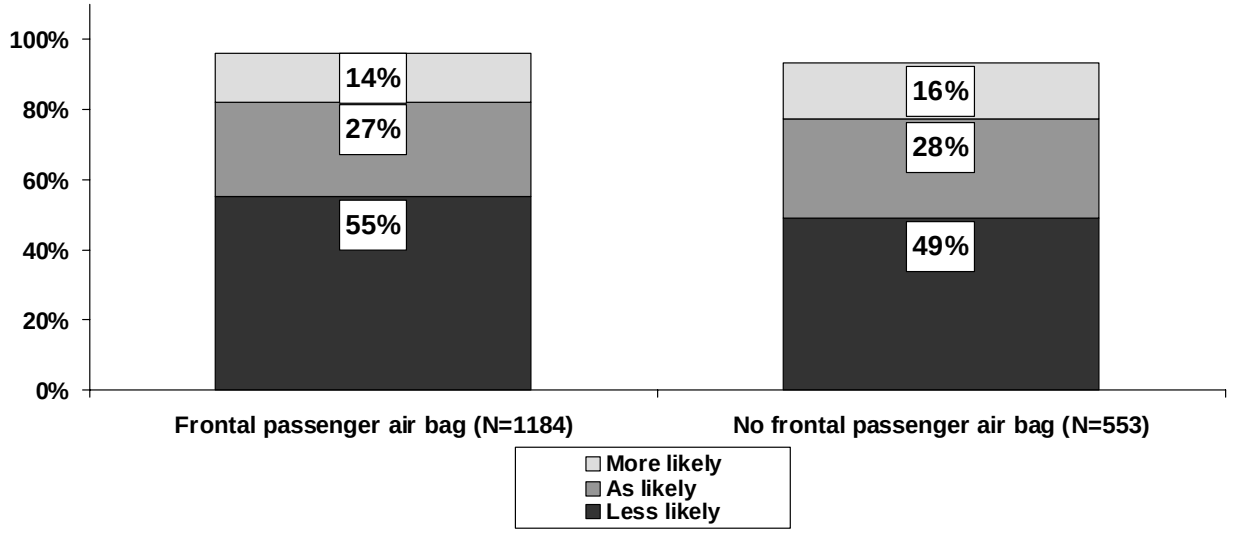


Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12. Unweighted N's listed above.

Respondents were more likely to report movement of the youngest child from the front to the back seat if they had a frontal passenger air bag in their primary vehicle. Fifty-five percent with frontal passenger air bags said the child was less likely now than 12 months ago to sit in the front compared to 49% who had no frontal passenger air bag in their primary vehicle.

Figure 14
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Presence Of Frontal Passenger Air Bag

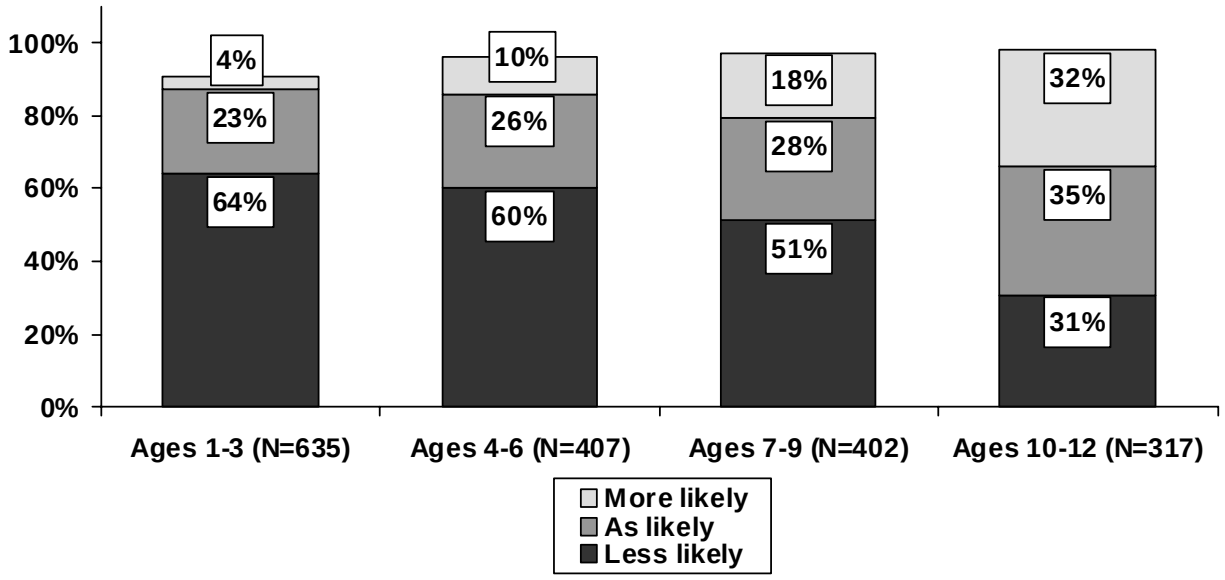


Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12. Unweighted N's listed above.

Movement to the front seat increased as the age of the child increased. Only 4% of children ages 1 through 3 were more likely to sit in the front seat of the motor vehicle compared to 12 months earlier. This increased to 10% for ages 4 to 6, 18% for ages 7 to 9, and 32% for ages 10 to 12.

Figure 15
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Age Of Child

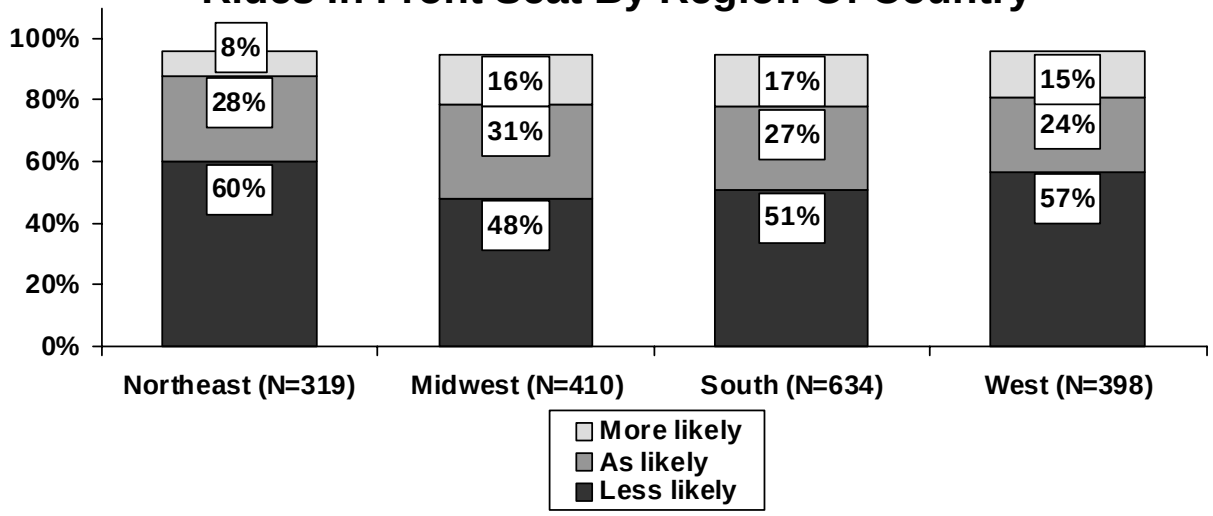


Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12. Unweighted N's listed above.

About three-fifths of drivers in the Northeast region (60%) and West region (57%) of the country reported a lesser likelihood of the child riding in the front seat compared to a year ago. Only about half of drivers in the Midwest (48%) and South (51%) reported a lesser likelihood of the child riding in the front seat compared to a year ago.

Figure 16
Change From 12 Months Ago In How Frequently Child Rides In Front Seat By Region Of Country



Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12.

Unweighted N's listed above.

Northeast: CT, ME, MA, NH, NJ, NY, PA, RI, VT

Midwest: IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI

South: AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV

West: AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY

If the child was more likely to ride in the front seat than a year earlier, the interviewers asked for the reason. Most often, it was attributed to the maturation of the child; i.e., the child was now older and larger (34%). The absence of any other place for the child to ride (18%) and the child's preference to ride in the front seat (14%) ranked second and third, respectively.

Table 1
Reason Child Is More Likely To Ride In Front Than 12 Months Ago

Reason	Percent
Child is older/larger	34%
No other place for child in vehicle	18%
Child prefers the front	14%
Child and I are the only ones in vehicle	11%
Child likes to sit by me	8%
I want to be able to see/reach child	5%
Other	9%
Not sure/refused/no response	3%

Qx: Why is this child more likely to ride in the front seat when you drive?

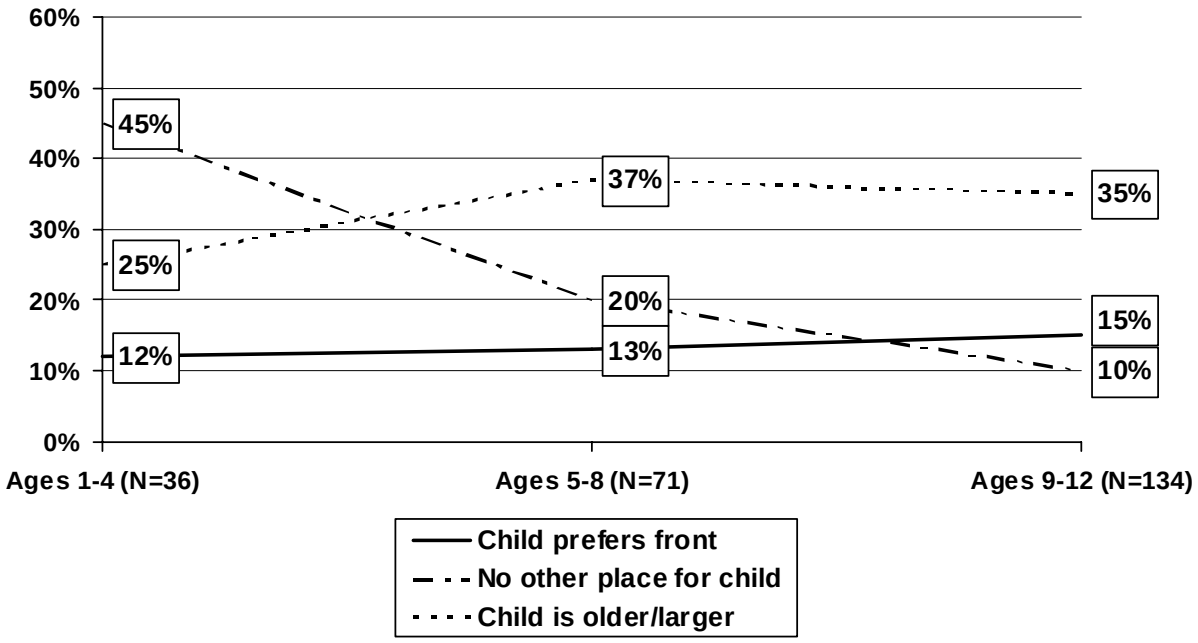
Base: Said the designated child was more likely to ride in the front seat compared to 12 months ago.

Unweighted N=241

Total exceeds 100% due to multiple responses.

The sample sizes shown in Figure 17 reflect the finding on page 16 that older children were more likely to transfer to the front seat. But the major reasons given for this movement were in evidence for younger children as well.

Figure 17
Reason Child Is More Likely To Ride In Front By Child's Age



Qx: Why is this child more likely to ride in the front seat when you drive?

Base: Said the designated child was more likely to ride in the front seat compared to 12 months ago. Unweighted N's listed above.

Similarly, if the child was less likely to ride in the front seat than 12 months ago, the interviewer asked for the reason. Most often, the respondents replied that it was “safer in the back seat” (46%). They also specifically referred to danger from air bags (20%). Other reported reasons are shown in the Table below.

Table 2
Reason Child Is Less Likely To Ride In Front Than 12 Months Ago

Reason	Percent
Safer in back	46%
Danger from air bags	20%
Child’s car seat is in back	15%
It’s the law	8%
No other place for child in vehicle	5%
Child prefers back	5%
Child is too young/not old enough	4%
Other	4%
Not sure/refused/no response	3%

Qx: Why is this child less likely to ride in the front seat when you drive?

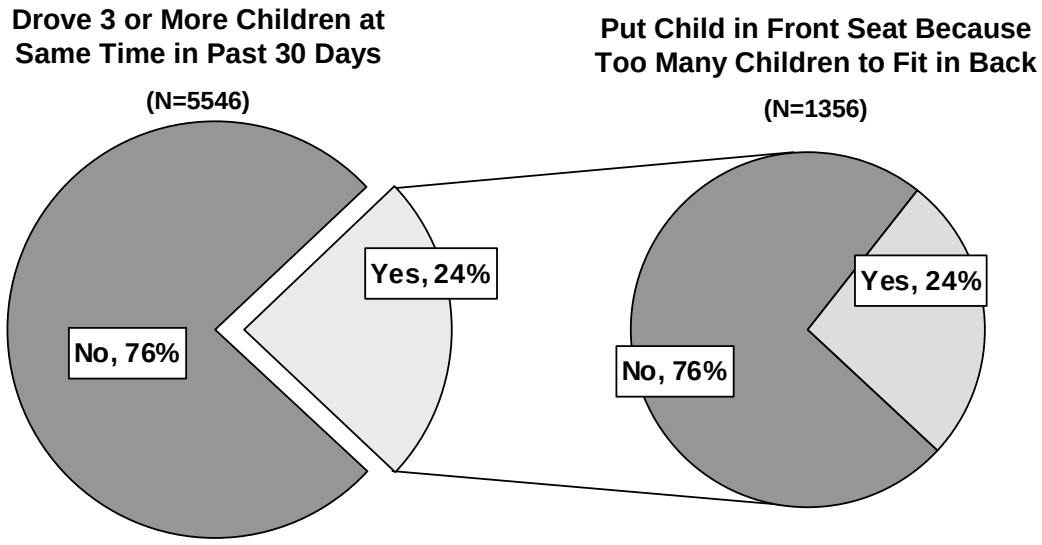
Base: Said the designated child was less likely to ride in the front seat compared to 12 months ago. Unweighted N=934

Total exceeds 100% due to multiple responses.

Moving Children To Front Because Of Number Of Children

Drivers living with a child, and drivers not living with a child, were both asked about their recent experience in transporting multiple children. The goal was to explore the extent to which adults are forced to place children in the front because of the number of child passengers. About one-quarter (24%) of drivers had driven a motor vehicle in the past 30 days in which they had 3 or more child passengers at the same time, and 24% of these had put a child in the front seat during that time because there were too many children to fit in the back. In total, 6% of all drivers (24% of the 24%) had put a child in the front seat in the past 30 days due to the number of children.

Figure 18
Whether Had To Place Child Up Front Because Of Number Of Children



Qx: In the past 30 days, have you driven a motor vehicle in which you had three or more child passengers at the same time?

Qx: Were there any days out of the past 30 where you had to put a child in the front seat because there were too many children to fit in the back?

Base: Drivers whose primary vehicle is not a motorcycle.

Unweighted N's listed above.

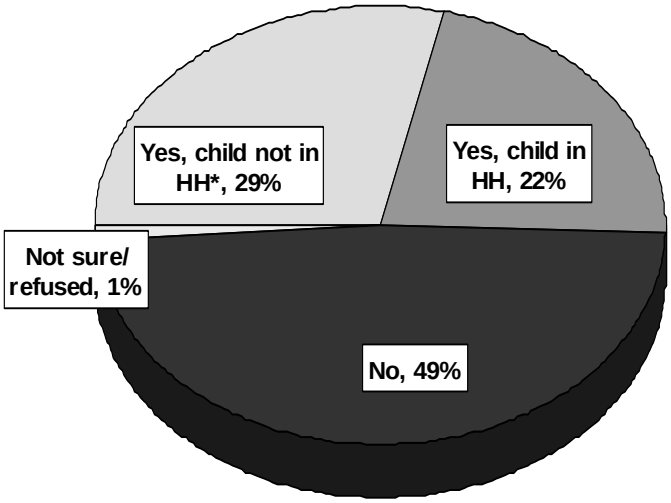
2003 SURVEY RESULTS

CHAPTER 2: TRANSPORTERS OF YOUNG CHILDREN

Driving With A Child Under Age 9

About half of all drivers had driven a motor vehicle in the past year with a child under age 9 as a passenger. Twenty-two percent had driven a child in that age range that lived in their household. A slightly larger percentage of the driver population (29%) did not live with a child under the age of nine but nonetheless had driven a child of that age in the past year. Thus efforts to educate the public about the importance of proper restraint use for children would miss a large proportion of drivers who transport children if limited to those residing in the child's household.

Figure 19
Driven In Past Year With Child Passenger Under Age 9



Qx: Do you ever drive with (the child/ at least one of the children under age 9) that you just mentioned in your (car/truck/van)?

Qx: In the past 12 months, have you driven with any children under age 9?

Base: Drives a motor vehicle.

Unweighted N=5509

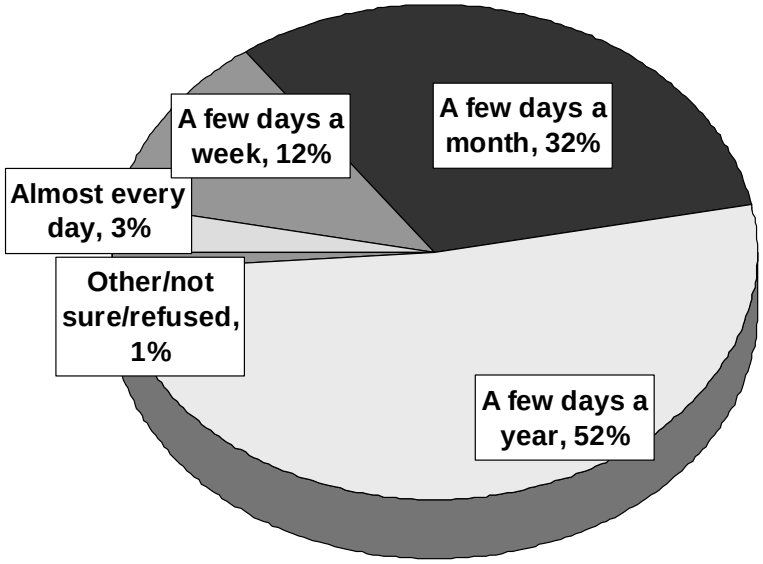
**Includes 6 drivers who drove children under 9 living outside the household, but not children under 9 who were living within their household. The rest of this chapter treats them as drivers who do not live with a young child.*

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

Drivers Who Do Not Live With The Child

Whereas the majority of drivers who had transported a child under age nine in the past year did not live with a child that age, their frequency of transporting young children would be expected to be less than that of drivers who live with young children. Figure 20 suggests that is the case. Over half (52%) of drivers who drove with a child passenger under age 9 in the past year, despite not living with a child in that age range, did so only a few days a year. Still, 15% of these drivers drove one or more young children either almost every day (3%) or a few days a week (12%). Another 32% drove one or more young children a few days a month.

Figure 20
Frequency Of Driving Children Under Age 9:
Drivers Who Do Not Live With A Young Child



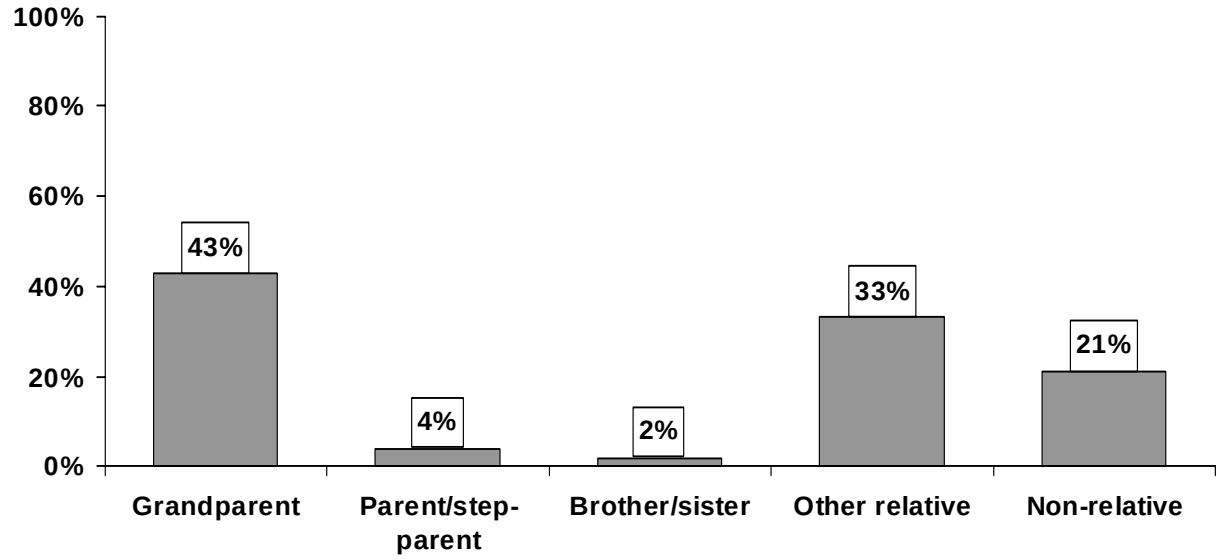
Qx: How often do you drive with children under age nine?

Base: Does not live with a child under age nine, but has driven with child passengers in that age range in the past year.

Unweighted N=1514

When asked their relationship to the young child(ren) outside their household whom they drove, 43% said that they were the grandparents. Small percentages answered that they were the parents/step-parents (4%) or were siblings (2%). One-third (33%) responded that they were some “other relative” than those just mentioned. About one-fifth said they were a non-relative (21%).

Figure 21
Relationship To Child Outside Household Whom They Drive: Drivers Not Living With Young Child



Qx: What is your relationship to the child or children under age 9 that you at least sometimes drive with?

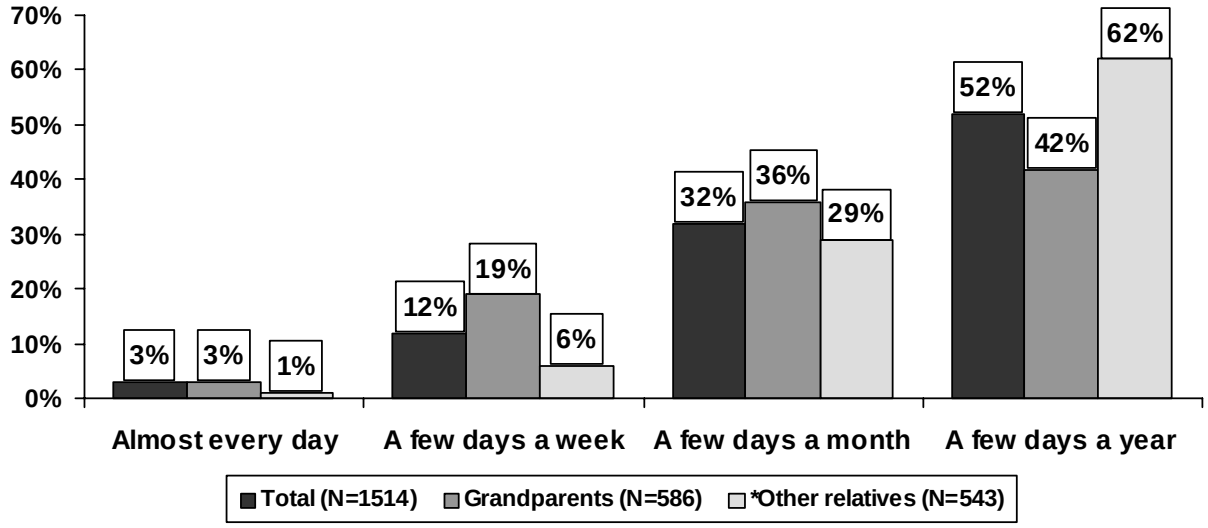
Base: Does not live with a child under age 9, but has driven with child passengers in that age range in the past year.

Unweighted N=1514

Total exceeds 100% due to multiple responses (i.e., they drove with both grandchildren and other children).

As shown on page 26, persons who did not live with a young child but had driven one or more young children in the past year most often were the child(ren)'s grandparents or "other relatives." Figure 22 compares these two groups in their reported frequency of driving young children. It shows that grandparents transported children more often. Among drivers who did not live with a young child but said they drove a young grandchild in the past year, 57%* drove the grandchild at least a few days a month. The comparable figure was 36% for "other relatives" (excluding parents and siblings), and 47% for the total sample (relatives and non-relatives combined).

Figure 22
Frequency Grandparents/Other Relatives Drive Child: Drivers Who Don't Live With Young Child



Qx: What is your relationship to the child or children under age 9 that you at least sometimes drive with?

Qx: How often do you drive with children under age 9?

Base: Does not live with a child under age 9, but has driven with child passengers in that age range in the past year.

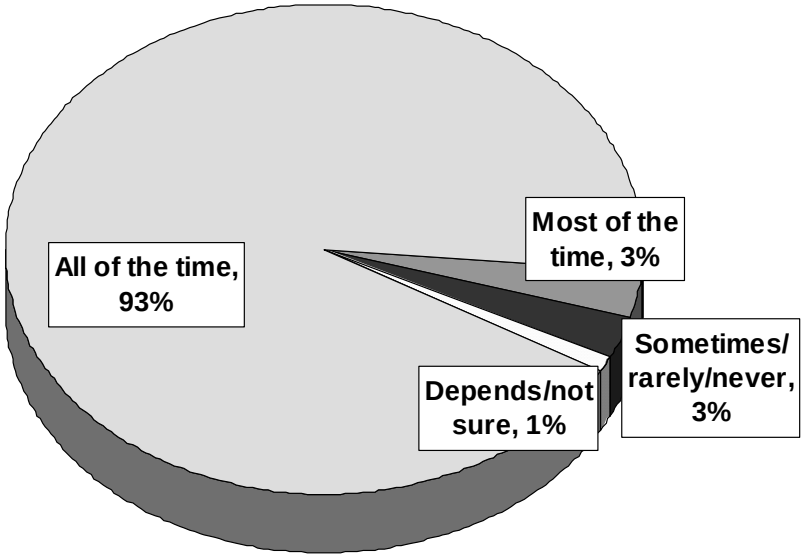
Unweighted N's listed above.

** Excludes parents/step-parents and siblings.*

* 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.

At this point in the interview, those respondents who said they were the parents of the children outside the household they had driven were skipped to a section of the survey asking detailed child restraint questions. The interviewers asked the remaining respondents (the grandparents, other relatives, other non-relatives) how often the child(ren) used restraints when riding with them. Almost all said that the child was in a child car seat or else a safety belt either all the time (93%) or most of the time (3%).

Figure 23
How Often Child Uses Car Seat Or Safety Belt: Drivers (Not Parents) Of Children Outside Home



Qx: *When you are driving and children under age 9 are riding with you, would you say that they are in a child car seat, booster seat, or a seat belt all of the time, most of the time, some of the time, rarely, or never?*

Base: *Does not live with a child under age nine, but has driven with child passengers in that age range in the past year (who were not their own children).*

Unweighted N=1444

2003 SURVEY RESULTS

CHAPTER 3: 2003 CAR SEAT USE

Parent/Caregiver Subgroup

The survey selected a subgroup of drivers to ask detailed questions about children's use of child car seats. These drivers were considered most likely to have significant responsibility for transporting young children ("parents/caregivers"). The respondents were chosen for questioning if they fell into one of the following categories:

> *Parents of children under age 9.* Usually this involved a parent living with their child. Sometimes it was a parent not living with their child, but who drove the child at least on occasion during the past year.
>
> *Non-parents living with children under age 9.* These were drivers who indicated that they at least sometimes drove with a child under 9 who lives in their household.

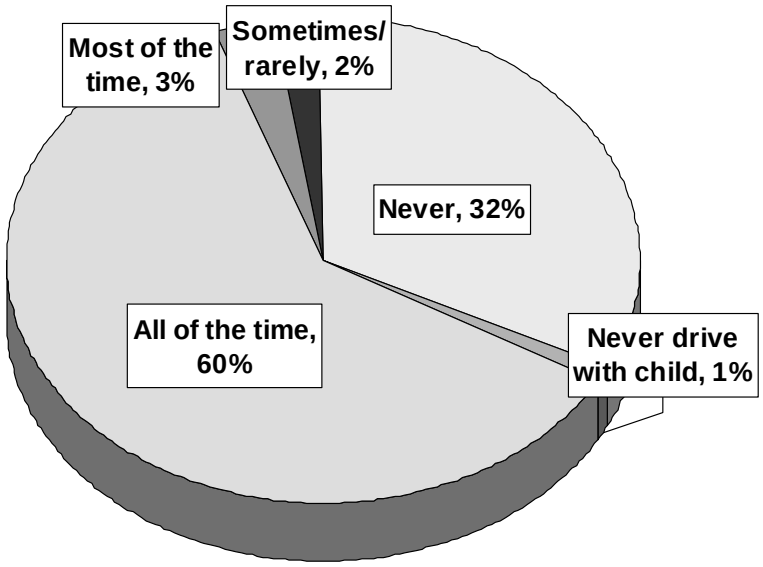
Because the 1994, 1996 and 1998 Motor Vehicle Occupant Safety Surveys used age 5 rather than age 8 as the upper age limit for the child, the data from the 2000 and 2003 survey are derived from a somewhat different group. The age limit was raised to 8 in order to cover the age range for which booster seats are generally recommended (ages 4 to 8, see discussion below). The interviewers asked respondents to focus on one specific child for the questions. If there was more than one child under age 9 in the household, one child was randomly selected. Respondents were asked about car seat use with the selected child. This procedure yields a national sample of drivers for whom car seat usage issues would be most applicable.

Reported Frequency Of Car Seat Use

Interviewers asked the above driver subgroup how frequently the selected child uses a car seat when riding with them. They were told that car seats for purposes of the survey included infant seats, toddler seats, and booster seats. Responses to this question are to be interpreted with caution, as car seats may not be appropriate for larger children under age 9. The safety restraint system used should be the one appropriate for the child's size and development. Children should ride rear facing until at least 20 pounds and one year of age. Children who reach 20 pounds before one year of age should ride rear facing in a child safety seat recommended at a higher weight. Keeping a child rear facing as long as possible helps protect the fragile baby from spinal cord injuries (i.e., the back of the car seat supports the infant's head, neck and back and prevents spinal cord injuries in a frontal crash). Past the first year of age, children weighing about 20 to 40 pounds should ride facing forward in convertible seats or forward facing only seats. Children who have outgrown their child safety seats at 40 pounds or approximately 4 years of age should ride in booster seats until adult belts fit them properly, at least until the age of 8, unless 4'9" in height. Older children may wear vehicle safety belts when the lap belt stays low and snug across the hips without riding up over the stomach, and the shoulder belt does not cross the face or neck.

The majority of the parent/caregiver subgroup reported that the selected child used a car seat “all of the time” (60%). About one-third said the selected child “never” used a car seat (32%). Only 6% said that the child was a car seat user, but not all the time (3.3% most of the time, 1.4% sometimes, and 1.0% rarely). A few said they never drive with that child (1%). Less than 0.5% said they did not know or refused to respond. If the child never used a car seat, it usually was because the child reportedly had graduated to safety belt usage (see page 100).

Figure 24
Frequency Child Under 9 Rides In Car Seat



Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

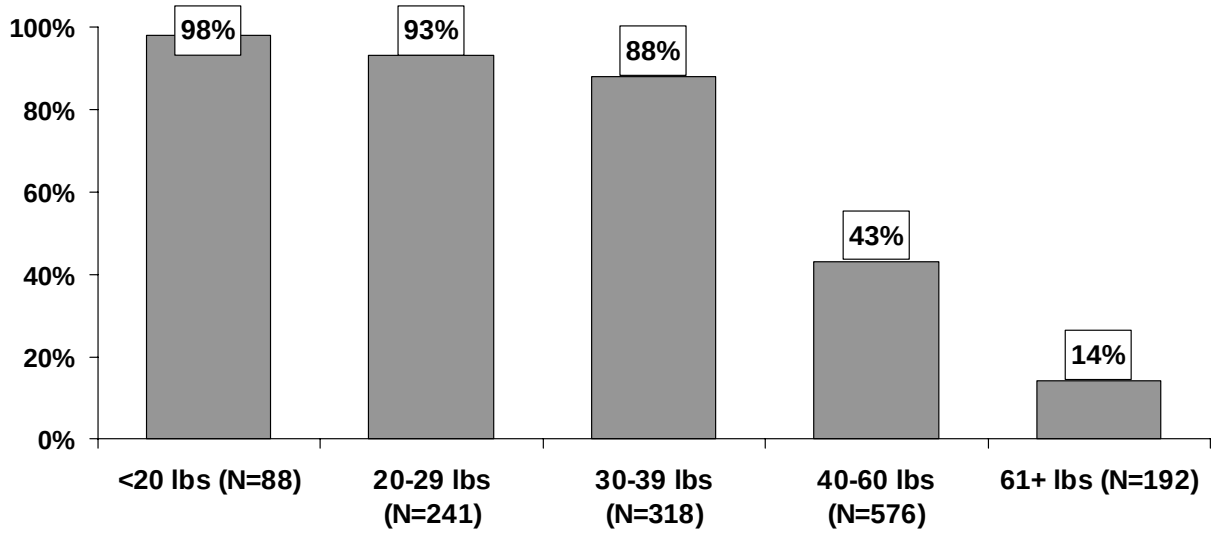
Base: Parents/caregivers as defined on page 30.

Unweighted N=1440

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

Consistent car seat use is related to weight of the child. Nearly all parents/caregivers in the survey reported that the selected child always used a car seat when riding with them if the child weighed less than 20 pounds (98%). "All the time" car seat use decreased to 93% of children 20-29 pounds, and 88% of children weighing 30-39 pounds. Regular use declined sharply to 43% of children weighing 40-60 pounds while only 14% of children weighing 61 pounds or more used a car seat all of the time (this largely reflected the graduation of these children to safety belts).

Figure 25
"All Of The Time" Car Seat Use By Child's Weight (Children Under Age 9)



Qx: How much does (AGE) weigh?

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

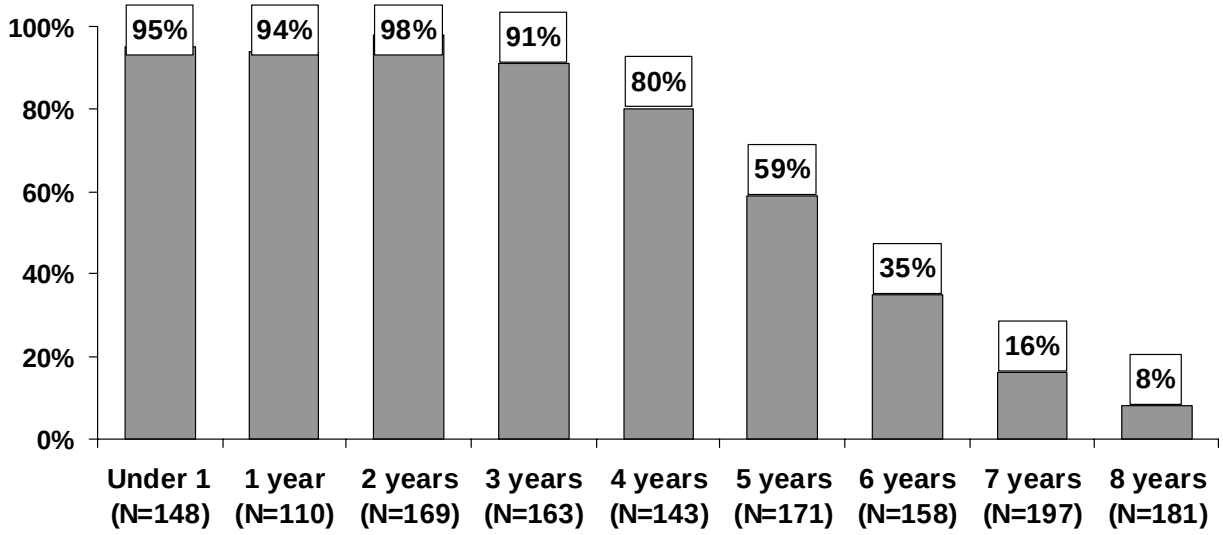
Base: Parents/caregivers as defined on page 30.

Unweighted N's listed above.

Ninety-six percent of children age 2 and younger rode in child car seats all of the time. This number drops to 91% of 3 year olds, 80% of 4 year olds, and then more dramatically to 59% of 5 year olds.

Discontinuation of car seat use by most children occurred by 6 years of age. Only 35% of children age 6 reportedly used a child seat all the time, and this number dropped by more than half (to 16%) by age 7, and then again by half to only 8% by age 8.

Figure 26
"All Of The Time" Car Seat Use By Child's Age
(Children Under Age 9)



Qx: What is the age of the (CHILD)?

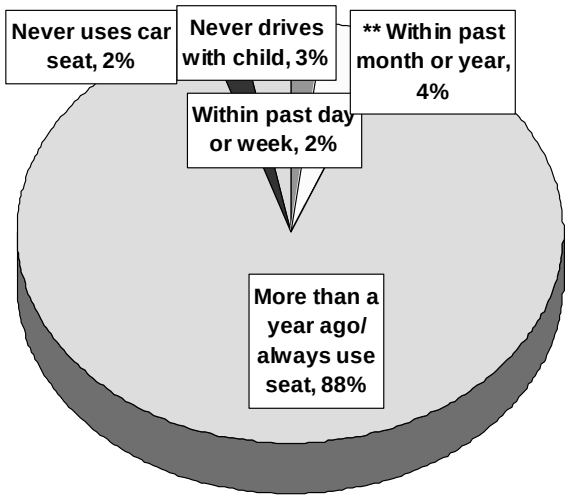
Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

Base: Parents/caregivers as defined on page 30.

Unweighted N's listed above.

Research on adult safety belt use has found that some drivers will report wearing safety belts "all the time" but admit on a follow-up question that they did not use their safety belt recently (7% of drivers in 2003; see Volume 2 of this series: Safety Belt Report). Figure 27 examines whether this discrepancy also occurs for reported car seat use. Among drivers who said the child always used a car seat when riding with them, 2% also said the child had not ridden in a car seat at least once in the past day or week when the respondent was driving the child. The survey recorded another 2% as saying that the child never uses a car seat, contradicting the response to the previous question that the child always used a car seat.

Figure 27
Last Time Child Didn't Use Car Seat
(If Child Was Reported To Use Seat "All Of The Time")



Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

Qx: When was the last time the (AGE) DID NOT ride in a child car seat when you were driving?

Qx: [If "don't know"] Has there been any occasion in the past 12 months when the (AGE) did not ride in a car seat when you were driving?

Base: Drivers who said child uses car seat "all of the time" when they drive.

Unweighted N=885

***Includes 2% past month (but not within past week) and 2% past year (but not within past month).*

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

Type And Location Of Car Seat

The remainder of this chapter summarizes data exclusively for those children that the survey determined at least on occasion used a child restraint while riding in motor vehicles. Excluded from the analyses were children whom parents/caregivers said never used a child seat (infant seat, front facing child safety seat, or booster seat), and children whom the parents/caregivers never drove. Also excluded were cases where parents/caregivers did not respond when asked how often the child used a child seat (an entry question to the series), and cases where an initial response that the child used a child seat was subsequently contradicted (primarily during the immediate follow-up question shown on page 34).

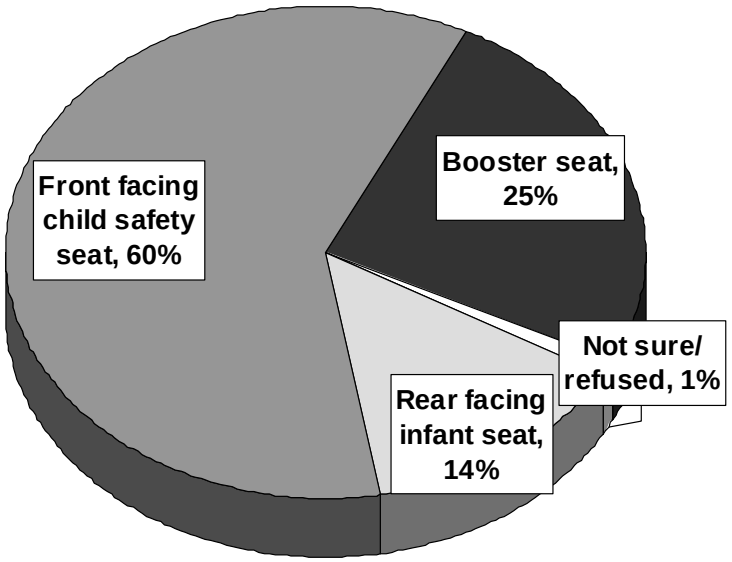
Parents/caregivers who reported car seat use for the designated child were asked questions to identify the type of seat being used. This was a complicated matter because persons may use terms to identify their child seat that differs from terminology employed by safety professionals. Thus, for example, directly asking a respondent if the seat is a booster seat may lead to error because “booster seat” may be an unfamiliar term to the respondent or have a different meaning. To address this problem, the interviewers asked respondents about strap location over the child’s shoulders. Beginning with the 1994 MVOSS, the interviewers asked “When the [CHILD] is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder”? Both infant seats and front facing child safety seats have straps crossing both of the child’s shoulders. A strap over one shoulder is characteristic of a belt positioning booster. If neither shoulder has a strap over it, then this should be a shield booster. Thus, if the parent/caregiver said there was a strap over only one shoulder, or over neither shoulder, then the survey considered that a booster seat. If the parent/caregiver said there were straps over both shoulders, then the interviewer asked if the child usually sat front facing or rear facing in the seat, with rear facing being indicative of an infant seating position.

The strap location question did not resolve all problems in identifying type of child seat. For example, the 1998 survey identified one-tenth of infants as using booster sets. As a result, the 2000 survey added follow-up probes to the strap location question. These were asked only of parents/caregivers who said there was a strap over one shoulder or neither shoulder, and were intended to corroborate the “booster seat” determinations. While in many cases they did so, there were sufficient discrepancies to underscore the difficult nature of determining type of child seat over the telephone. The probes were unable to provide clear direction for making adjustments to identified seat type, therefore the 2003 survey continues the practice of past Motor Vehicle Occupant Safety Surveys of defining as booster seats all seats that met the strap definition described above (i.e., parents/caregivers reported a strap over one shoulder or neither shoulder).

The remainder of this chapter presents data only for those children using child restraints at least on occasion. Readers who wish to know the percentage of all children at a specified age or weight using a particular type of restraint can find that information on pages 107-108.

Based on the definition described on the previous page, the survey determined that about 25% of children under age 9 who at least on occasion were using child restraints were riding in booster seats. Of the remainder, 60% were riding in front facing child safety seats, 14% in rear facing infant seats, and about 1% did not provide information from which the type of child seat could be determined.

Figure 28
Type Of Child Car Seat



Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?

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

Base: Child at least on occasion rides in a child car seat.

Unweighted N=915

Infants who have not reached their first birthday should always ride in a rear facing position in a car seat regardless of the child's size. Most infants who used car seats (72%) did ride in a rear facing position. But 20% rode in front facing child safety seats, with another 7% in booster seats. Front facing child safety seats predominated among one-year-olds (87%), two-year-olds (89%), three-year-olds (83%), and four-year-olds (64%). Booster seats accounted for 13% of car seat users among three-year-olds, and then nearly tripled to 35% at age 4. After age 4, booster seats became the predominant child restraint used by children although the listed percentages exaggerate the extent of booster seat use among children over 5 because the majority of children past age 5 never use any type of child seat (see page 107).

Some of the Table 3 numbers reflect the difficulties discussed on page 35 about collecting accurate data on type of child restraint. For example, the survey identified booster seat use by some infants, as well as some older children using rear facing infant seats. Thus readers are cautioned about error within the data.

Table 3
Type Of Child Car Seat By Child's Age

Age (Unweighted N)	<1 (133)	1 (107)	2 (158)	3 (150)	4 (122)	5 (109)	6 (63)	7 (52)	8 (21)
Rear facing seat	72%	9%	1%	2%	1%	4%	1%	2%	9%
Front facing seat	20%	87%	89%	83%	64%	45%	36%	33%	13%
Booster seat	7%	3%	9%	13%	35%	51%	63%	64%	78%
Not sure/refused	0%	1%	2%	1%	0%	0%	0%	2%	0%

Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?

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

Base: Child at least on occasion rides in a child car seat.

About four-fifths (82%) of children weighing less that 20 pounds who used a child seat rode in a rear facing position. A portion (8%) appeared to be using booster seats although, as mentioned earlier, at least some respondents may have made mistakes in describing the seat. Others (10%) provided information suggesting that the child usually rode front facing in a child safety seat. Front facing child safety seats predominated at 20 to 39 pounds. Children 40-60 pounds were only slightly more likely to ride in booster seats (51%) than in front facing child safety seats (46%). Children over 60 pounds were much more likely to ride in booster seats (58%) than front facing child safety seats (29%). Readers are cautioned that some respondents may have been guessing at children's weights.

Table 4
Type Of Child Car Seat By Child's Weight

Weight (Unweighted N)	Less than 20 pounds (81)	20-29 pounds (222)	30-39 pounds (275)	40-60 pounds (297)	61 or more pounds (30)
Rear facing seat	82%	17%	3%	2%	10%
Front facing seat	10%	76%	80%	46%	29%
Booster seat	8%	6%	17%	51%	58%
Not sure/refused	0%	2%	0%	1%	3%

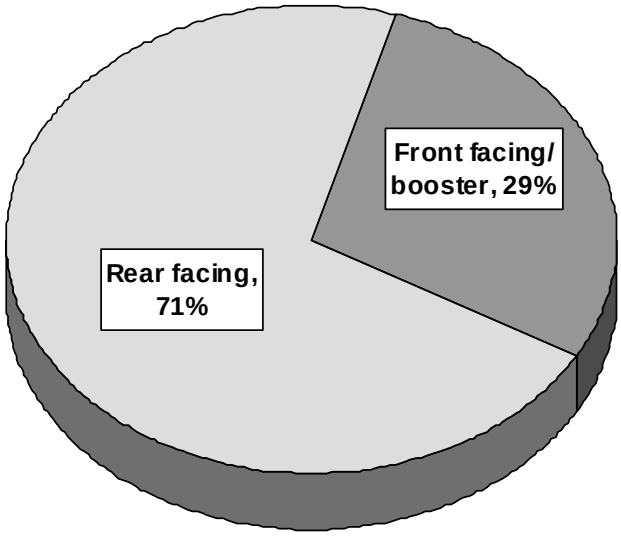
Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?

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

Base: Child at least on occasion rides in a child car seat.

Children should ride rear facing until at least 20 pounds and one year of age. Children who reach 20 pounds before one year of age should ride rear facing in a child safety seat recommended at a higher weight. Keeping a child rear facing as long as possible helps protect the fragile baby from spinal cord injuries. Figure 29 uses the above criteria to identify what percentage of children who should be riding rear facing (those not yet one year old; those not yet 20 pounds) actually were doing so. While most (71%) were riding in the correct rear facing position, many were not.

Figure 29
Car Seat Position Of Children Who Should Be Riding Rear Facing



Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?

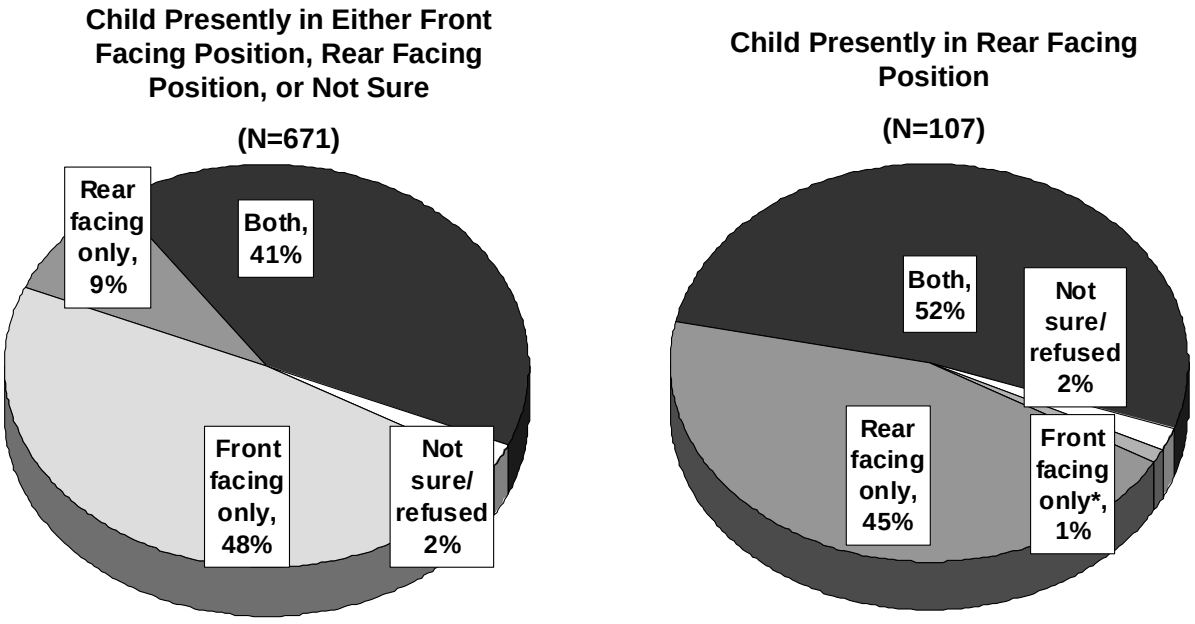
Qx: When you are driving and the (AGE) is riding in the child car seat, is he/she usually front facing or rear facing?

Base: Children under 1 year of age, and children under 20 pounds, who at least on occasion ride in a child car seat.

Unweighted N=137

Some car seats are convertible and can be used in both a front facing and a rear facing position. Thus the same seat could be used for a child who had grown from infant (rear facing) to toddler (front facing), or could revert back to a rear facing position for an infant when an older child has outgrown the seat, or could be used for both infants and toddlers if the driver interacts with children of multiple ages. In cases where the car seat was not a booster seat, 41% of parents/caregivers reported that the seat was convertible. Among children riding in a rear facing position, 52% said the seat can be used in either a front facing or rear facing position.

Figure 30
Whether Car Seat Is Convertible
(Seats Other Than Booster Seats)



Qx: Can the seat be used in a front facing position only, a rear facing position only, or can it be used in either position?

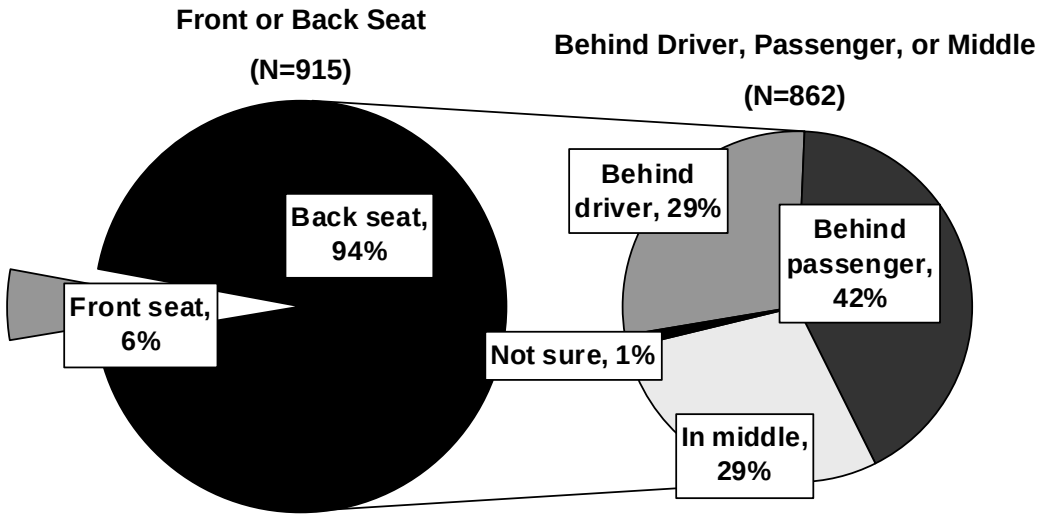
Base: Child under age 9 uses a car seat that is not a booster seat.

Unweighted N's listed above.

**One percent said their child car seat only faces the front and is not convertible to face the rear, although they said their child rode in a rear-facing car seat in an earlier question.*

As noted in Chapter 1, the safest seating position for a child in a motor vehicle is the back seat. The vast majority of parents/caregivers (94%) stated that the child usually sat in the back when riding in a car seat in a vehicle they were driving, most often behind the front passenger (42%), less often in the middle of the back seat (29%) or behind the driver (29%). Six percent reported that the car seat was usually placed in the front.

Figure 31
Placement Of Child's Car Seat



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: Is the child car seat usually behind the driver, behind the passenger, or in the middle of the back seat?

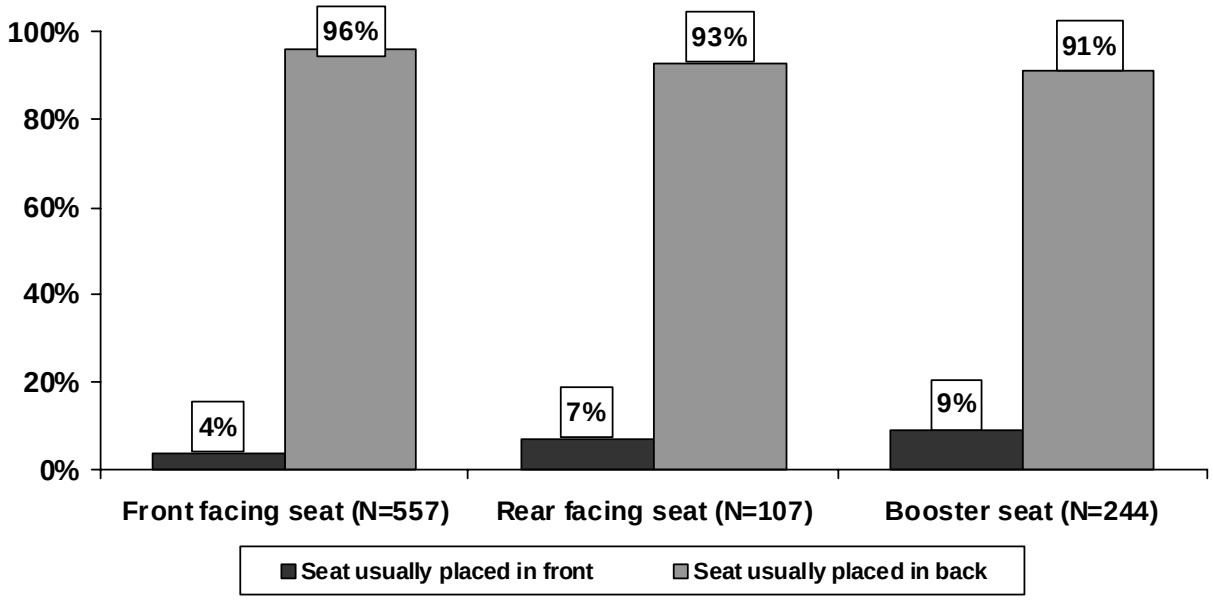
Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N's listed above.

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

The dominant location for placement of the child car seat was the back seat of the vehicle regardless of whether the child was riding in a front facing toddler seat (96%), a rear facing infant seat (93%), or a booster seat (91%).

Figure 32
Placement Of Child's Car Seat By Type Of Car Seat



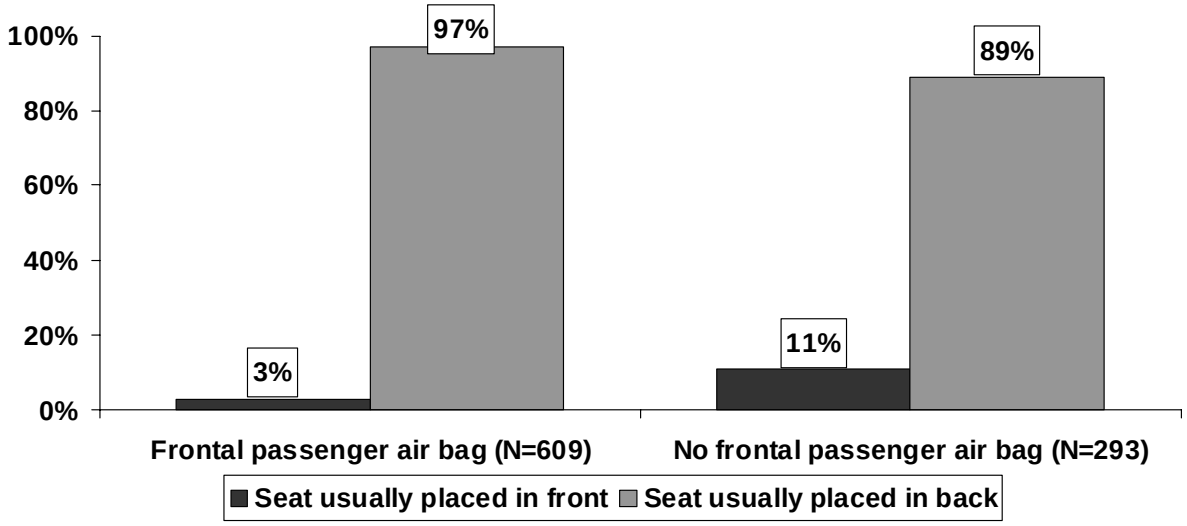
Qx: When you are driving and the (AGE) rides in the child car seat, is (he/she) usually in the front seat or the back seat?

Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N's listed above.

Proportionally fewer parents/caregivers permitted the child car seat to be placed in the front if there was a frontal passenger air bag installed in their primary vehicle. If there was no frontal passenger air bag in the respondent's primary vehicle, then 11% of the parents/caregivers said that the child seat was usually in the front. If the primary vehicle had a frontal passenger air bag, then only 3% said the car seat was usually in the front.

Figure 33
Placement Of Child's Car Seat By Presence Of Frontal Passenger Air Bag In Primary Vehicle



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 where a passenger would sit in the front seat?

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?

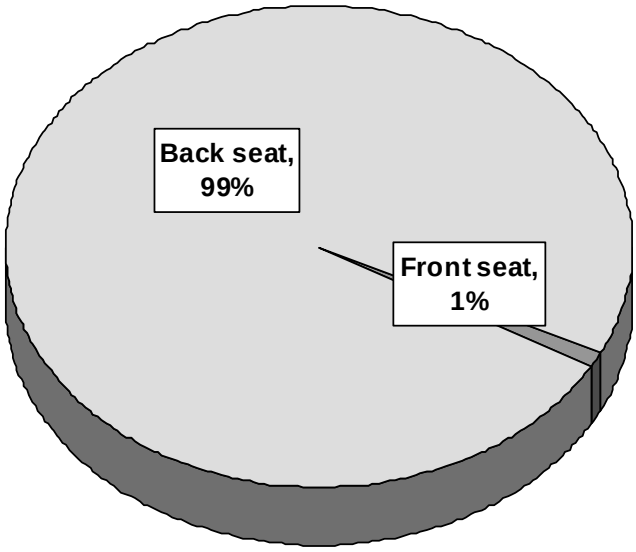
Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N's listed above.

Where Parents/Caregivers Believe It Is Safest To Place A Child Car Seat

Almost all parents/caregivers (99%) considered the back seat the safest location to place a child car seat in a vehicle. The 1% who thought the front seat was safest contrasts with the 6% who said that the child car seat was usually in the front seat when they drove (see page 41).

Figure 34
Where It Is Safest To Place A Child Car Seat In The Vehicle



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?

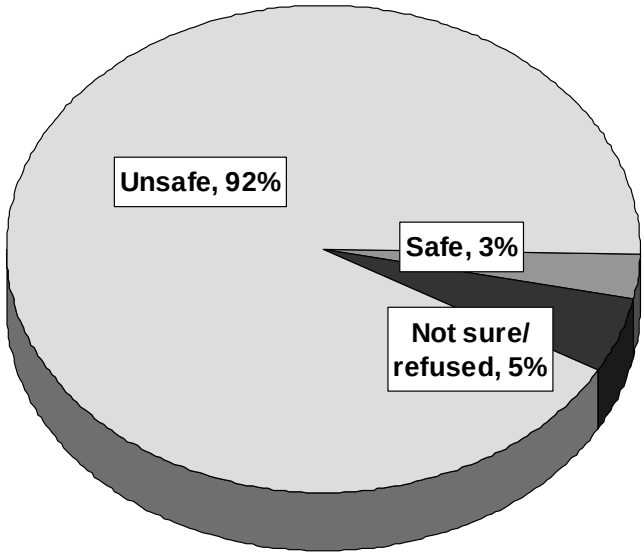
Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

Child Car Seats That Face Forward In Vehicles With Frontal Passenger Air Bags

Parents/caregivers were asked if they thought it was safe to place a rear facing car seat in the front seat of a vehicle having a frontal passenger air bag. The correct answer is no, because it could place the child in the air bag's path, with the force of impact being too great for the child. Most parents/caregivers (92%) correctly said it was unsafe while 3% considered it safe. The remainder either did not know the answer to the question (4%) or else refused to answer (< 0.5%).

Figure 35
Safety Of Child In Front Seat With Frontal Passenger Air Bag When Car Seat Is Rear Facing



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 under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

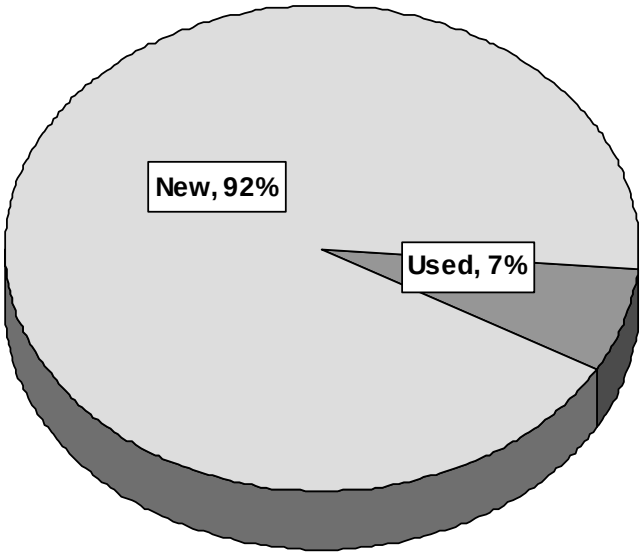
2003 SURVEY RESULTS

CHAPTER 4: 2003 CAR SEAT INSTALLATION, INSPECTION AND TRAINING

Acquisition Of Car Seat

Most car seats (92%) were obtained new. Less than one-in-ten (7%) were acquired used. "Don't know" or refusal to answer accounted for the remaining responses (less than 0.5%).

Figure 36
Whether Car Seat Was New Or Used When Acquired



Qx: Now thinking again about the child car seat the (AGE) usually rides in, did you get the child car seat new or used?

Base: Child under age 9 at least on occasion rides in a child car seat.

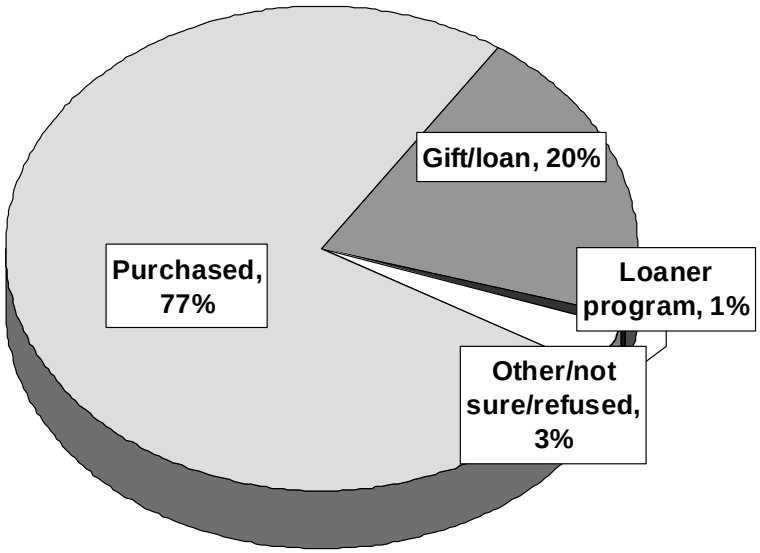
Unweighted N=915

Less than 0.5% answered not sure/refused.

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

More than three-fourths of car seats (77%) were purchased, while 20% were acquired as a gift or loaner from a relative or friend. Another 1% obtained the car seat from a loaner program.

Figure 37
How Child's Car Seat Was Obtained



Qx: Did you purchase the child car seat, did you get it as a gift or loaner from a relative or friend, or did you get it from a loaner program?

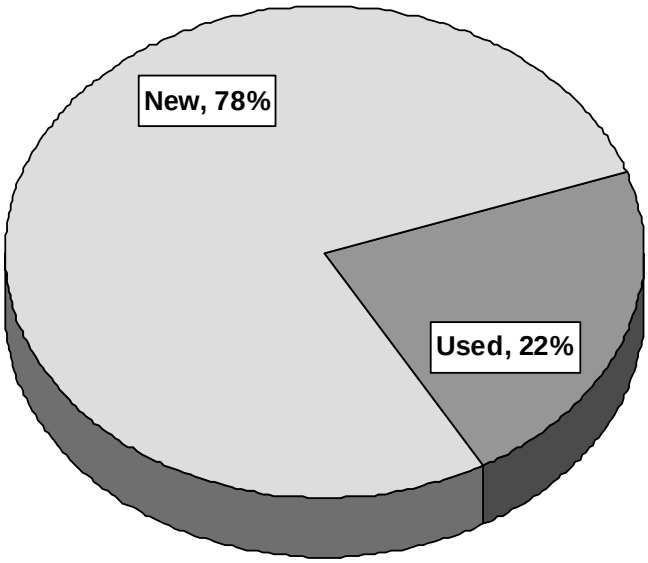
Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

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

More than one-fifth (22%) of parents/caregivers who said that they received the seat as a gift or loaner from a relative or friend also answered that the seat was obtained used.

Figure 38
Whether Car Seat Was Obtained New or Used: Seat Received As Gift Or Loaner From Relative/Friend



Qx: Now thinking again about the child car seat the (AGE) usually rides in, did you get the child car seat new or used?

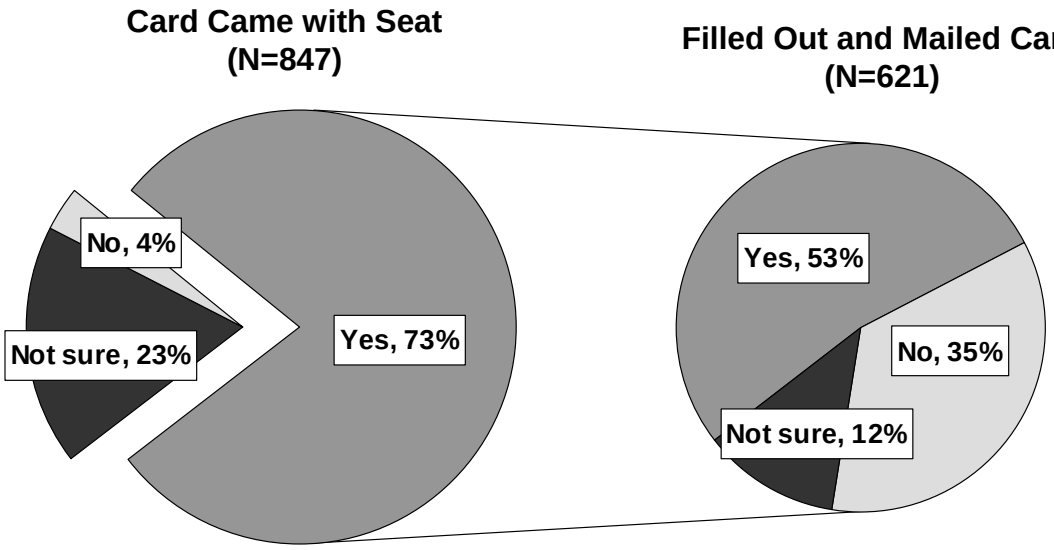
Qx: Did you purchase the child car seat, did you get it as a gift or loaner from a relative or friend, or did you get it from a loaner program?

Base: Obtained the car seat as a gift or loaner from a relative or friend.

Unweighted N=180

Occasions sometimes arise where it is important to reach consumers of specific products with safety information pertaining to those products. A means of locating persons for that purpose is to collect contact information through registration cards that accompany the products. The 2003 survey asked respondents whether a registration card came with the car seat when they got it, and if so, did they fill it out and mail it back. Only parents/caregivers who said they obtained the car seat new received the questions. Almost three-quarters (73%) said a registration card came with the seat. Of these, 53% mailed back the card. Overall, 38% of those who had obtained a child car seat new indicated that a registration card came with the seat, and that they mailed it back (53% of the 73%).

Figure 39
Presence Of Registration Cards With Car Seats, And Whether The Cards Were Mailed Back

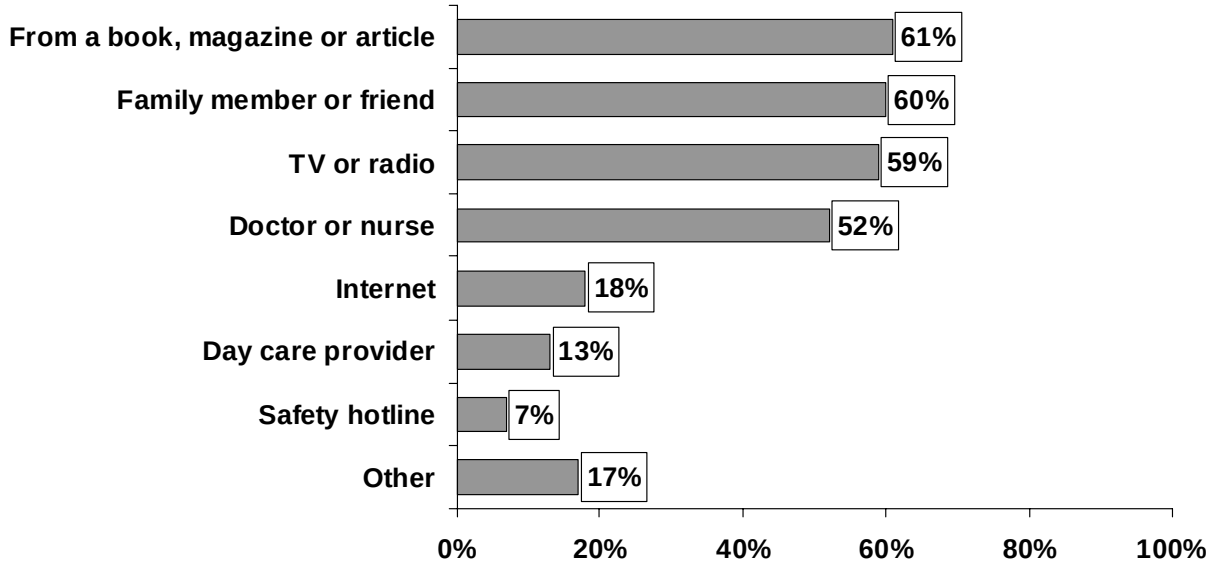


Qx: Was there a registration card that came with the car seat when you got it?
Qx: Did you fill out and mail the registration card?
Base: Obtained the car seat new.
Unweighted N's listed above.

Sources For Information On Car Seats

The interviewers asked the parents/caregivers of children using car seats where they had gotten their information on car seats. Seven potential information sources were read, one at a time, to respondents. The respondents were asked whether they had ever read or heard of any information, or received any advice, about the need to use child car seats from that source. The respondents were then given the opportunity to volunteer additional sources where they had received car seat information. Most often, the parents/caregivers said that they had obtained information on car seats from a book, magazine or article (61%), from a family member or friend (60%) or from TV or radio (59%).

Figure 40
Sources For Information On Child Car Seats



Qx: Did you ever read or hear of any information or receive any advice about the need to use child car seats from any of the following sources? Did you get any information…?

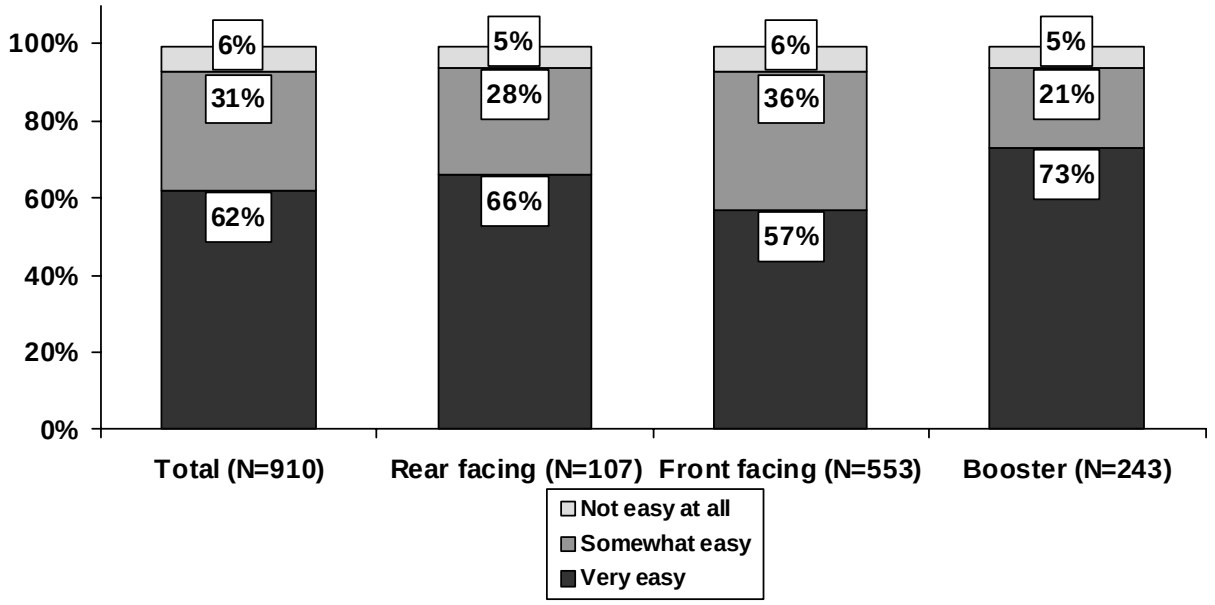
Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

Ease Of Use

Most parents and caregivers reported that they had relatively little difficulty installing their children's car seats regardless of the type of seat. Overall, about three-fifths of parents/caregivers (62%) considered it very easy to attach the car seat to the vehicle they usually drove. An additional 31% considered it somewhat easy.

Figure 41
Ease Of Attaching Car Seat To Vehicle



Qx: How easy is it for you to attach the child car seat to the vehicle you usually drive… very easy, somewhat easy, or not easy at all?

Base: Child at least on occasion rides in a child car seat, and the car seat did not come attached to the vehicle. Unweighted N's listed above.

Those respondents who said that it was only somewhat easy to attach the seat to the vehicle, or not easy at all, were asked what was difficult about attaching the seat. The two most frequent responses were adjusting the safety belt to make sure it was tight enough (28%) and fitting the safety belt through the car seat hole or loop (20%).

Table 5
What Is Difficult About Attaching Car Seat To Vehicle

Obstacle	Percent
Adjusting the safety belt/making sure it's tight enough	28%
Fitting the safety belt through the car seat hole/loop	20%
Hooking it/attaching to the safety belt (or buckle)	11%
Not enough room to maneuver/design of back seat makes it awkward	9%
Hard to get hand/arm in position to insert safety belt through car seat	7%
Car seat is too big/bulky/cumbersome/heavy	2%
Any other adjustment mentions	2%
Any other child seat attachment mentions	6%
Any other obstacles mentioned	5%
Nothing is difficult	1%
Not sure/refused/no answer	9%

Qx: What is difficult about attaching the child car seat to the vehicle?

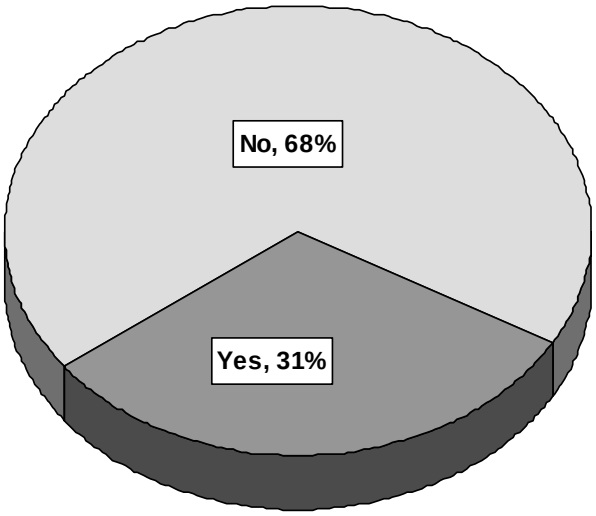
Base: Said it was somewhat easy, or not easy at all, to attach the car seat to the vehicle.

Unweighted N=332

Total exceeds 100% due to multiple responses.

The results presented on the previous pages suggest that parents and other caregivers generally believe that they are installing child seats correctly. However, observations in the field have shown some form of car seat misuse for the vast majority of children in car seats, in the form of installation and/or buckling errors. To assess the misuse issue more fully, the interviewers asked the respondents if they had ever driven with the child in the car seat and later found that the car seat was not securely attached. Nearly one-third (31%) answered “yes”.

Figure 42
Driven With Child In Car Seat And Found Car Seat Was Not Securely Attached



Qx: *Have you ever driven with the child in the car seat and later found that the car seat was not securely attached?*

Base: *Child under age 9 at least on occasion rides in a child car seat, and the car seat did not come attached to the vehicle.*

Unweighted N=910

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

Less than 0.5% answered not sure/refused.

Those respondents who acknowledged driving with the child and later discovering that the car seat was not securely attached were asked why this happened. The responses tended to revolve around carelessness, attachment difficulties, accidental behavior by accompanying children, mistakes by others, or movement of the seat within the vehicle or to another vehicle.

Table 6
Reasons Why Car Seat Was Not Securely Attached

Reason	Percent
Child seat attachment	**32%**
Difficult to attach tightly enough/car's safety belt can't be tightened adequately	14%
Safety belt did not catch/engage properly	6%
Came undone/got unfastened/came loose	5%
Didn't understand how to attach/install it properly	4%
Any other responses concerning attachment	4%
Child's movement/behavior	**13%**
Other child loosened baby's car seat accidentally	6%
Child knows how to unbuckle/undo safety belt him/herself	6%
Any other responses concerning child's behavior	*
Miscellaneous	**50%**
Moved car seat between cars/within same car	18%
Car seat was put in by someone else who didn't attach it right	15%
Forgot/wasn't paying attention/carelessness	12%
I made a mistake/I screwed up	4%
In a hurry/pressed for time/got busy	4%
All other miscellaneous mentions	6%
Not sure/refused/no answer	**5%**

Qx: Why did this happen?

Base: Drove with child and later found that car seat was not securely attached.

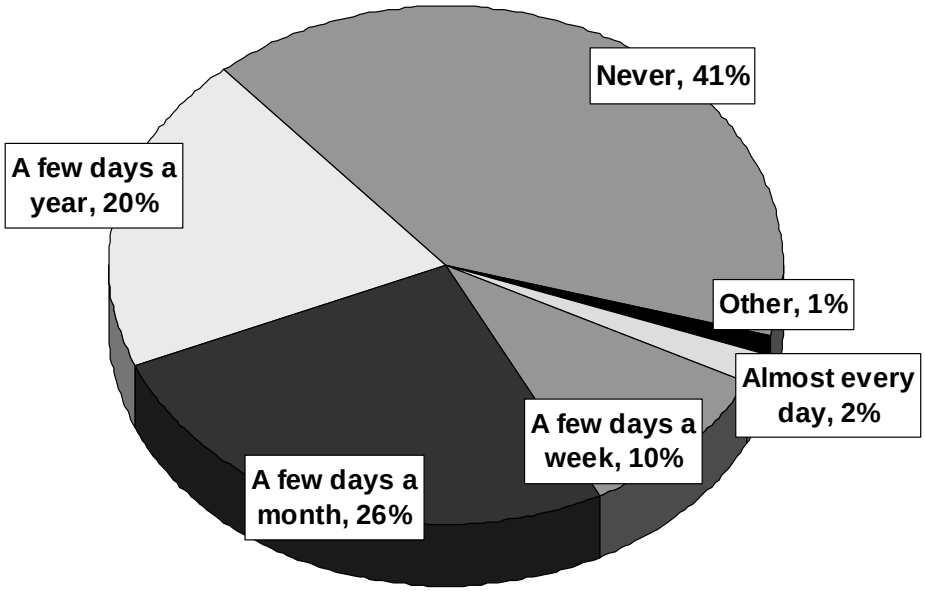
Unweighted N=290

** Less than 0.5%.*

Total exceeds 100% due to multiple responses.

Table 6 on the preceding page showed movement of car seats within/between vehicles to be one of the more frequently given explanations for instances where a car seat was found not to be securely attached. Transfer of car seats from one vehicle to another occurs with regularity for some parents/caregivers. One-in-eight respondents (12%) said they move the child car seat from one vehicle to another at least a few days a week. An additional 26% do so a few days a month.

Figure 43
Frequency Car Seat Is Moved To Another Vehicle



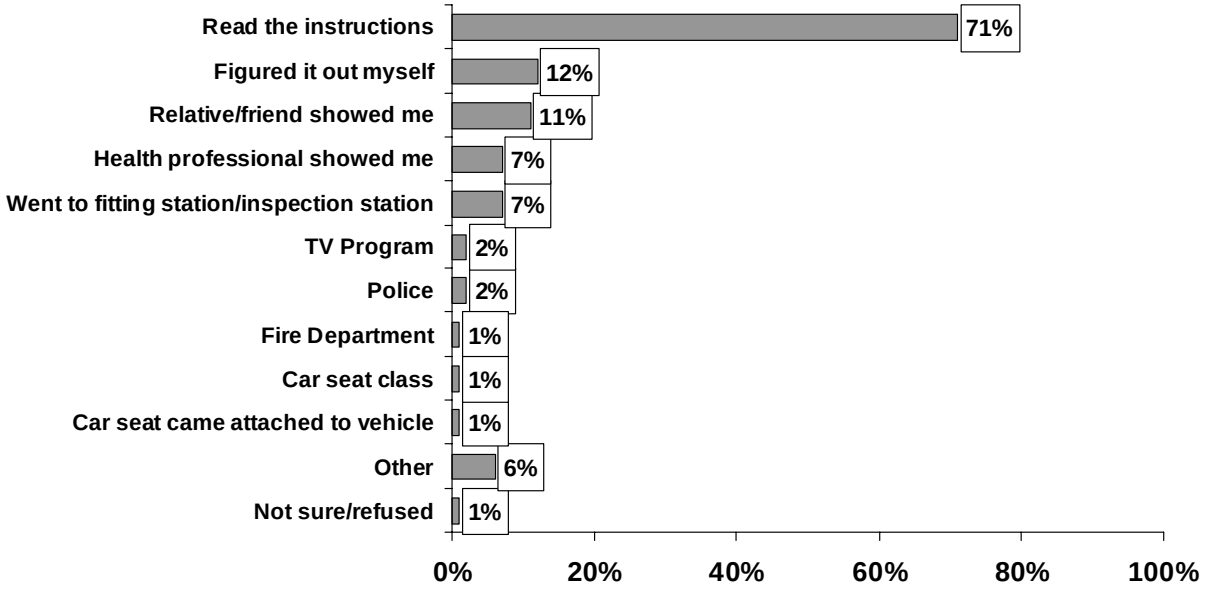
Qx. How often do you move the child car seat from one motor vehicle to another motor vehicle? Would you say that you move the child car seat from one motor vehicle to another almost every day, a few days a week, a few days a month, a few days a year, or never?

Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

Most often, the respondents said that they learned how to attach the child car seat to the vehicle by reading the instructions (71%). About one-in-eight (12%) said they figured it out themselves and 11% had a friend or relative show them.

Figure 44
How Learned To Attach Car Seat To Vehicle



Qx: How did you learn to attach the child car seat to the vehicle?

Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

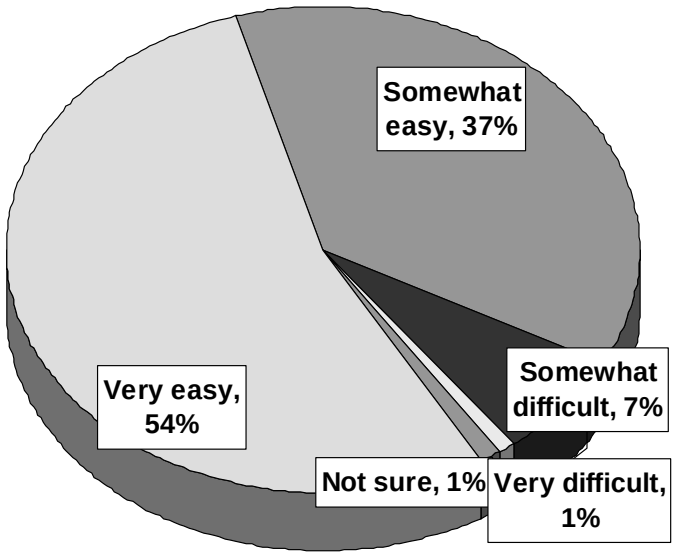
Total exceeds 100% due to multiple responses.

Understanding The Car Seat Instructions

Since the instructions were the predominant source for learning how to attach the car seat to the vehicle, it is useful to assess whether the public finds them understandable. Those respondents who did not state that they had learned to install the seat from reading the instructions, and also did not have a car seat that came attached to the vehicle, were asked if they had read the instructions. Two-thirds (67%) said they had.

In total, 90% of parents/caregivers had read the car seat instructions. Of these, 54% said the instructions were very easy to understand; 37% said they were somewhat easy. Among those who said they did not read the instructions, 64% conceded that the instructions were available.

Figure 45
How Easy Or Difficult The Car Seat Instructions Were To Understand



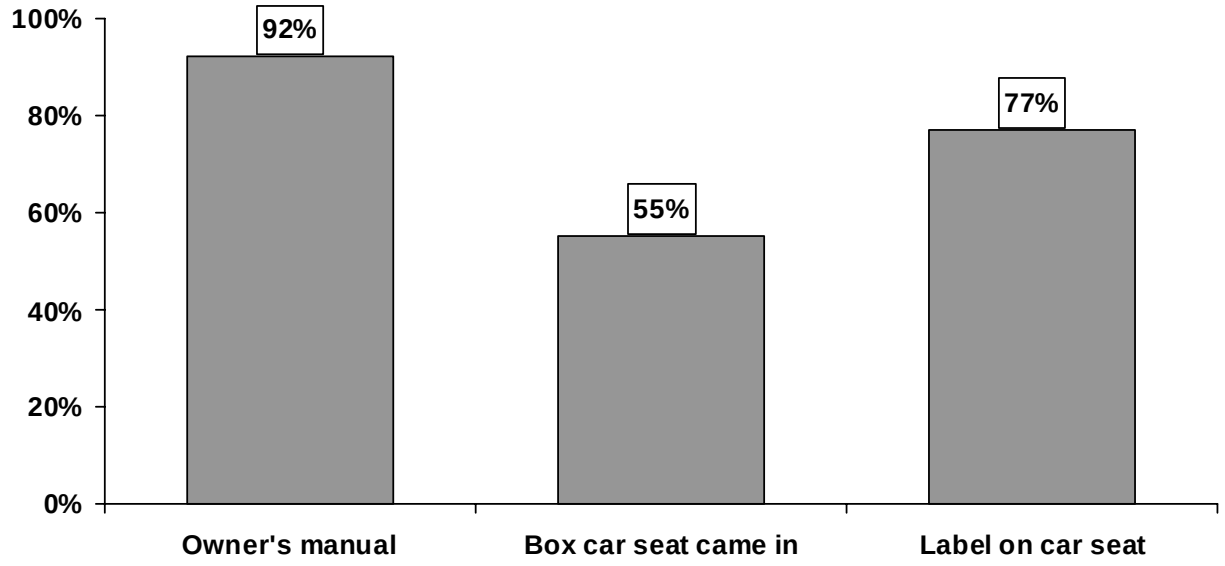
Qx: How easy or difficult were the instructions to understand? Would you say that the instructions were very easy, somewhat easy, somewhat difficult, or very difficult to understand?

Base: Read the child car seat instructions.

Unweighted N=825

Parents/caregivers were also asked which instructions they had read. Specifically, did they read the instructions that were on the box for the car seat, the instructions that were on the label of the car seat, or the instructions that came in the owner's manual. The respondents could select more than one source, thus the sum of the percentages for the different instruction materials exceeded 100%. Most often, the respondents indicated that they had read the owner's manual (92%).

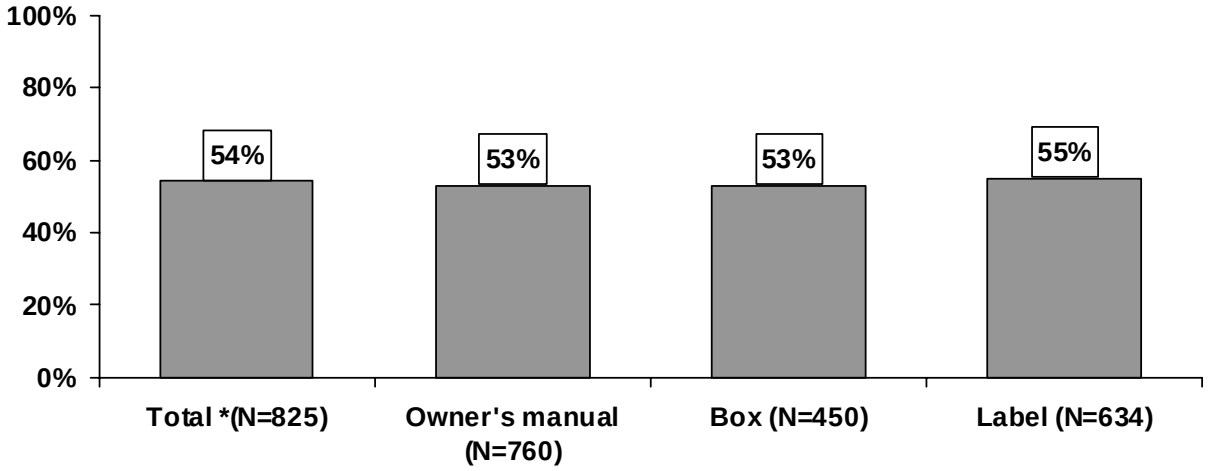
Figure 46
Source Of Car Seat Instructions Read By Parents/Caregivers



Qx: Which instructions did you read? Did you read…?
Base: Read the child car seat instructions.
Unweighted N=825

As shown on page 59, 54% of all parents/caregivers who read the child car seat instructions thought they were very easy to understand. The survey found no appreciable variation in this percentage according to the source of the instructions.

Figure 47
Very Easy To Understand Car Seat Instructions By Source Of Instructions



Qx: Which instructions did you read? Did you read…?

Qx: How easy or difficult were the instructions to understand? Would you say that the instructions were very easy, somewhat easy, somewhat difficult, or very difficult to understand?

Base: Read the child car seat instructions.

Unweighted N's listed above.

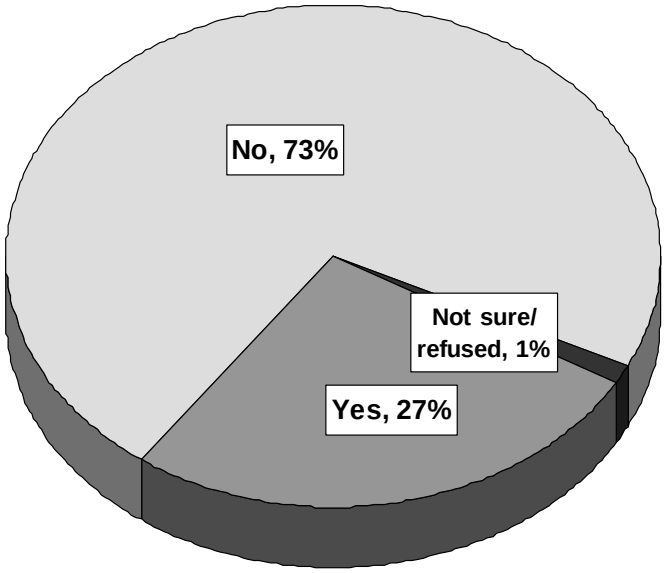
** The sum of the N-sizes for Manual/Box/Label exceeds the N-size for Total because respondents could select more than one source of instructions that they read.*

LATCH System

In 2003, a series of questions was added to the survey to assess knowledge and use of the new attachment system called LATCH (Lower Anchors and Tethers for Children). LATCH is intended to make safety seat installation easier by providing a means of attaching the car seat to the vehicle seat without having to use the vehicle safety belt. LATCH child safety seats have a lower set of attachments that connect to bars ("anchors") in the vehicle seat of LATCH-equipped motor vehicles, and most of the child seats have an upper tether to attach to a top anchor in the vehicle.

LATCH is required in passenger vehicles and child safety seats manufactured after September 1, 2002, although it was available in some models before that date. Thus awareness and use of the LATCH system at this time is in its early stages. This survey found that in early 2003, 27% of parents/caregivers who had a child that used a child restraint had heard of LATCH.

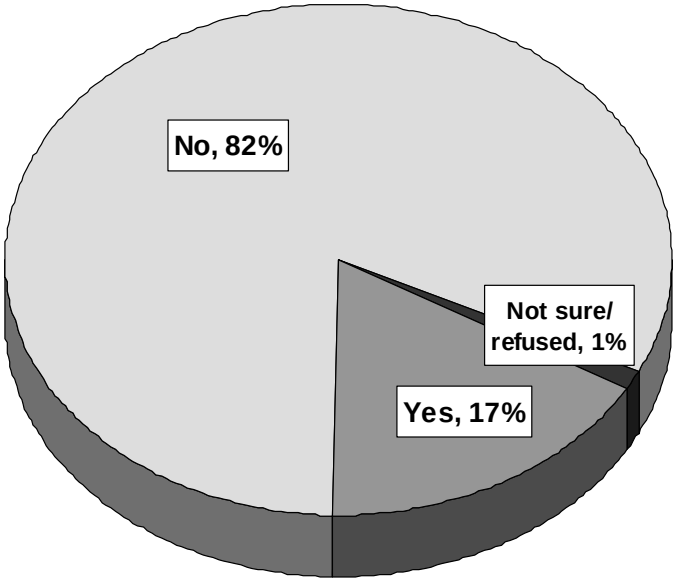
Figure 48
Ever Heard of LATCH



Qx. Recently a new way of attaching child car seats has been developed called LATCH. That's short for Lower Anchors and Tethers for Children. Before today, had you ever heard of LATCH?
Base: Child under age 9 at least on occasion rides in a child car seat.
Unweighted N=915
The sum of the percentages in the pie chart does not equal 100% because the numbers are rounded.

Respondents who had not heard of LATCH were asked if they had heard of new changes in the way that child car seats are being designed to attach to motor vehicles, even if they were not called LATCH. Less than one-in-five of them (17%) said they had heard about the new design changes. In sum, 39% of parents/caregivers of children who used car seats reported either that they had heard of LATCH or else had heard of a new attachment system that they did not label as LATCH.

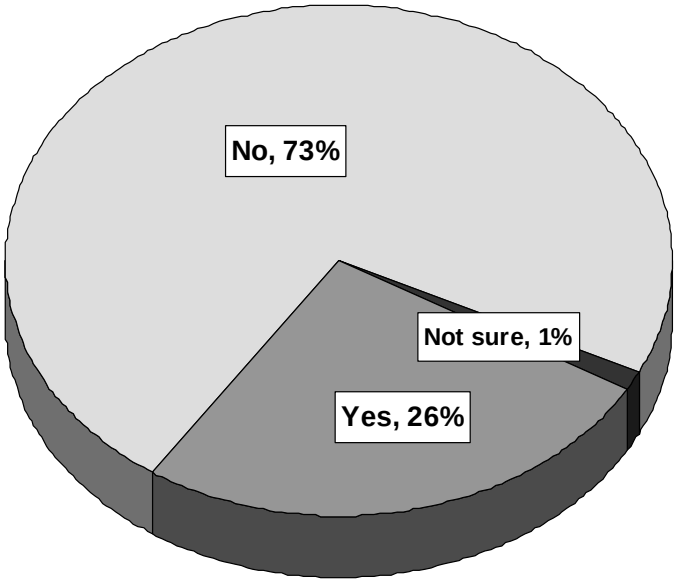
Figure 49
Heard About Additional Changes In Car Seat Designs



Qx. Before today, had you heard about a change in the way that child car seats are designed to attach to motor vehicles, even if it was not called LATCH?
Base: Had not heard of LATCH.
Unweighted N=673

About one-quarter of respondents who had heard of the LATCH system had used a LATCH system child car seat. This translates to about 7% of all parents/caregivers with children in car seats.

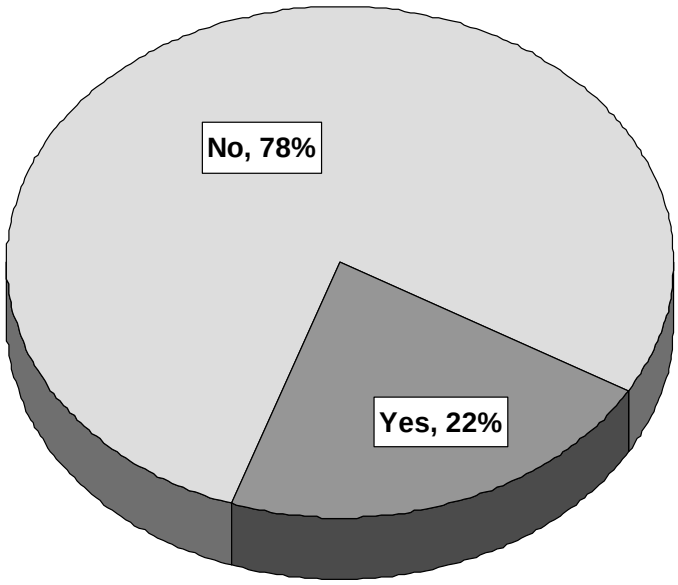
Figure 50
Ever Used LATCH Car Seat



Qx. Have you ever used a LATCH system child car seat?
Base: Had heard of LATCH.
Unweighted N=242

While the majority said they had no difficulties, more than one-in-five who had used a LATCH system child car seat said they had difficulties attaching the seat to the vehicle.

Figure 51
Difficulties Attaching LATCH System



Qx. Did you have any difficulties attaching the LATCH system car seat to the motor vehicle?
Base: Used a LATCH system child car seat
Unweighted N=64

The most common difficulty in attaching the LATCH system car seat was finding a place for the anchor or tether. Some also said the instructions to attach the LATCH system were difficult to understand. Readers are cautioned that these results are based on very few cases (14).

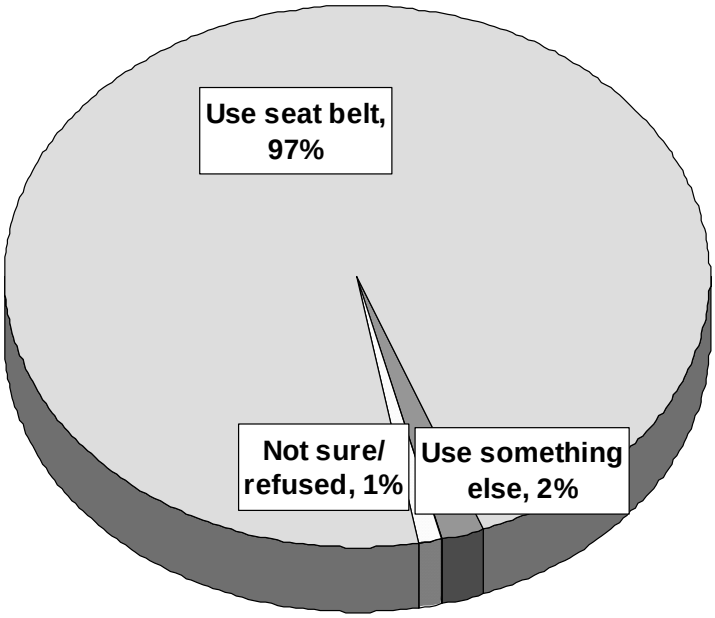
Table 7
Difficulties Attaching The LATCH Car Seat: Verbatim Responses

Reason
Our back seat slants so we had to modify it with the insert to the proper level.
Anchoring it.
Could not find the hook.
Getting it off the latch of the floor.
I couldn't find the anchor on the floor of my car.
My car only has the anchor, not the latch. So I just use a seat belt to attach the car seat.
There is no place in their truck (or their car) to attach the tether.
They slide on the tether. We had no idea how that worked.
Van is 2000 and it is not equipped for tether.
Finding how to do it right.
I just don't do it.
The first time I did it, it was difficult to attach, but that was the only time.
The instructions were difficult to understand.
Belt is hard to get through the hole. Other than that it is not difficult.

Qx. What difficulties did you have?
Base: Parents/caregivers who said they had difficulties attaching the LATCH system car seat.
Unweighted N=14

Because some parents/caregivers may be using LATCH but be unfamiliar with its terminology, all parents/caregivers of children using infant or front facing toddler seats (but not integrated seats) were asked if they were using the vehicle safety belt or something else to attach the child seat to the vehicle. The vast majority (97%) said they were using the vehicle safety belt.

Figure 52
Attachment of Child Car Seat to Vehicle



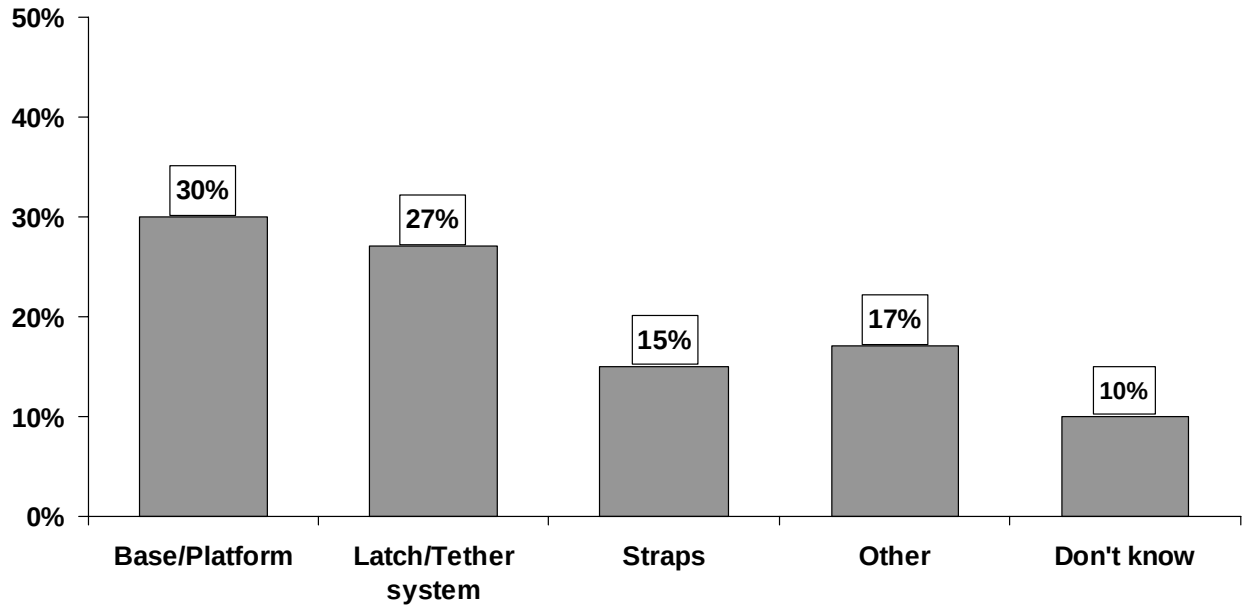
Qx. *When you attach the child car seat to your (car/truck/van) do you use the seat belt in the (car/truck/van) to attach the child car seat, or do you use something else to attach the child car seat to the vehicle?*

Base: *Child rides in a car seat that does not come attached to the vehicle, and there are straps crossing both of the child's shoulders.*

Unweighted N=667

As indicated on the previous page, few drivers reported using something other than the vehicle safety belt to attach the child car seat to their motor vehicle. Among those that did, the more common responses were that there was a "base" or "platform" to the seat that they used (only respondents with infant seats gave this answer), or that they used a LATCH or tether system. One respondent indicated using both a vehicle safety belt and LATCH. Readers are cautioned that these results are based on very few cases (15).

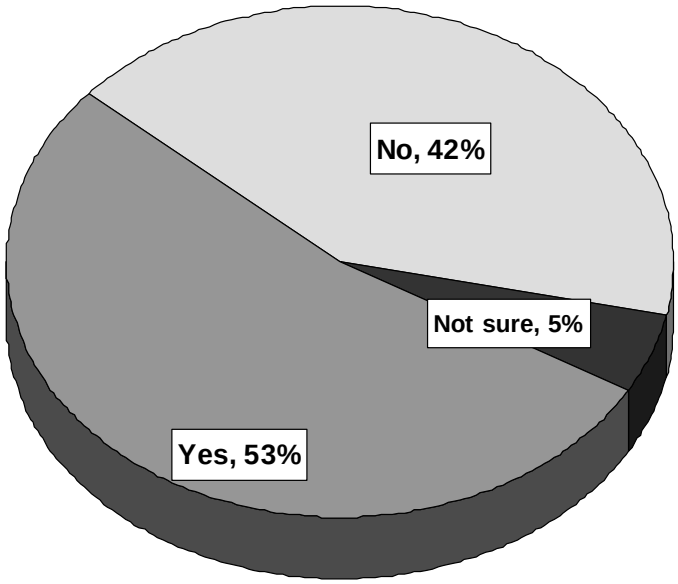
Figure 53
Other Methods Child Car Seat Is Attached To Vehicle



Qx. What do you use to attach the child car seat to your (car/truck/van)?
Base: Drivers who use something else other than a safety belt to attach the child car seat
Unweighted N=15

The majority of parents/caregivers with front facing toddler child car seats reported that it had a top tether strap on the back of the car seat, near the top.

Figure 54
Does Child Car Seat Have Tether Strap



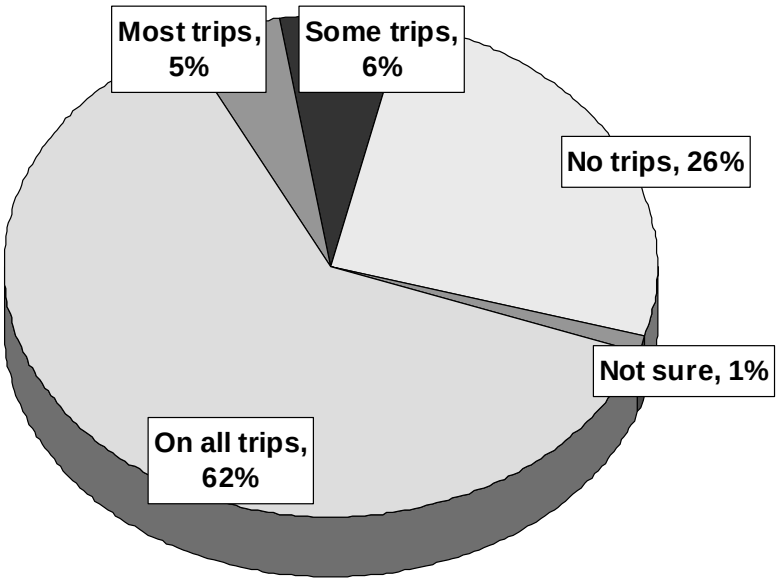
Qx. Some child car seats have a strap on the BACK of the car seat, near the top. Does the child car seat you use with (AGE) have this kind of tether strap on its back?

Base: Child rides in a front facing car seat that does not come attached to the vehicle, and there are straps crossing both of the child's shoulders.

Unweighted N=560

The majority of parents/caregivers who had a car seat with a top tether drove with the tether strap attached to the vehicle on all trips (62%). About one-quarter of those with tether straps never used them (26%).

Figure 55
How Frequently Tether Strap Is Used



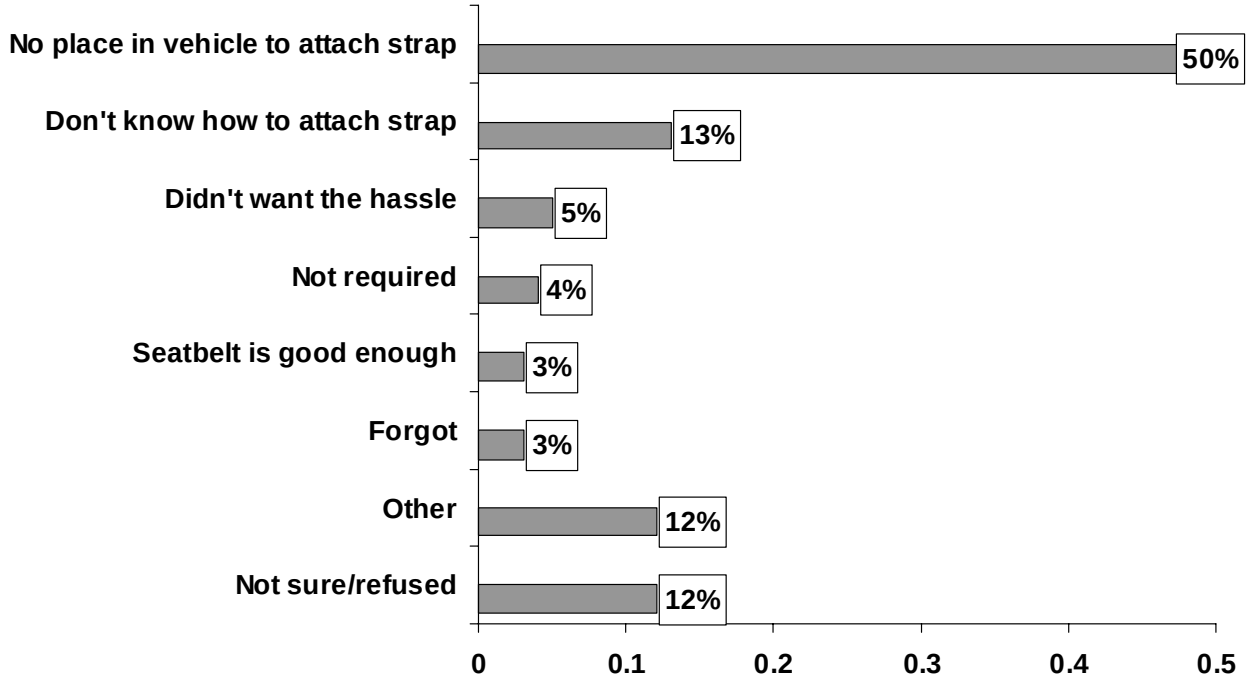
Qx. When the (AGE) rides in the child car seat, how often is the tether strap attached to the motor vehicle? Would you say that the tether strap is attached to the motor vehicle on all trips that the child rides in the car seat, most trips, some trips, or no trips?

Base: Child car seat has a tether strap.

Unweighted N=299

The most common reason the tether strap was not used was because there was no place in the vehicle to attach the strap (50%). Thirteen percent said they did not use the tether strap because they didn't know how to attach the strap to the vehicle.

Figure 56
Reasons Tether Strap Is Not Attached

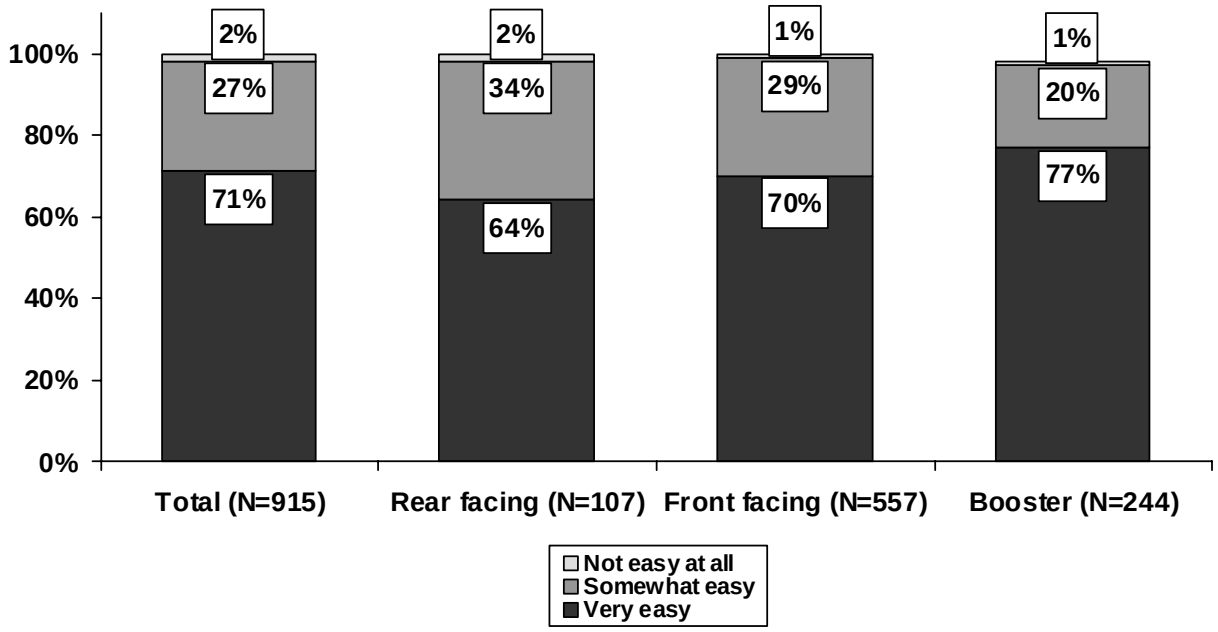


Qx. When the child is riding in the car seat and the tether strap is not attached to the motor vehicle, what are the reasons the tether strap is not attached?
Base: Tether strap is not used on all trips.
Unweighted N=112

Buckling Child Into Car Seat

As with installing the car seat in the vehicle, most parents/caregivers considered it easy to properly buckle the child into the car seat. Almost all parents/caregivers answered either that it was very easy (71%) or somewhat easy (27%). Booster seats (77%) were more likely to be rated as very easy to buckle in the child than front facing toddler seats (70%) or rear facing infant seats (64%).

Figure 57
Ease Of Buckling Child In Car Seat



Qx: How easy is it for you to properly buckle your child into the child car seat?
Base: Child under 9 at least on occasion rides in a child car seat.
Unweighted N's listed above.

Those respondents who said that it was only somewhat easy to buckle the child into the seat, or not easy at all, were asked for more detail. Most often they said that it was difficult to snap the buckles together or hard to insert the buckle into the lock (28%). About one-in-five (19%) said it was hard to adjust the shoulder straps or safety belts to fit properly or tightly. Bulky clothing (11%) or lack of cooperation from the child (12%) also made it difficult to buckle the child into the car seat.

Table 8
What Is Difficult About Buckling Child Into Car Seat

Reason	Percent
Child seat attachment/adjustments	**61%**
Hard to snap buckles together/hard to insert the buckle into the lock	28%
Adjusting shoulder straps to fit properly/tightness of safety belt	19%
Heavy/bulky/winter clothing makes it difficult to buckle child in or adjust straps	11%
Buckle hits the child in the head/can't get it over the head	1%
Any other responses related to seat attachment	5%
Any other responses related to adjustments	1%
Child's movement/behavior	**15%**
Child doesn't sit still/down/uncooperative/squirms	12%
Child doesn't like car seat	3%
Any other responses related to child's movement or behavior	1%
Miscellaneous	**14%**
Difficult to crawl/squeeze into rear of vehicle to buckle in child	8%
Any other miscellaneous mentions	7%
Nothing	**3%**
Not sure/refused/no answer	**8%**

Qx: What is difficult about buckling your child into the child car seat?

Base: Said it was somewhat easy, or not easy at all, to properly buckle child into the child car seat.

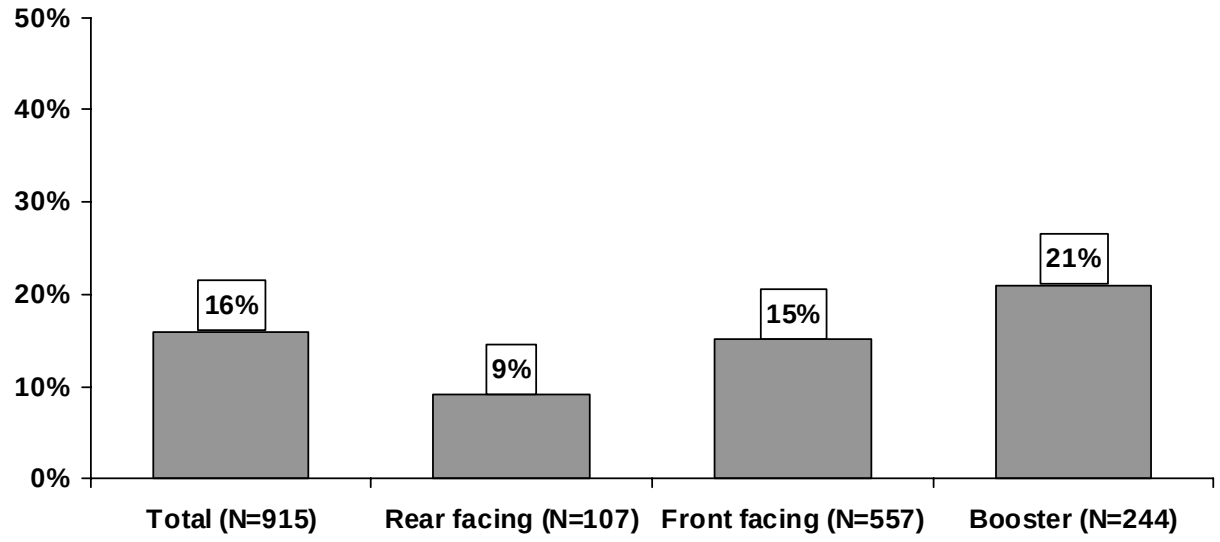
Unweighted N=257

Total exceeds 100% due to multiple responses.

Children Getting Out Of Car Seats

Sixteen percent of parents/caregivers reported that the child had gotten himself or herself out of the car seat while they were driving. As expected, this was highest among older children who were riding in booster seats (21%). The 9% for children in rear facing infant seats may reflect error in describing the type of seat, or misinterpretation of this "child escape" question.

Figure 58
Child Has Gotten Out Of Car Seat While Respondent Was Driving

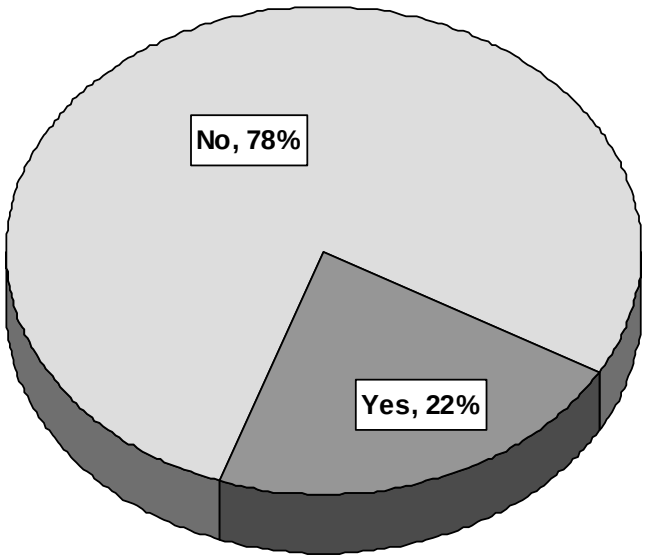


Qx: Has the (AGE) ever gotten himself/herself out of the child car seat while you were driving?
Base: Child under age 9 at least on occasion rides in a child car seat.
Unweighted N's listed above.

Use Of Inspection Stations To Check Whether Child Seat Is Being Installed Correctly

Inspection stations are places where parents and other caregivers can go to have trained technicians check whether they are correctly installing the child seat in their vehicle and properly buckling their child into the seat. These stations have been rapidly increasing in number. In 2003, 22% said they had gone to an inspection station to check their car seat attachment.

Figure 59
Ever Went To An Inspection Station To Check Child Car Seat Attachment



Qx: In many communities, there are places where people can go to have someone check whether they are correctly attaching their car seat and buckling in their children. Did you ever go to a place like this to have someone check how you were attaching the car seat?

Base: Child under age 9 at least on occasion rides in a child car seat.

Unweighted N=915

Parents/caregivers who said that they had gone to an inspection station were then asked what type of organization or company sponsored the car seat check. Most often, they indicated that local police (38%) or fire or rescue units (23%) were the sponsors. State and county agencies (7%) and health organizations such as hospitals, medical or health centers, and clinics (7%) tied for a distant third.

Table 9
Sponsor Of The Inspection Station Attended

Sponsor	Percent
Local police	38%
Fire or rescue units	23%
State or county government/agencies	7%
Hospital/medical/health center/clinic	7%
Retail store	6%
Car dealership	5%
Charitable/community service organizations	1%
Auto manufacturer	1%
Other	10%
Not sure	6%

Qx: Could you tell me what type of organization or company sponsored the car seat check you went to?

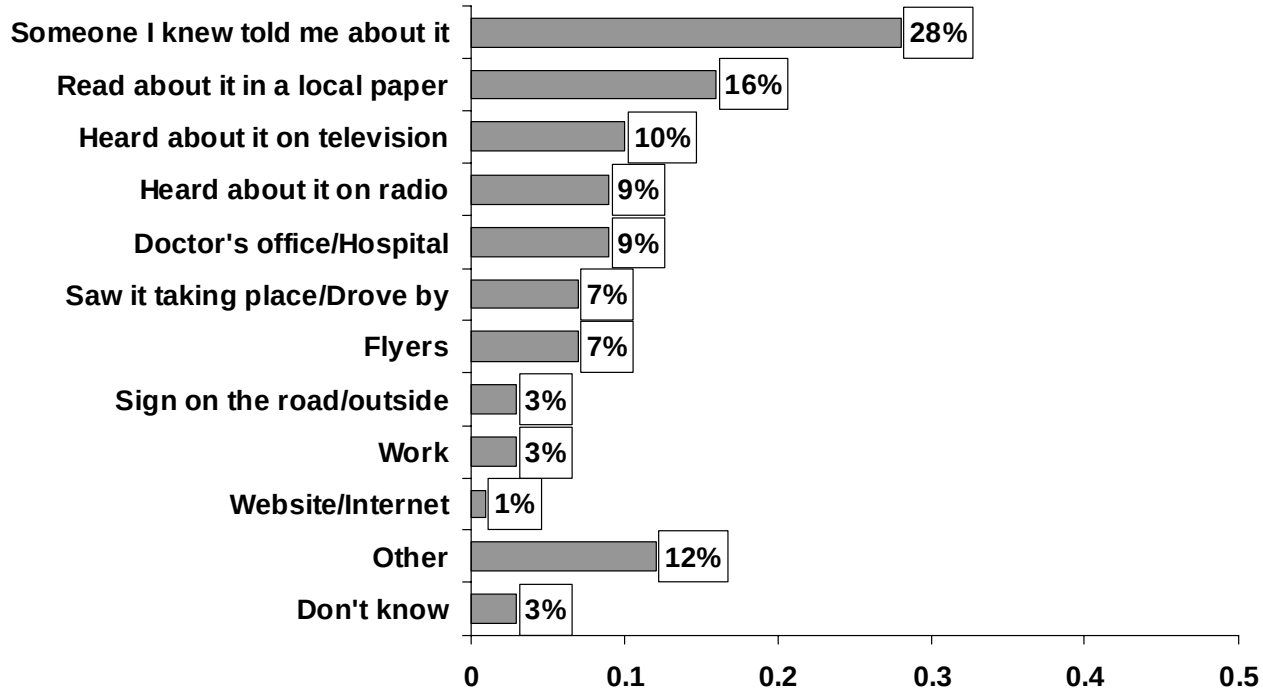
Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat.

Unweighted N=205

Total exceeds 100% due to multiple responses.

Most often the parents/caregivers found out about the car seat check through word-of-mouth (28%). Newspapers, television and radio advertisements for car seat checks were also mentioned, as well as notices in doctors' offices or hospitals.

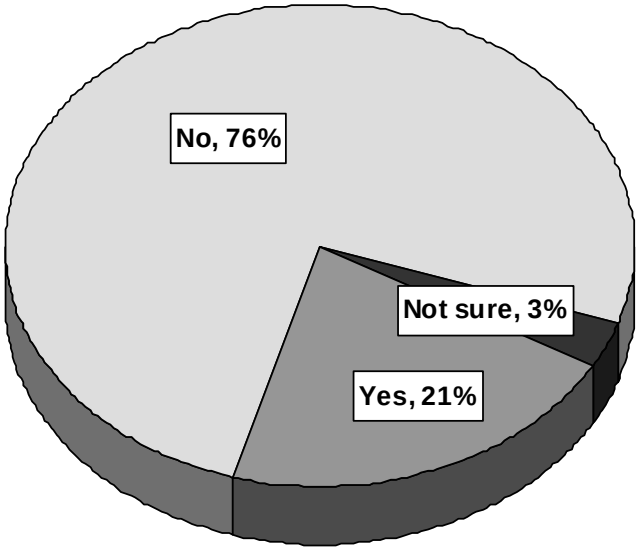
Figure 60
How Heard About Car Seat Check



Qx. How did you find out about the car seat check you went to?
Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat.
Unweighted N=205
Total exceeds 100% due to multiple responses.

It is not unusual for child safety seat technicians to report a high proportion of cases at inspection stations where there was something wrong with how the seat was installed or how the child was buckled in, even surpassing 80% or 90%.* However, only about one-fifth of parents/caregivers (21%) reported that the checkpoint technicians found problems with how they attached the seat or buckled in their child.

Figure 61
Did The Technician Find Anything Wrong With How They Attached Seat/Buckled Child?



Qx: Did the person who was checking the car seat for you find anything that was wrong in how you attached the seat or buckled in your child?

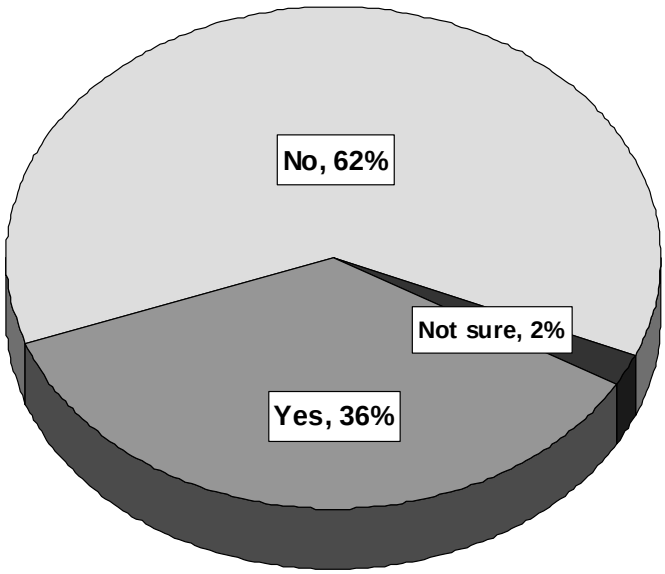
Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat.

Unweighted N=205

* NHTSA studies have similarly found high levels of incorrect use of child safety seats among the public, including finding 73% critical misuse of child restraints during the latter part of calendar year 2002. Decina, L.E. and K.H. Lococo. Misuse of Child Restraints. DOT-HS-809-671. January 2004.

The findings presented on the previous page are similar to findings of the 2000 survey; relatively few parents/caregivers reported that the technicians at the inspection stations detected anything wrong with what they were doing. Because the results substantially differed from what technicians in the field were reporting, the 2003 survey added a question to see if the level of reported misuse changed if it was not framed as something the respondents did "wrong." The parents/caregivers were asked if the technicians suggested that they do anything differently in how they attached the seats or buckled in their children. Thirty-six percent answered "Yes," compared to 21% who reported that the technicians found something wrong.

Figure 62
Did Someone Suggest Alternative For Attaching Car Seat



Qx. Did the person who was checking the car seat for you suggest that you do anything differently in how you attach the seat or buckle in your child?
Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat.
Unweighted N=205

The most common suggestions received at the car seat inspection station were to tighten the safety belt, and to put pressure on the car seat to hold it down while attaching it. Adjusting the straps on the child more securely and using something underneath or behind the seat to make it more secure were also common suggestions.

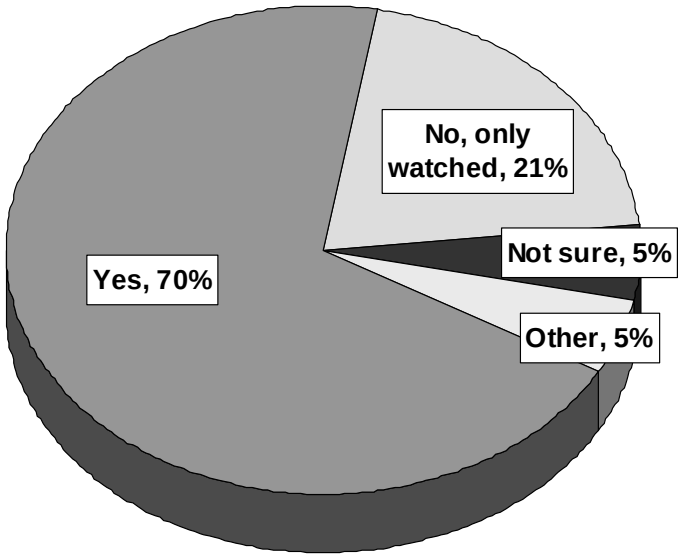
Table 10
Suggestions For Different Attachments

Suggestion	Percent
Make safety belt tighter/More pressure on safety belt	33%
Put knee/weight on car seat to fasten down more securely	24%
Adjust straps for child	15%
Use foam/towel/something behind/underneath to make more secure	11%
Place clamps/bracket on safety belt to keep from moving	8%
Shown how to attach car seat and strap child in	4%
Extension needed for safety belt/Not long enough	4%
Don't teach the child how to unbuckle the safety belt	3%
Child too young for shoulder strap	2%
Have child test car seat	1%
Different car seat needed	1%
Attach side tether	1%
Switch the angle of the car seat	1%
Keep child rear facing until one year old	1%
Just use safety belts to fasten booster seats	1%
Nothing	2%
Don't know/Refused	2%

Qx. What did that person suggest you do differently?
Base: Person checking the car seat suggested they do something different.
Unweighted N=75

At inspection stations, the technicians are supposed to actively engage parents and caregivers in attaching the child car seats to the vehicles. Seventy percent of the parents/caregivers affirmed that they had been given the opportunity at the inspection station to attach the seats and buckle in their children under the guidance of the technicians. However, 21% reported that they only watched the technicians perform the checks and make the adjustments.

Figure 63
Given A Chance To Practice Attaching The Seat And Buckling In Child



Qx: During the car seat check, were you given a chance to practice attaching the seat and buckling in your child? Or did you spend all of the time watching someone else check the seat and show you how to attach it?

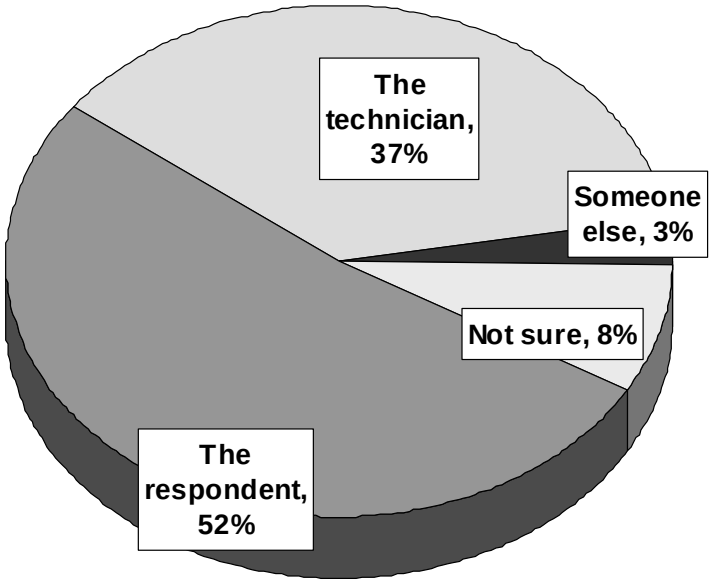
Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat.

Unweighted N=205

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

The CPS (Child Passenger Safety) curriculum for CPS technicians calls for the parent or other supervising caregiver for the child to be the last person to adjust the child car seat before leaving the inspection station, rather than the technician. As noted on the previous page, about one-fifth of the parents/caregivers said they did not have the chance to practice attaching the seat while at the inspection station but instead spent all of the time watching the technician check the seat and demonstrate proper use. The remaining parents/caregivers were asked who was the last person to adjust the seat before leaving the inspection station. Slightly more than one-half of this subset of parents/caregivers (52%) reported that they were the last ones to adjust the seat, while 37% indicated that it was the technician.

Figure 64
Last Person To Adjust Car Seat



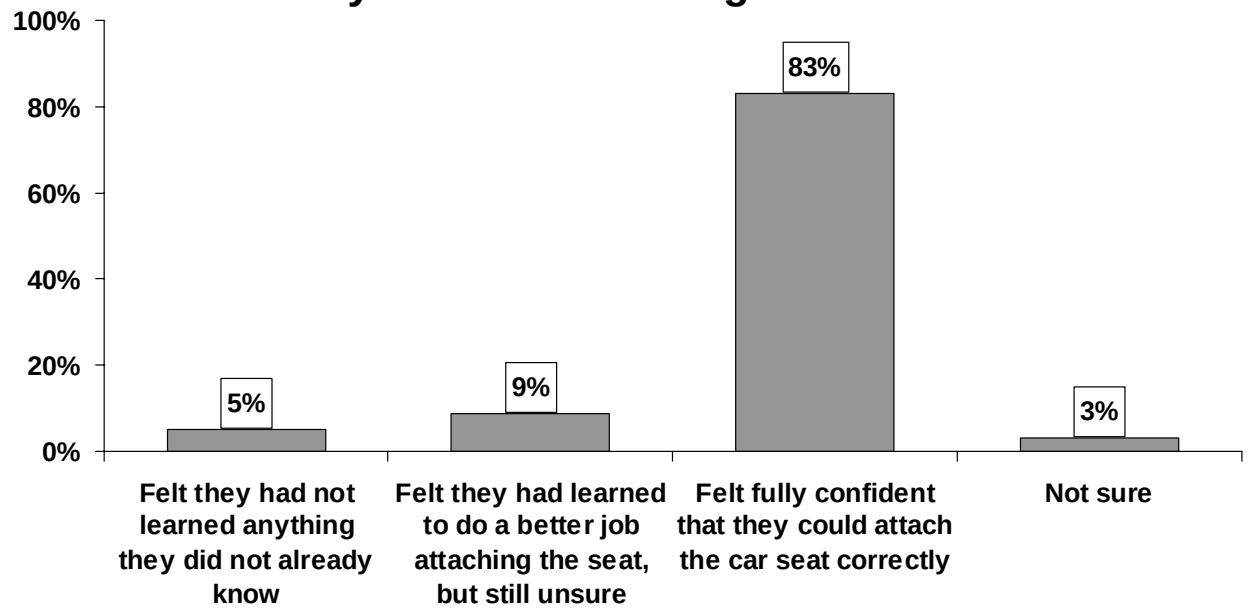
Qx. *Before leaving the car seat check, who was the last person to adjust the car seat? Was that you or the person who checked the seat?*

Base: *Said they had gone to an inspection station, and spent time during the inspection practicing how to attach the seat rather than simply watch the technician check the seat (also includes "Not Sure" and "Other" on page 81).*

Unweighted N=162

The vast majority of the respondents (83%) felt fully confident that they could attach the car seat when they left the car seat inspection. Another 9% felt they had learned to do a better job attaching the seat and buckling in the child, but were still unsure that they could do everything correctly themselves. Only 5% felt they had not learned anything they did not already know, and no one said they felt more confused when they left than when they came to the inspection.

Figure 65
How They Felt After Leaving Car Seat Check

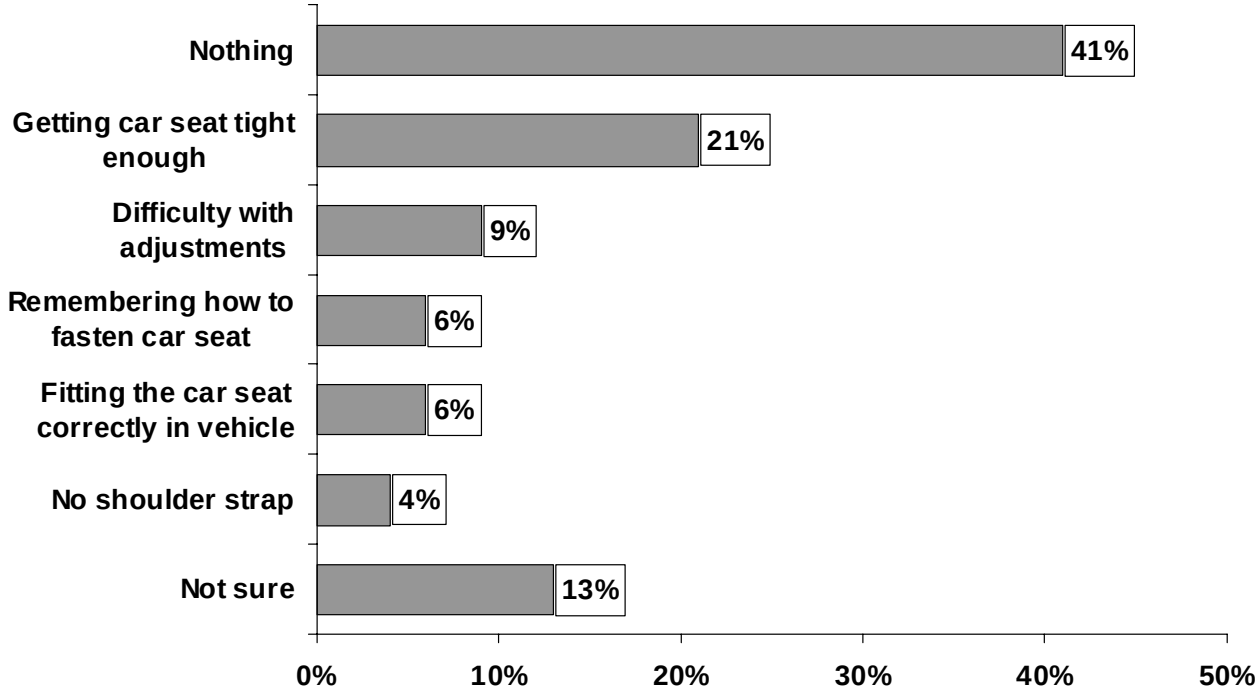


Qx. Which of the following statements best describes how you felt when you left the car seat check? 1) you felt more confused when you left than when you came in; 2) you felt that you had not learned anything you did not already know; 3) you felt you had learned to do a better job attaching the seat and buckling in your child, but were still unsure that you could do everything correctly yourself; or 4) you felt fully confident that you could attach the car seat and buckle in your child correctly yourself.

Base: Said they had gone to an inspection station to have someone check how they were attaching the car seat. Unweighted N=205

The few parents/caregivers who did not feel fully confident when they left the inspection station (31) were asked what they felt most unsure about. The most frequent response was "Nothing" (41%), followed by uncertainty over their ability to get the car seat attached tightly enough (21%).

Figure 66
What They Felt Most Unsure About After Car Seat Check

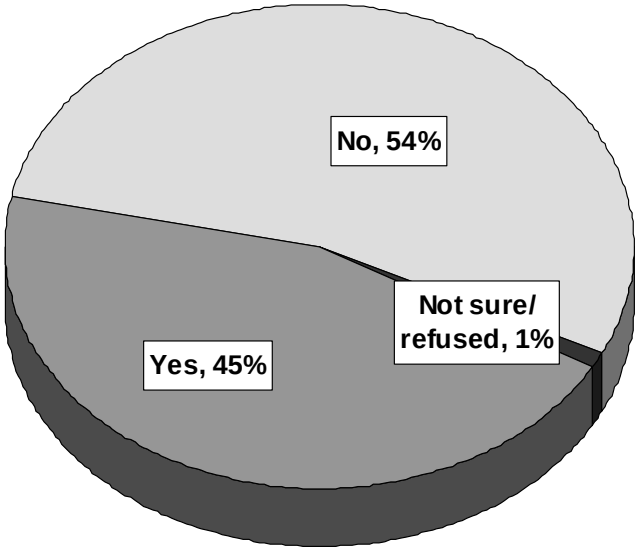


Qx. When you left, what did you feel most unsure about?
Base: Less than fully confident when left the car seat check.
Unweighted N=31

Frequency That Persons Outside Household Drive A Child Who Uses A Car Seat

Parents/caregivers of children who at least on occasion used car seats were asked if the child had ridden in a vehicle in the past 30 days where someone outside of the household was driving. **Figure 67 restricts the analysis only to those parents/caregivers who lived with the child.** More than two-in-five (45%) answered that this had occurred.

Figure 67
Child Had Ridden In Vehicle Driven By Someone Outside Household In Past Month



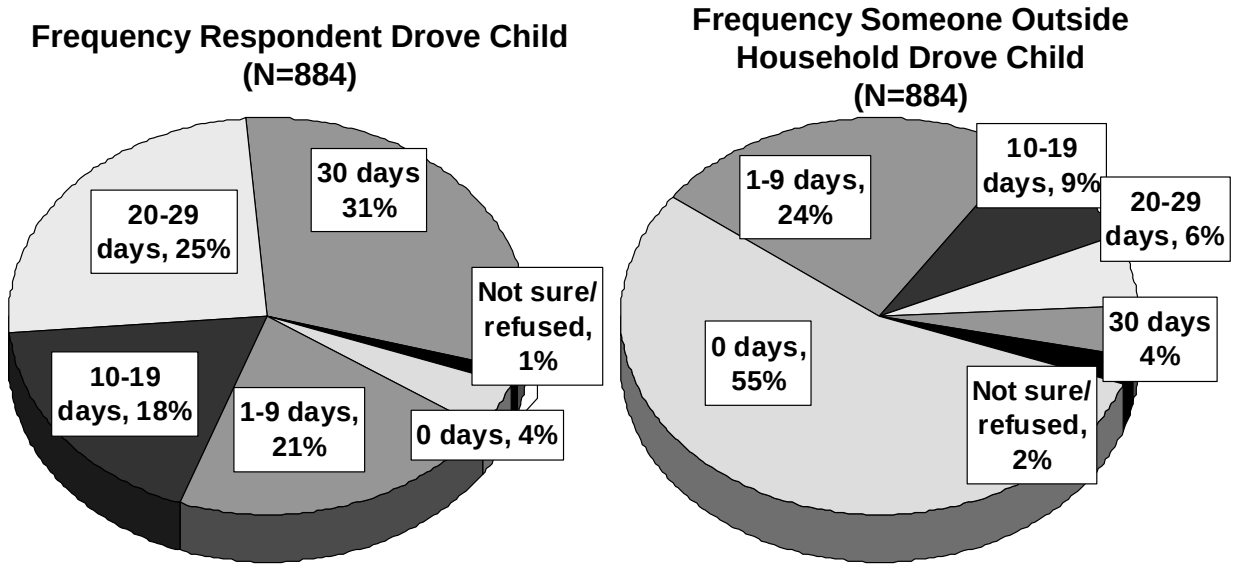
Qx: During the past thirty days, has the (AGE) ridden in a vehicle where someone outside of your household was driving (includes school buses, taxis, and other private vehicles)?

Base: Child at least on occasion uses a car seat, and parent/caregiver lives with the child.

Unweighted N=884

Figure 68 compares the frequency that the selected children were driven by persons outside the household to the frequency that the same children were driven by the responding parents/caregivers (this analysis again was restricted to parents/caregivers who lived in the same household as the child). As expected, the children were transported on a far less regular basis by the non-household members, which is consistent with the findings in Chapter 2 (see page 25). For example, 56% of parents/caregivers said they drove the child 20 or more days in the past 30, whereas only 10% said the child was driven by a non-household member that number of days.

Figure 68
Frequency Child Was Driven By Respondent Versus Person Outside Household In Past 30 Days



Qx: How many days out of the past thirty days did the (AGE) ride in a vehicle that you drove?

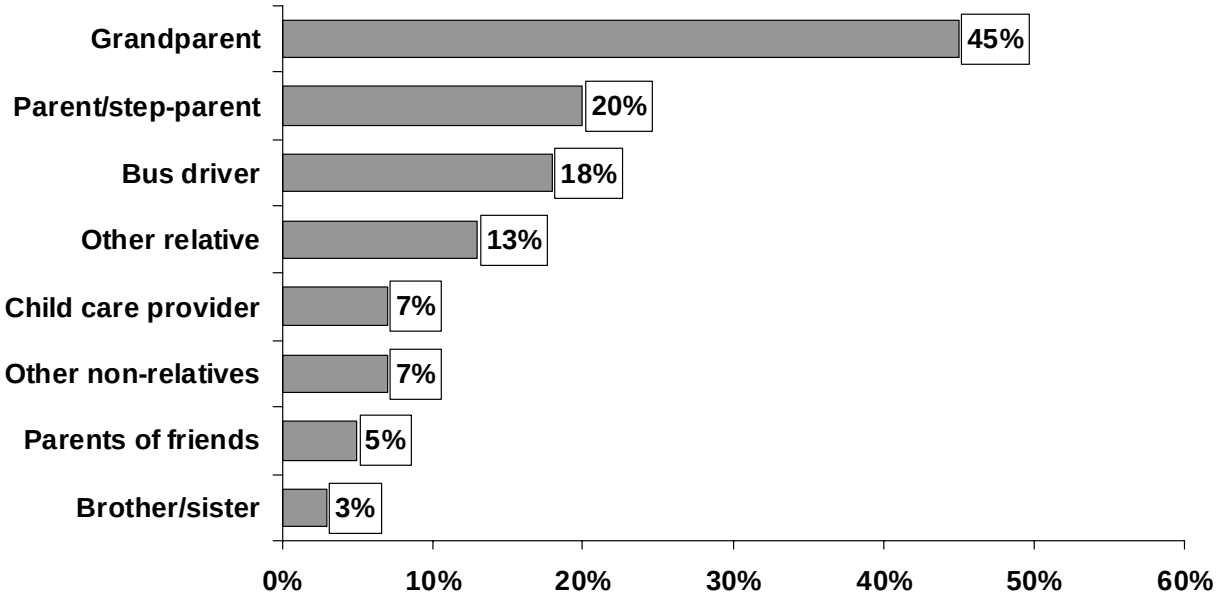
Qx: How many days out of the past thirty days did the (AGE) ride in a vehicle driven by someone outside of your household?

Base: Child under 9 at least on occasion uses a car seat, and parent/caregiver lives with the child.

Unweighted N's listed above.

When asked the identity of the driver outside the household who transported the child in the past 30 days, the parents/caregivers most often answered that it was a grandparent (45%), followed by a parent or step-parent (20%). Fewer reported that it was a brother/sister (3%) or some "other relative" (13%). The relatively high percentage for parents/step-parents when looking from the vantage of the child contrasts with the low percentage obtained from the vantage of the outside driver (see page 26). At least part of the difference may reflect aspects of custody arrangements and related perceptions. The differing time frames specified in the two questions (past month versus past year) may also be playing a role.

Figure 69
Identity Of Driver Outside Household Who Drove Child In Past Month



Qx: Who were those drivers? (What is their relationship to the child?)

Base: Child under age 9 at least on occasion uses a car seat, parent/caregiver lives with the child, and someone outside the household drove the child in the past 30 days.

Unweighted N=420

2003 SURVEY RESULTS

CHAPTER 5: REASONS FOR NON-USE OF CAR SEATS

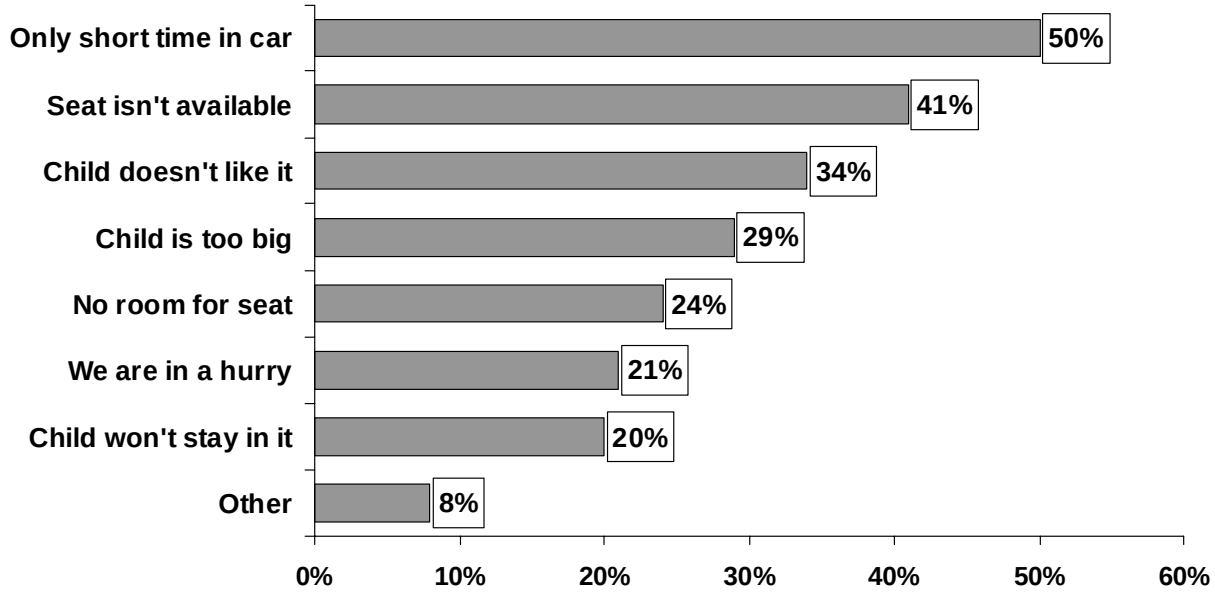
The survey asked a series of questions to identify reasons why children under age 9 were not riding in car seats. Respondents were selected from the parent/caregiver subgroup defined on page 30. If respondents said that the designated child used a car seat, but less than all the time, then the survey termed them “part time users.” This includes cases where the respondent said that the child used the car seat all the time, but admitted occasions of non-use within the past year on a follow-up question. The first part of this Chapter focuses exclusively on findings concerning part time car seat users. Readers are cautioned that these results are based on a small number of cases (136). This is because parents and other caregivers will generally claim that the car seat is used “all the time” if the child still uses this type of restraint at all.

The second part of this Chapter examines reasons for non-use of car seats by children under the age of 9 who reportedly do not use car seats at all. Besides reasons for non-use among these “non-users”, the Chapter explores their safety belt use, the fit of the safety belt, and their usual seating location.

Part Time Car Seat Users

Questionnaire testing plus input from experts had identified a number of likely reasons for non-use of car seats. The interviewers read each of these reasons to respondents, asking whether or not it was a factor in the child not using a car seat. The interviewers then gave the respondents the opportunity to volunteer "other" reasons. The reasons most frequently mentioned for non-use of car seats among part time users were that they were only going to be in the car for a short time (50%), a car seat was not available (41%), and the child did not like the seat (34%).

Figure 70
Reasons Child Does Not Ride In Car Seat: Part Time Users



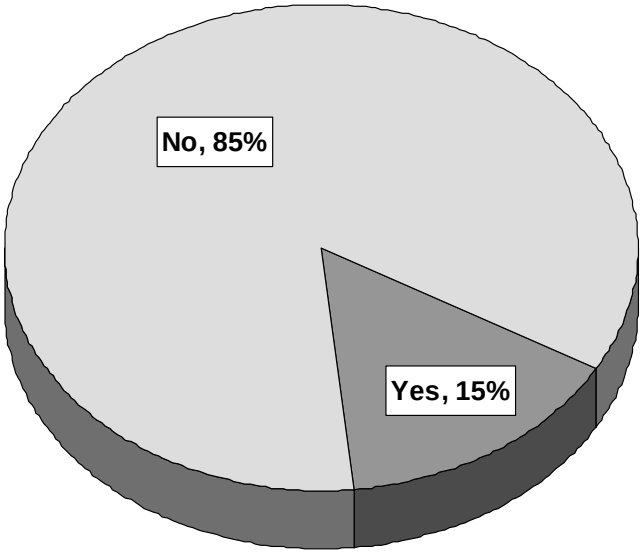
Qx: Please answer yes or no to each of the following statements. When my (AGE) doesn't ride in a child car seat, it is sometimes because…?

Base: Child under age 9 uses a car seat, but not all of the time.

Unweighted N=136

The survey sought to identify where the child usually sat when not using the car seat. The results showed that about one-out-of-seven children who used car seats on a part time basis usually sat on someone's lap when not riding in the seat (15%).

Figure 71
Does Child Usually Sit On Someone's Lap When Not Riding In the Car Seat?



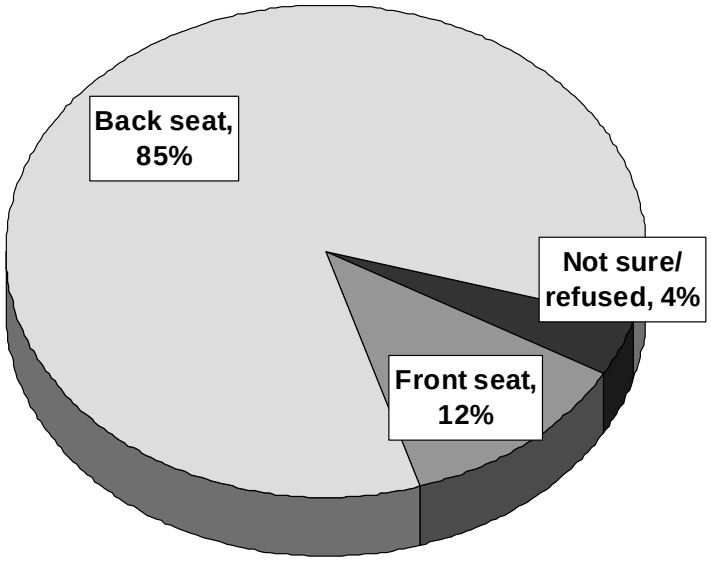
Qx: When the (AGE) doesn't ride in the child car seat when riding with you, does (he/she) usually sit on someone's lap?

Base: Child under age 9 uses a car seat, but not all of the time.

Unweighted N=136

When asked if the child usually sat in the front seat or the back seat when not riding in the car seat, more than four-fifths (85%) said the back seat. Another 12% said the child usually rode in the front while the remainder did not know (1.1%) or refused to respond (2.5%).

Figure 72
Does Child Usually Sit In Front Seat Or Back Seat When Not Riding In The Car Seat?



Qx: When the (AGE) doesn't ride in the child car seat when riding with you, does (he/she) usually sit in the front seat or in the back seat?

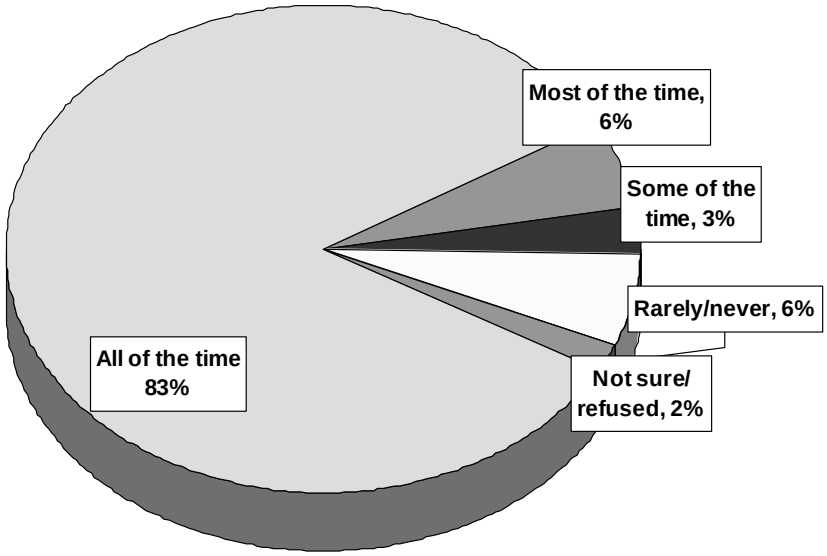
Base: Child under age 9 uses a car seat, but not all of the time.

Unweighted N=136

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

Most children who were part time car seat users wore a safety belt when they were not in their car seat. Eighty-three percent reportedly used the safety belt all of the time when not in the car seat, and 6% used it most of the time.

Figure 73
Frequency Of Safety Belt Use When Child Is Not In Car Seat



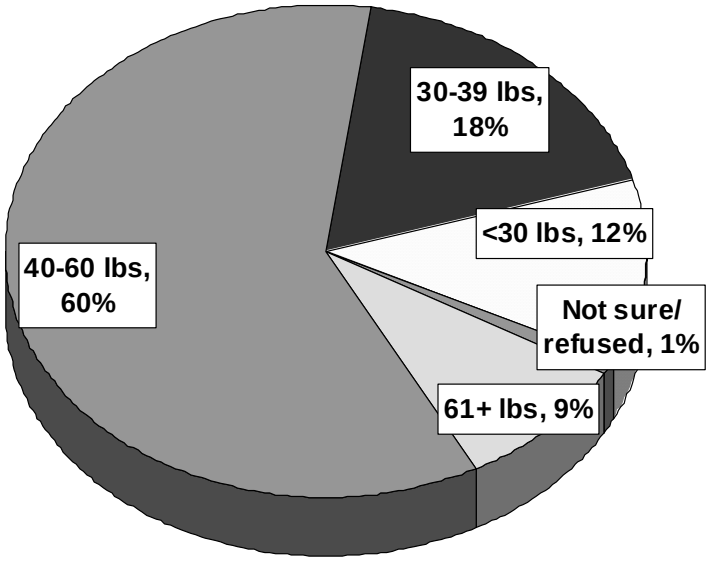
Qx: When the (AGE) doesn't ride in the child car seat when riding with you, how often is (he/she) buckled in a seat belt?

Base: Child under age 9 uses a car seat, but not all of the time.

Unweighted N=136

Most children (60%) who always or most of the time wore a safety belt when not using a car seat weighed 40-60 pounds. However, three-in-ten children (30%) weighed under 40 pounds, and more than one-in-ten (12%) reportedly weighed less than 30 pounds.

Figure 74
Weight Of Children Who Always Or Most Of The Time Use Safety Belts When Not In Their Car Seat



Qx: How much does (AGE) weight?

Qx: When the (AGE) doesn't ride in the child car seat when riding with you, how often is (he/she) buckled in a seat belt?

Base: Child under age 9 is a part time car seat user who uses a safety belt all or most of the time when not riding in the car seat.

Unweighted N=122

The survey also sought to determine how well safety belts fit children who still used a car seat at least on occasion. Correct lap belt fit would entail the lap belt going across the child's upper thighs or hips. This was reported to be the case for a majority of the children (65%), although many reportedly had the safety belt going across the child's stomach (45%). Problems with shoulder belt fit also appeared, such as the belt cutting across the child's neck or face (38%), or the child placing the shoulder belt behind his/her back (30%) or under his/her arm (25%).

Table 11
How Safety Belt Fits The Child:
Part Time Users Of Car Seats

On most trips, ….	*Unweighted N	Percent
The lap belt goes across the child's upper thighs or hips.	(124)	65%
The lap belt goes across the child's stomach.	(124)	45%
The child's legs bend over the edge of the seat.	(129)	47%
The shoulder belt goes across the child's neck or face.	(102)	38%
The child puts the shoulder belt behind (his/her) back.	(102)	30%
The child puts the shoulder belt under (his/her) arm.	(102)	25%

Qx: Please tell me, yes or no, if the following things usually happen when the (AGE) wears a seat belt while riding in a motor vehicle. On most trips, does …?

Base: Child under age 9 is a part time car seat user who at least on occasion uses a safety belt.

**Respondents were asked only those questions concerning fit appropriate for the type of safety belt usually worn by the child (I.e. shoulder only, lap only, or shoulder and lap belt systems), resulting in the different N-sizes.*

Parents/caregivers were also asked the age at which a child was generally ready to wear a safety belt. Table 12 compares the responses provided by parents/caregivers who said the child used a car seat, but not every time, with those who claimed that the child was always in a car seat when riding with them. The most frequent response for both groups was 6-years-old, with 50% of either group believing a child was generally ready to wear a safety belt by age 6 or younger.

Table 12
Age At Which Parent/Caregiver Believes A Child Is Ready To Begin Wearing A Safety Belt: Part Time Versus Full Time Car Seat Users

Age	Part time users (N=136)	Full time users (N=779)
1 year	1%	*
2 years	--	*
3 years	5%	3%
4 years	11%	7%
5 years	15%	20%
6 years	18%	20%
7 years	15%	11%
8 years	13%	14%
9 years	3%	2%
10 years	4%	5%
11 years	3%	*
12 years	1%	3%
Other/Depends on weight/height	3%	5%
Not sure/refused	7%	9%

Qx: In general, at what age do you think a child is ready to begin wearing a seat belt rather than use some type of child car seat?

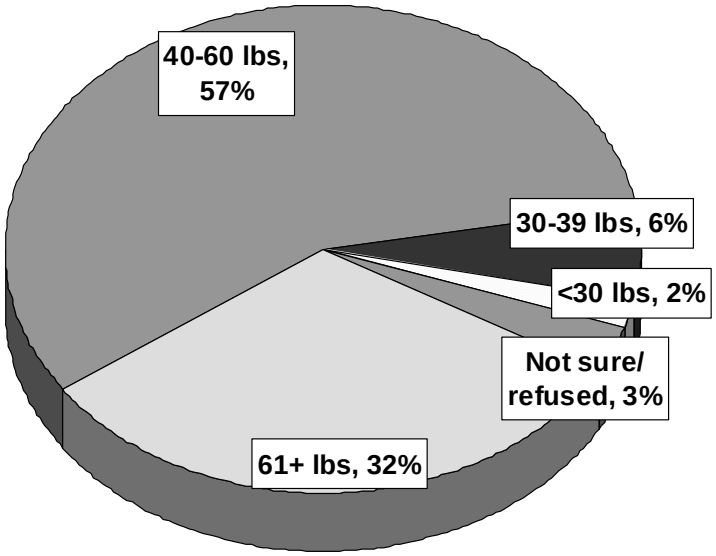
Base: Child under age 9 uses a car seat.

**Less than 0.5%. -- No cases.*

Children Who Never Use Car Seats

The children who never used car seats were mostly larger children. Nearly six-in-ten (57%) weighed 40-60 pounds and 32% weighed 61 pounds or more, while only 8% weighed less than 40 pounds.

Figure 75
Weight Of Children Who Never Use Car Seats



Qx: How much does (AGE) weight?

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats, and booster seats. Would you say (he/she) rides in a child car seat…?

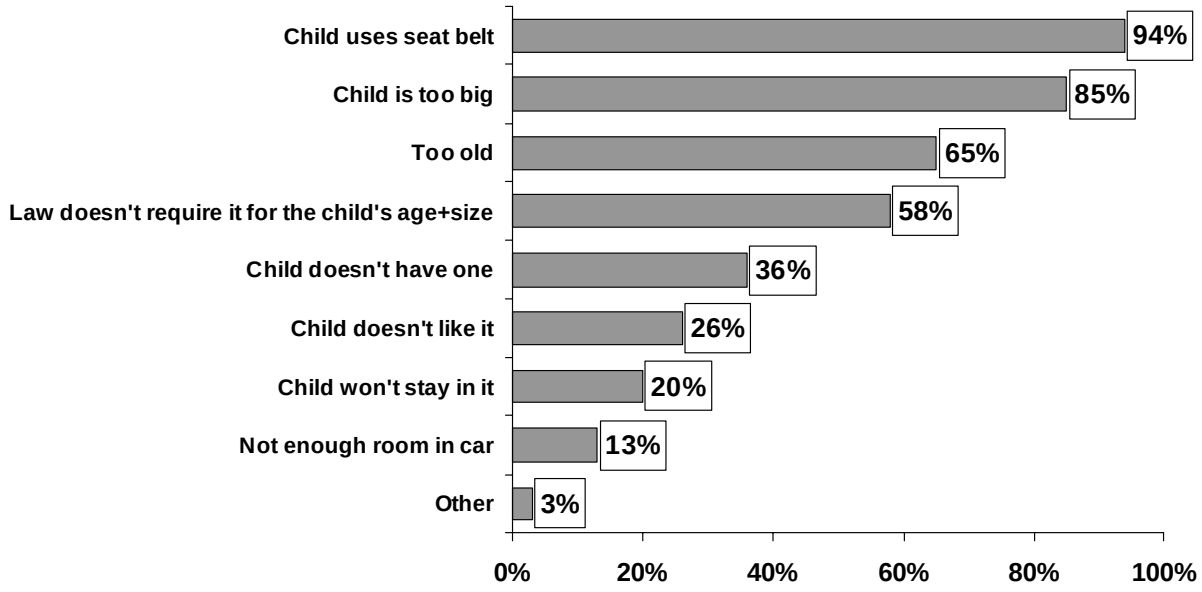
Base: Child under age 9 never uses a car seat.

Unweighted N=479

When asked the reason why the child never uses a car seat, the respondents usually answered that it was because the child uses a safety belt (94%) and was too big (85%). Other reasons given for not using a car seat included the child was too old (65%), the law does not require it for the child's age and size (58%), and the child does not have one (36%).

If the respondent said that the child did not have a car seat, the interviewer asked if there was a particular reason why. Nearly half (46%) answered "no" while 1% said they did not know. Those who gave a reason most frequently indicated that it was because the child was too big or too old for the seat.

Figure 76
Reasons Child Never Rides In Car Seat



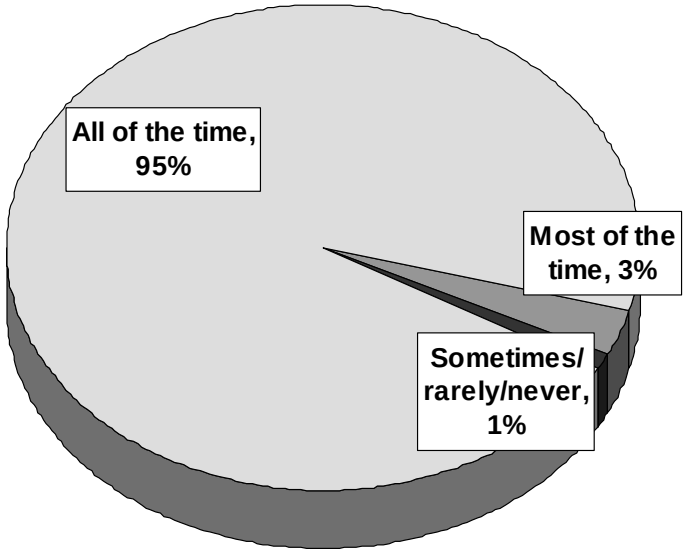
Qx: Please answer yes or no to each of the following statements to indicate if this is a reason why the (AGE) does not ride in a child car seat. My (AGE) doesn't ride in a child car seat because….

Base: Child under age 9 never uses a car seat.

Unweighted N=479

The vast majority of children who never use car seats reportedly wear a safety belt all (95%) or most (3%) of the time when riding in motor vehicles.

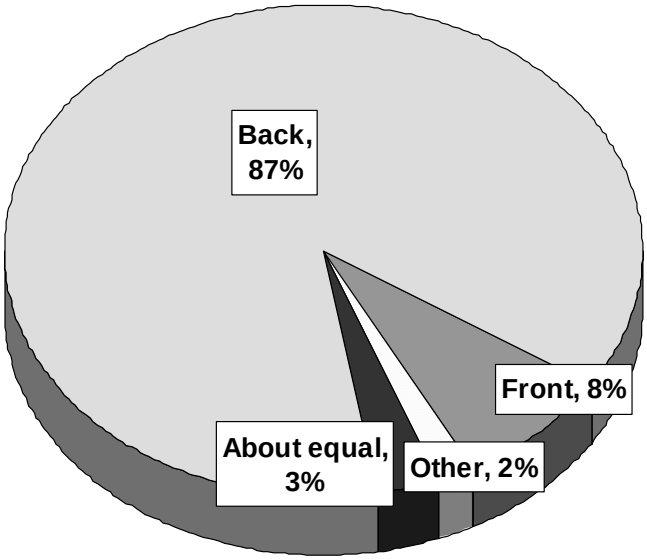
Figure 77
Frequency Child Uses Safety Belt: Children Who Never Use Car Seats



Qx: How often does he/she use a seat belt?
Base: Child under age 9 never uses a car seat.
Unweighted N=479
The sum of the percentages in the pie chart does not equal 100% because the numbers are rounded.

The vast majority (87%) of children under age 9 who never use car seats tended to sit in the back seat, while 8% usually sat in the front seat. Another 3% sat about equally in the front seat and the back seat.

Figure 78
Where Child Usually Sits In Vehicle: Children Who Never Use Car Seats



Qx: Where does the (AGE) usually sit in the vehicle when you are driving –the front seat or the back seat?
Base: Child under age 9 never uses a car seat.
Unweighted N=479

As with parents/caregivers of part time car seat users, the parents/caregivers of children who never used car seats but instead used safety belts were asked how well the safety belt fit the child. As shown in Table 13, problems with the fit of the shoulder belt were somewhat more likely among part time car seat users than among the non-users.

Table 13
How Safety Belt Fits The Child: Non-Users Of Car Seats Versus Part Time Users Of Car Seats

On most trips, ….	Non-users of car seats	Part time car seat users
The lap belt goes across the child's upper thighs or hips.	62% (N=463)	65% (N=124)
The lap belt goes across the child's stomach.	41% (N=463)	45% (N=124)
The child's legs bend over the edge of the seat.	80% (N=474)	47% (N=129)
The shoulder belt goes across the child's neck or face.	29% (N=392)	38% (N=102)
The child puts the shoulder belt behind (his/her) back.	25% (N=392)	30% (N=102)
The child puts the shoulder belt under (his/her) arm.	17% (N=392)	25% (N=102)

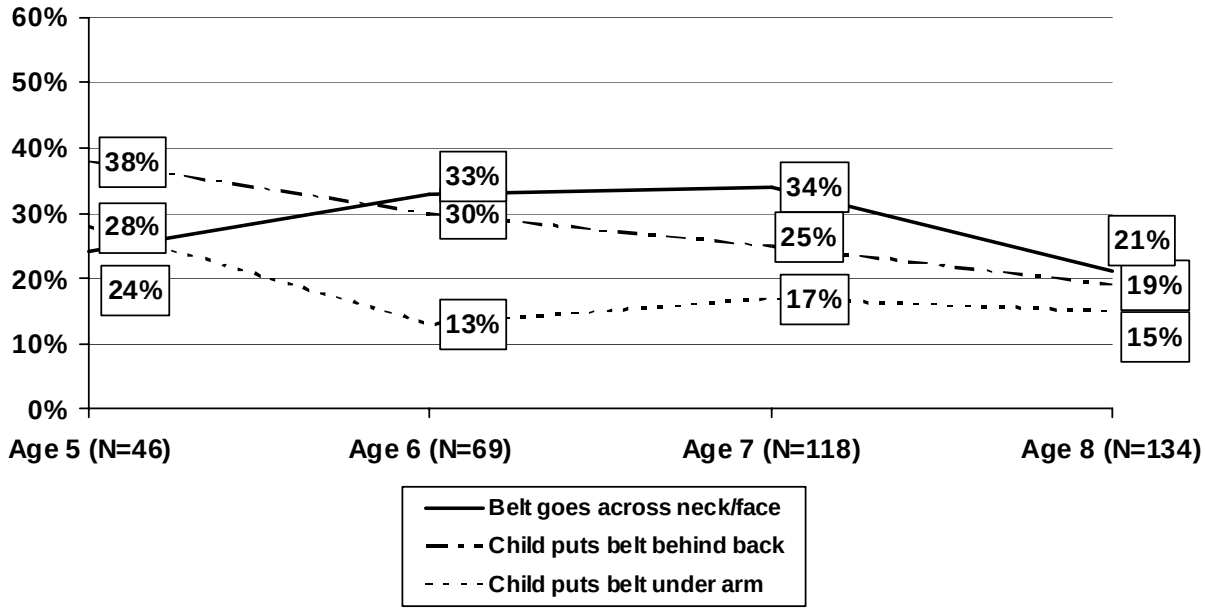
Qx: Please tell me, yes or no, if the following things usually happen when the (AGE) wears a seat belt while riding in a motor vehicle. On most trips, does …?

Base: Child under age 9 never uses a car seat but uses a safety belt, or is a part time car seat user who at least on occasion uses a safety belt.

**Respondents were asked only those questions concerning fit appropriate for the type of safety belt usually worn by the child (I.e. shoulder only, lap only, or shoulder and lap belt systems), resulting in the different N-sizes.*

The responses to the questions on shoulder belt fit were analyzed by the children's ages to determine if there was a "break point" at which juncture problems with fit steeply declined. The analyses included only those ages (5-8) for which there were more than 45 cases. The data indicated that the children were most likely to place the shoulder belt behind the back or under the arm at age 5. Placement of the belt behind the back then progressively declined as the children became older (38%, 30%, 25%, 19%) whereas placement of the belt under the arm fell sharply at age 6 and then remained at that approximate level through ages 7 and 8 (28%, 13%, 17%, 15%). Conversely, problems with the belt going across the face or neck peaked at ages 6 and 7 (24%, 33%, 34%, 21%). Readers are cautioned that these numbers are based on very small subsample sizes and that the noted differences are suggested rather than statistically significant (due to the aforementioned small subsample sizes).

Figure 79
Shoulder Belt Fit Problems By Child's Age:
Non-Users Of Car Seats Ages 5 Through 8



Qx: Please tell me, yes or no, if the following things usually happen when the (AGE) wears a seat belt while riding in a motor vehicle. On most trips, does …?

Base: Child age 5-8 never rides in a car seat and uses a safety belt having a shoulder strap.

Unweighted N's listed above.

Parents/caregivers of children who did not use child safety seats at all (non-users) tended to believe that children were ready to begin wearing a safety belt at a slightly younger age than parents of children who used child safety seats (part time and full time users). They most frequently gave age 5 as the transition point, compared to age 6 by parents/ caregivers of part time and full time car seat users. Overall, 40% of the parents/caregivers of non-users gave an age of 5 or younger as the point when a child is ready to begin wearing a safety belt compared to 32%* of the part time users and 31% of the full time users.

Table 14
Age At Which Parent/Caregiver Believes A Child Is Ready To Begin Wearing A Safety Belt: Non-Users Versus Users Of Car Seats

Age	Non-users (N=479)	Part time users (N=136)	Full time users (N=779)
1 year	*	1%	*
2 years	*	--	*
3 years	3%	5%	3%
4 years	12%	11%	7%
5 years	25%	15%	20%
6 years	22%	18%	20%
7 years	11%	15%	11%
8 years	6%	13%	14%
9 years	1%	3%	2%
10 years	1%	4%	5%
11 years	--	3%	*
12 years	*	1%	3%
Other/Depends on weight/height	4%	3%	5%
Not sure/refused	14%	7%	9%

Qx: *In general, at what age do you think a child is ready to begin wearing a seat belt rather than use some type of child car seat?*

Base: *Child under age 9 identified as either a full time user, part time user or non-user of car seats.*

**Less than 0.5%. -- No cases.*

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

2003 SURVEY RESULTS

CHAPTER 6: BOOSTER SEAT ISSUES

Type of Restraint Used By Children Under Age 9

Chapter 3 presented data on the type of car seats used by children, but only as a percentage of car seat users (e.g., 60% of children who used car seats were using front facing child safety seats), Tables 15 and 16 show the percentage of all children who use infant seats, front facing child safety seats and booster seats based on responses provided by the parents/caregivers defined on page 30. Readers are cautioned about the small subsample sizes at each age and weight range.

A discussion on how the type of child restraint was determined, and the difficulties in attempting to make this determination over the telephone, was presented on page 35. As occurred in Chapter 3, Tables 15 and 16 include some degree of error resulting from these difficulties. In addition, the percentage of “all the time” car seat users on pages 32 and 33 is sometimes more than the combined percentage of booster seat, front facing child seat, and infant seat users on pages 107 and 108. This is because the Figures on pages 32-33 present parents’/caregivers’ response to the introductory car seat question which asked frequency of use. As indicated on pages 34 and 35, the survey subsequently recorded some contradictions to that response. The Tables on the following two pages move those cases to other categories, thereby occasionally producing lower overall figures for use of child restraints than appear on pages 32 and 33.

Only 64%, of the infants who had not reached the age of 1 were identified as using rear facing infant seats, at least on occasion. Another 18% appeared to be using front facing child safety seats. Seven percent were using booster seats as determined by the question on strap location (see page 35). Front facing child safety seats predominated among children ages 1 (84%), 2 (82%), 3 (76%), and 4 (53%). By age 4, there was a shift of some children to booster seats. Booster seat use peaked at age 5 (32%), but by age 6 most children no longer used a child restraint. For most children, an adult safety belt will not properly fit the child until at least age 8. NHTSA and other safety organizations consider a booster seat to be the appropriate restraint for most children ages 4 to 8 (although front facing child safety seats would be appropriate for small children at the younger end of that age range while large children at the older end may be adequate size for safety belts to fit them properly). Yet only 21% of children age 4 to 8 were using booster seats according to the data while another 19% were using front facing child safety seats. More than one-half (54%) of children age 4 to 8 were not using a child restraint according to the parents and caregivers.

Table 15
Percentage Of Children Who At Least On Occasion Use A Child Restraint By Age

Age	<1	1	2	3	4	5	6	7	8	4-8
Unweighted N	(148)	(110)	(169)	(163)	(143)	(171)	(158)	(197)	(181)	(850)
Booster seat	7%	3%	8%	12%	29%	32%	27%	15%	9%	21%
Front facing child seat	18%	84%	82%	76%	53%	27%	15%	8%	1%	19%
Infant seat	64%	9%	1%	2%	1%	2%	1%	*	1%	1%
Uses seat, but not sure or refused to identify strap location or seating direction	--	1%	2%	1%	--	--	--	*	--	*
Never uses seat	1%	--	2%	4%	13%	29%	53%	72%	87%	54%
Changed from “Uses seat” to “Never uses seat”	2%	*	1%	2%	1%	5%	1%	2%	*	2%
Never drive child	2%	1%	--	2%	1%	*	1%	1%	--	1%
Changed from “Uses seat when respondent drives” to “Never drive child”	5%	1%	4%	1%	2%	4%	2%	*	--	1%
Refused/no answer given for frequency of car seat use	1%	--	--	--	--	1%	1%	1%	1%	1%

** Less than 0.5%. --Zero cases.*

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?
Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?
Qx: When you are driving and the (AGE) is riding in the child car seat, is he/she usually front facing or rear facing?
Base: Parent/caregivers as defined on page 30.

Table 16 shows the type of child restraint used at different weight ranges. Among children under age nine who weighed 40 or more pounds, more than half were not using a child restraint (56%).

Table 16
Percentage Of Children Who At Least On Occasion Use A Child Restraint By Weight

Weight	<20 lb.	20-29 lb.	30-39 lb.	40-60 lb.	61+ lb.
Unweighted N	(88)	(241)	(318)	(576)	(192)
Booster seat	7%	5%	15%	25%	9%
Front facing child seat	9%	69%	70%	23%	4%
Infant seat	76%	15%	2%	1%	2%
Uses seat, but not sure or refused to identify strap location or seating direction	--	2%	--	*	*
Never uses seat	--	2%	7%	47%	82%
Changed from "Uses seat" to "Never uses seat"	1%	2%	2%	2%	2%
Never drive child	2%	1%	1%	1%	--
Changed from "Uses seat when respondent drives" to "Never drive child"	5%	4%	3%	1%	1%
Refused/no answer given for frequency of car seat use	--	--	--	--	--

** Less than 0.5%. --Zero cases.*

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

Qx: When the (AGE) is fastened in the child car seat, are there straps over both shoulders, a strap across only one shoulder, or are there no straps over either shoulder?

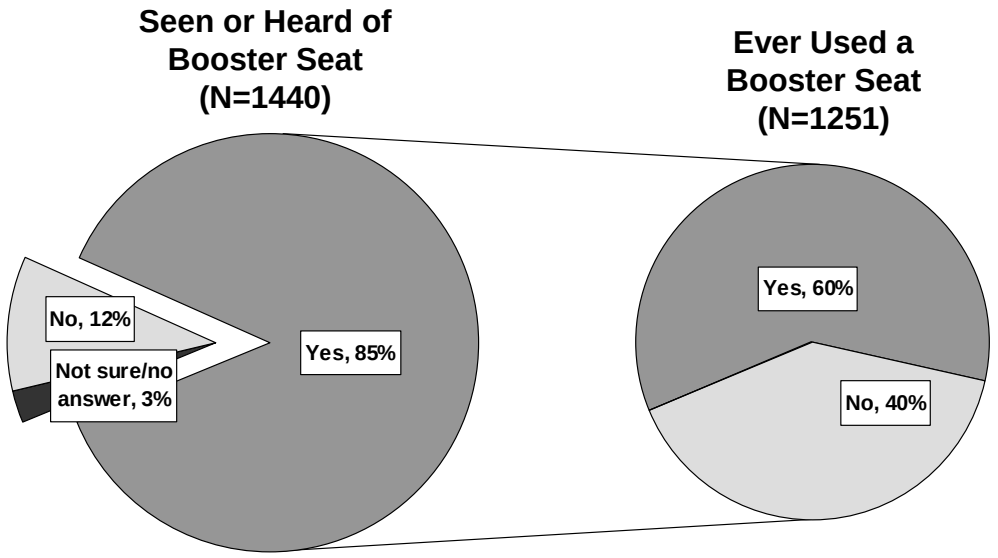
Qx: When you are driving and the (AGE) is riding in the child car seat, is he/she usually front facing or rear facing?

Base: Parent/caregivers as defined on page 30.

Awareness of Booster Seats

Use of improperly fitting restraint systems can lead to injuries. Booster seats are intended to bridge the gap between the time the child outgrows a front facing toddler seat to the time when the safety belt properly fits the child. As stated on page 106, a booster seat is the appropriate restraint for most children ages 4 to 8. Yet these children usually use safety belts instead (see pages 100 and 107). One question is whether people are aware of booster seats. Those considered most likely to have heard of them would be the parent/caregiver group. Figure 80 shows that about 5-out-of-6 were aware of booster seats. Among those aware of booster seats, 60% said they had used them with their child(ren).

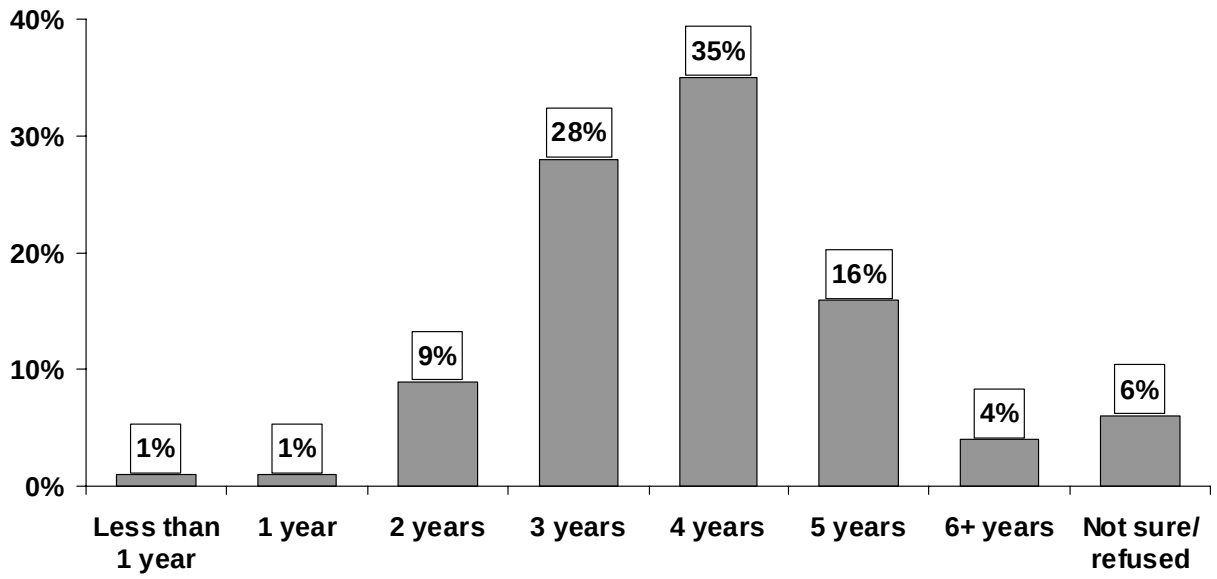
Figure 80
Knowledge And Use Of Booster Seats:
Parent/Caregiver Group



Qx: Before today, had you ever seen or heard of a type of car seat called a booster seat?
Qx: Have you ever used a booster seat when driving with your (child/children)?
Base: Parents/caregivers as defined on page 30.
Unweighted N's listed above.

The most frequent age at which parents/caregivers started using booster seats with their child(ren) was age four (35%). About two-in-five (39%) reported an age younger than age 4, while another 6% were unsure or refused to say at what age they began using the booster seat with the child(ren).

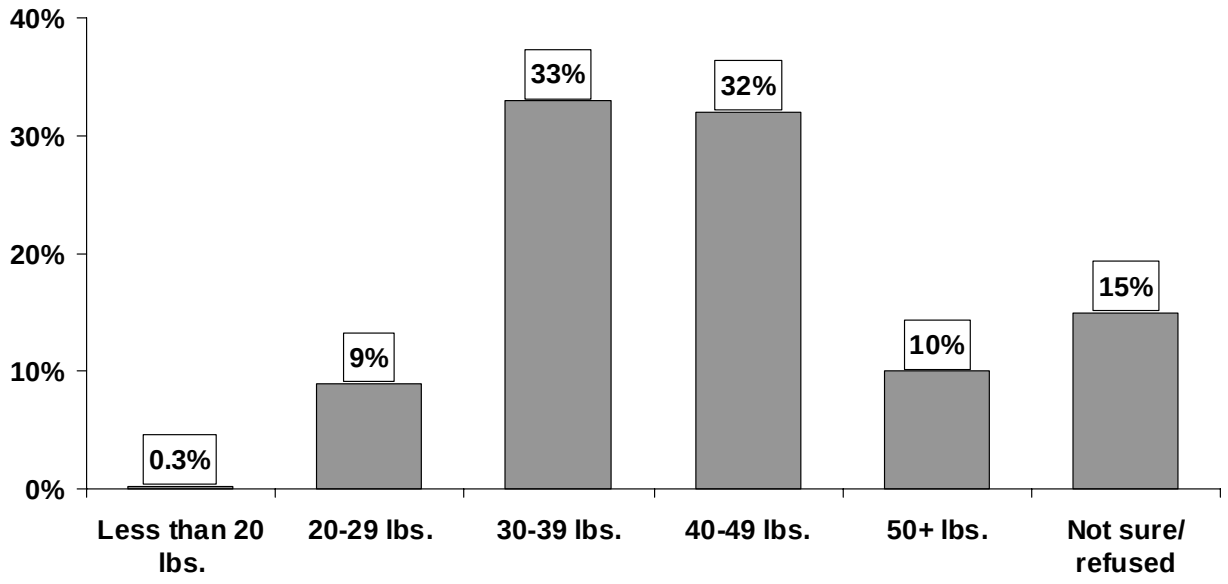
Figure 81
Age First Used Booster Seat



Qx: At what age did you begin using a booster seat for your (child/children)?
Base: Parents/caregivers who said they had used a booster seat when driving their child(ren).
Unweighted N=771

Forty pounds is generally touted as the approximate threshold weight for transitioning a child to a booster seat. However, more than four-in-ten (43%)* of the parents/caregivers who had used booster seats with their child(ren) indicated that they had started using the restraint before the child reached 40 pounds, while another 15% were unsure about the starting weight or else refused to respond.

Figure 82
Weight Of Child(ren) When First Used Booster Seat



Qx: About how much did the (child/children) weigh at the time you began using a booster seat?
Base: Parents/caregivers who said they had used a booster seat when driving their child(ren).
Unweighted N=771

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

In 2003 respondents were asked the most important reason for using a booster seat. About one-third of respondents said the most important reason for using a booster seat was to make the child safer and another third said a booster seat made the safety belt fit the child properly.

Table 17
Most Important Reason For Booster Seat

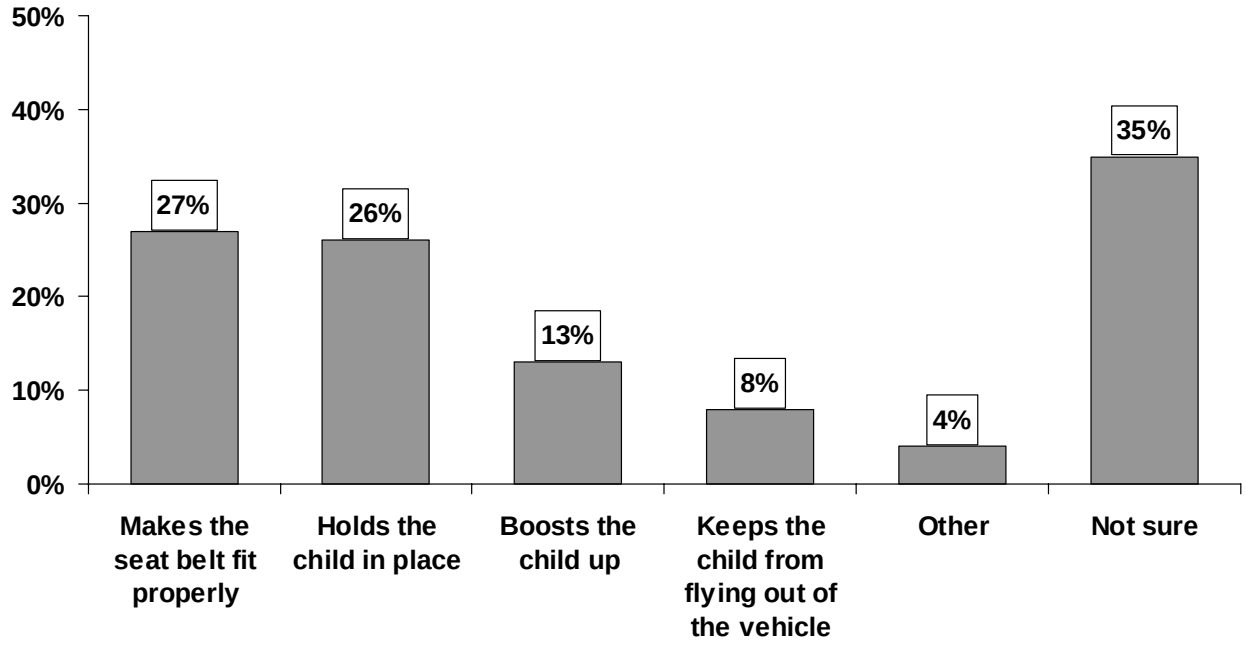
Reason	Percent
To make the safety belt fit properly	34%
To make child safer	32%
Safety/health professionals recommend it	7%
To allow the child to see out of the window better	5%
When child is too big for safety seat but too small for seat	2%
It's the law	1%
Don't want a ticket	*
Other	6%
Not sure/refused	13%

** Less than 0.5%*

Qx. What would you say is the MOST IMPORTANT reason for having a child use a booster seat?
Base: Parents/caregivers who said they were aware of booster seats.
Unweighted N=1251

Respondents who said the most important reason booster seats should be used was to make the child safer (or that safety/health professionals recommend it) were asked what the booster seat does that makes it safer. More than one-quarter said the booster seat makes the safety belt fit properly, and a similar percentage said it holds the child in place. More than one-third of respondents said they did not know how it makes the child safer.

Figure 83
How Booster Seat Is Safer

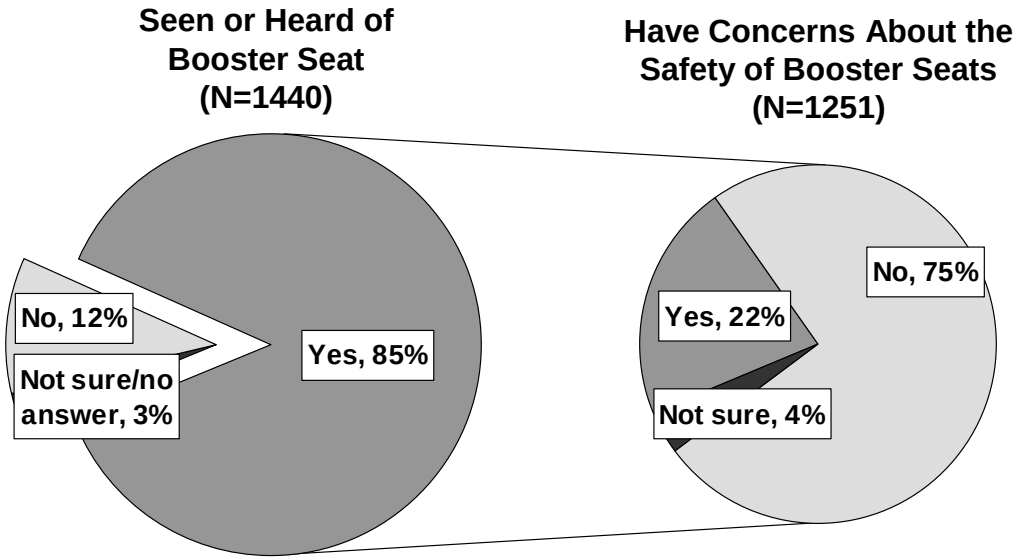


Qx. What does the booster seat do that makes the child safer?
Base: Said the most important reason to use a booster seat was to make the child safer, or that safety/health professionals recommend it.
Unweighted N=489
Total exceeds 100% due to multiple responses.

Concerns About The Safety of Booster Seats

During testing of the questionnaire prior to the 1998 MVOSS, subjects expressed concerns about the safety of booster seats. As a consequence, the 1998 survey added a question asking if the respondent had any concerns about the safety of booster seats. This question was asked only of parents/caregivers who had said they were aware of booster seats. Among the 85% of parents/caregivers who had seen or heard of booster seats, more than one-fifth (22%) had concerns about their safety and another 4% were unsure.

Figure 84
Have Concerns About The Safety Of Booster Seats



Qx: Before today, had you ever seen or heard of a type of car seat called a booster seat?

Qx: Do you have any concerns about the safety of booster seats?

Base: Parents/caregivers as defined on page 30.

Unweighted N's listed above.

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

When asked what concerns they had about the safety of booster seats, the parents/ caregivers criticized them as loose fitting and unstable systems that would not adequately restrain the child in a crash.

Table 18
Concerns About Booster Seat Safety

Concern	Percent
Security of attachment (net)	**32%**
Seat isn't securely attached to car's seat/not stable/seat slides/shifts /rocks/moves around	19%
Seat is not secure	8%
Straps can't secure seat tightly enough	1%
Any other security of attachment mentions	3%
Inadequate restraint (net)	**35%**
Inadequate restraint/does not fully restrain child (unspecified)	15%
Child/infant could slip/slide out/nothing to keep infant from sliding out of seat	10%
Easy for child to climb/wiggle/escape out of seat	4%
Child could be ejected/thrown/fly out of seat in a sudden stop	4%
Any other inadequate restraint capability mentions	2%
Easy for child to unlock/unbuckle/undo booster seat	1%
Other	**39%**
Safety concerns/don't know how safe they are (unspecified)	16%
How safe they are compared to regular infant/child safety seats	5%
How safe they would be in an accident	4%
Poorly/improperly designed	3%
My child is too small/young to use it	2%
Know of a child who was injured	*
Any other type of response	9%
Not sure/refused	**2%**

Qx: What are those concerns (about the safety of booster seats)?

Base: Parents/caregivers who said they had concerns about the safety of booster seats.

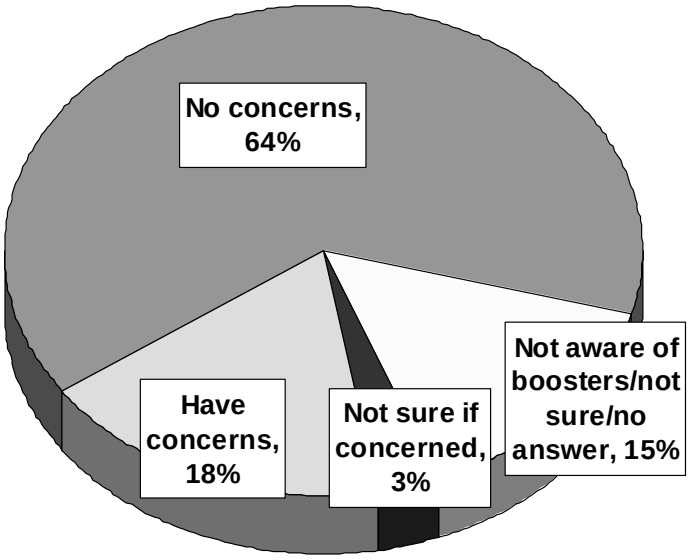
Unweighted N=274

**Less than 0.5%.*

Total exceeds 100% due to multiple responses.

In total, 15% of parents/caregivers either were not aware of booster seats, or were unsure if they had seen or heard about them, or did not provide a response (see page 109). Almost one-fifth of parents/caregivers (18%) had heard of booster seats and had concerns about them (i.e., 22% of the 85% who were aware of booster seats). Three percent were aware of booster seats, but unsure whether they had concerns about their safety. The remaining 64% of parents/caregivers said they were aware of booster seats, and had no concerns about their safety.

Figure 85
Awareness And Concerns About Booster Seats

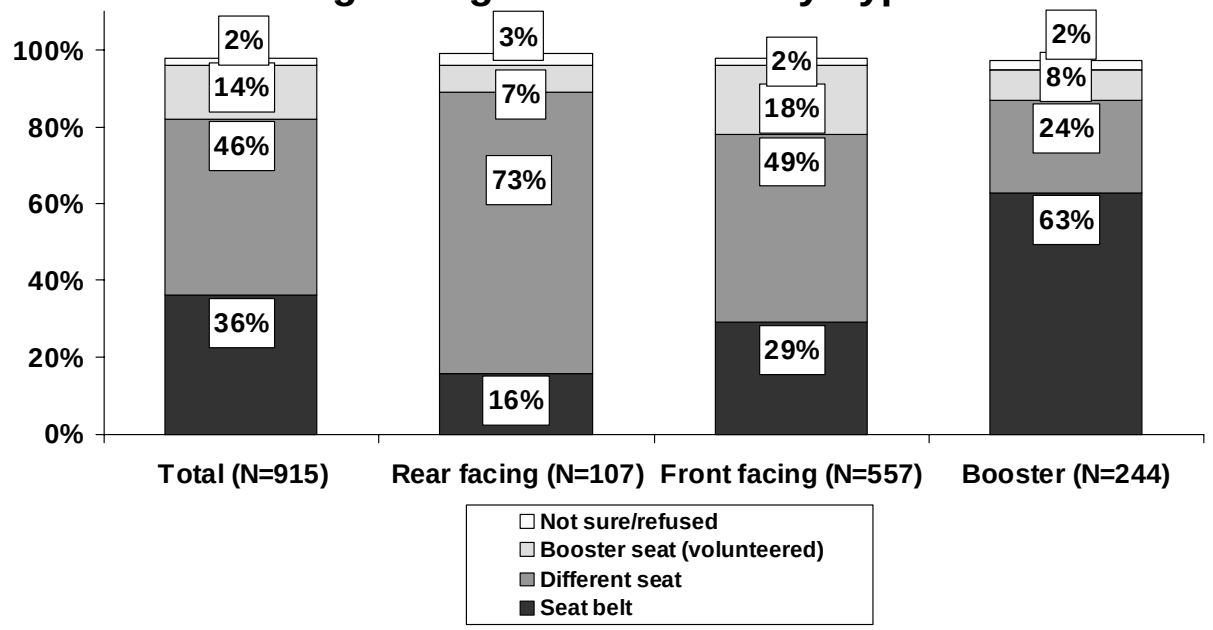


Qx: Before today, had you ever seen or heard of a type of car seat called a booster seat?
Qx: Do you have any concerns about the safety of booster seats?
Base: Parents/caregivers as defined on page 30.
Unweighted N=1440

Expected Restraint System After Outgrowing Current Seat

The interviewers asked parents/caregivers if they expected the child to use "a different type of car seat, a seat belt, or something else" after outgrowing the current seat. In general, children in rear facing seats were expected to move on to other safety seats, although 16% expected the child to use safety belts and 1% volunteered "nothing." Expectations became more varied with front facing safety seats as 67% said that the child would use a different seat or booster seat while 31% either answered that the child would graduate to safety belts or else that they did not know what would happen.

Figure 86
Expected Restraint System For Child After Outgrowing Current Seat By Type of Seat



Qx: When your (AGE) outgrows his/her current child car seat, do you expect him/her to use a different type of car seat, a seat belt or something else?

Base: Child under 9 at least on occasion rides in a child car seat.

Unweighted N's listed above.

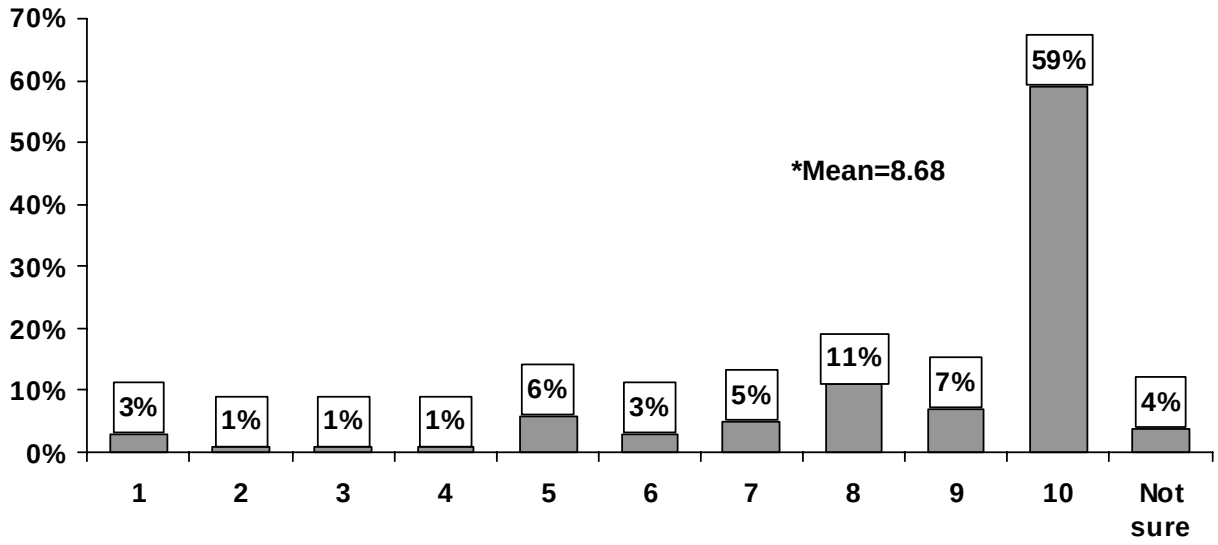
2003 SURVEY RESULTS

CHAPTER 7: ATTITUDES TOWARD ENFORCEMENT OF CHILD RESTRAINT LAWS

Support For Enforcement Of Car Seat Laws

The public age 16 and older favors stringent enforcement of car seat laws. Interviewers asked respondents their opinion of how strict police enforcement of child car seat laws should be. Respondents were asked to answer on a scale of 1 to 10, where 1 meant that police should hardly ever give a ticket for a car seat violation and 10 meant that police should give a ticket at every opportunity. Almost three-in-five persons (59%) believed that the police should issue a ticket at every opportunity. The mean score on the 10-point scale was 8.68.

Figure 87
Level Of Support For Enforcing Car Seat Laws



Qx: How do you personally feel about the police enforcement of child car seat laws? On a scale of 1 to 10, where 1 means police should hardly ever give tickets and 10 means police should give a ticket at every opportunity for violation of child car seat laws, how strict should police enforcement be?

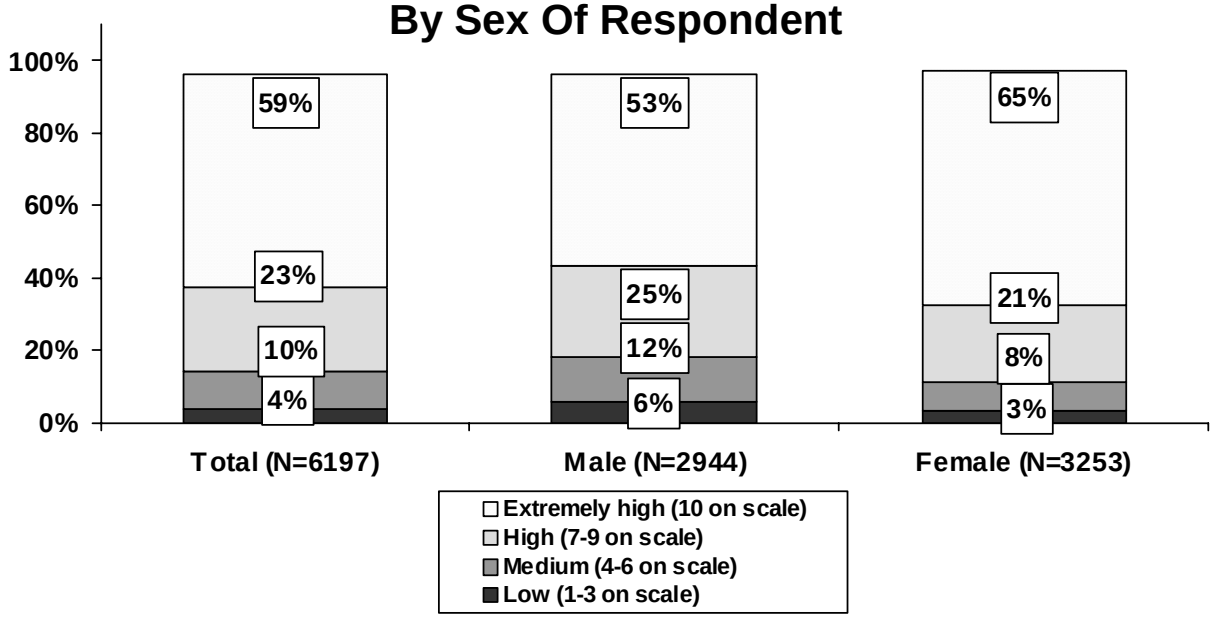
Base: Total population age 16+.

Unweighted N=6197

**The mean excludes respondents in the not sure/refused category.*

Females were more likely to call for strict enforcement of the car seat laws than males: 65% of females believed that police should give a ticket at every opportunity versus 53% of males.

Figure 88
Level Of Support For Enforcing Car Seat Laws By Sex Of Respondent



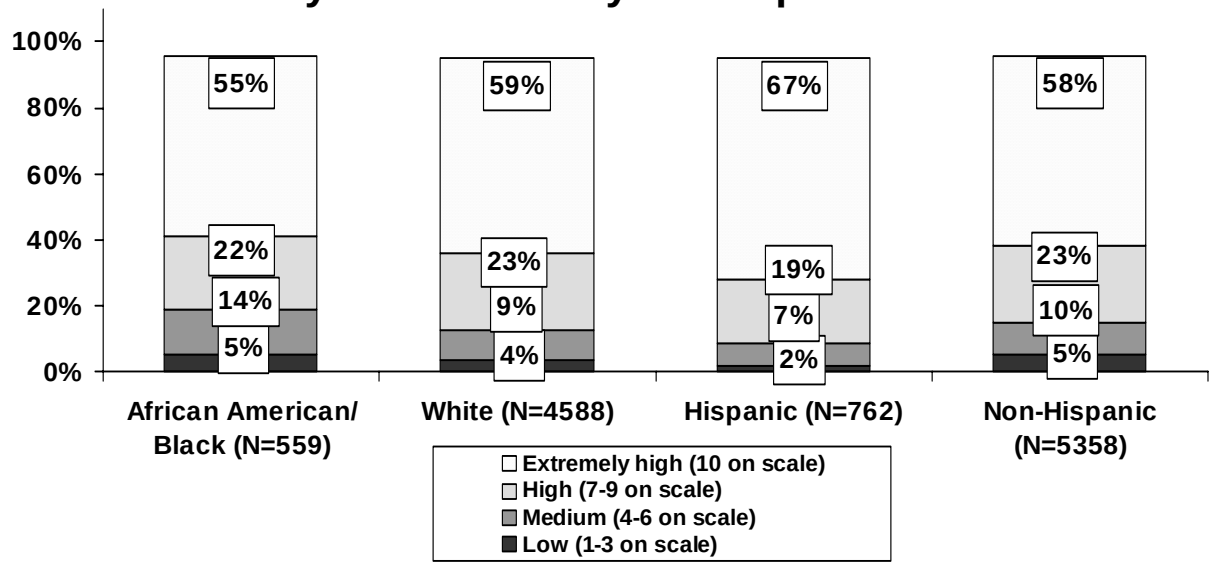
Qx: How do you personally feel about the police enforcement of child car seat laws? On a scale of 1 to 10, where 1 means police should hardly ever give tickets and 10 means police should give a ticket at every opportunity for violation of child car seat laws, how strict should police enforcement be?

Base: Total population age 16+.

Unweighted N's listed above.

There was very little difference in preferred level of police enforcement of child restraint laws between African Americans/Blacks and Whites. Hispanics were more likely than non-Hispanics to say police should give a ticket at every opportunity for car seat violations.

Figure 89
Level Of Support For Enforcing Car Seat Laws By Race/Ethnicity Of Respondent



Qx: How do you personally feel about the police enforcement of child car seat laws? On a scale of 1 to 10, where 1 means police should hardly ever give tickets and 10 means police should give a ticket at every opportunity for violation of child car seat laws, how strict should police enforcement be?

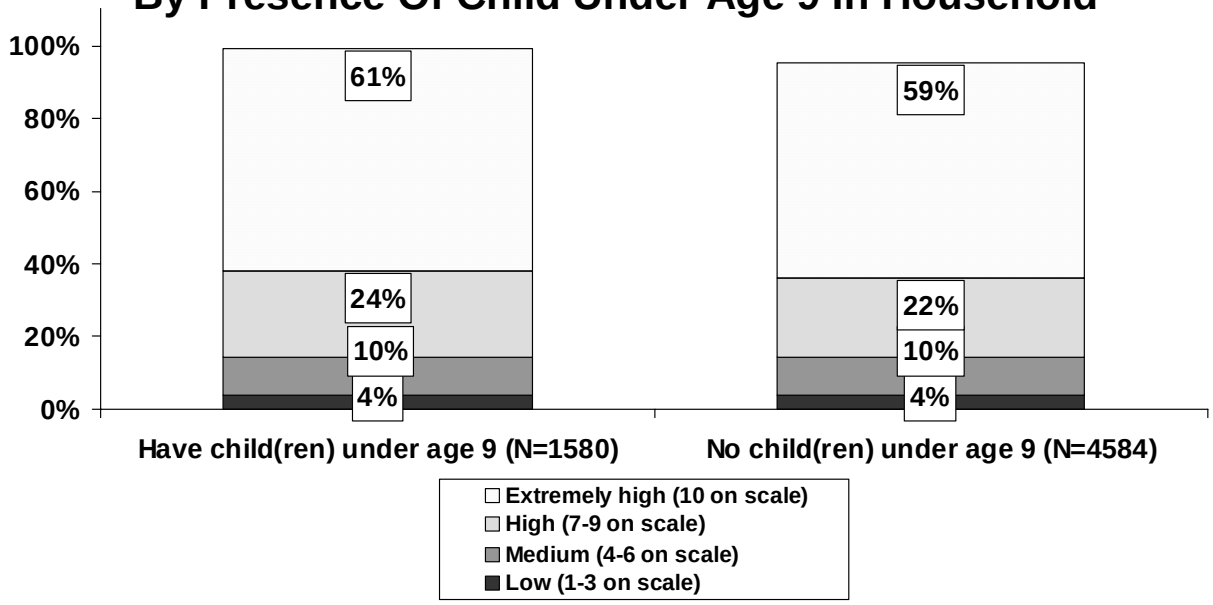
Base: Total population age 16+.

Unweighted N's listed above.

See page xx for background information on racial and ethnic categories.

The level of support for enforcing car seat laws was similar regardless of whether there were children under age 9 living in the household. Sixty-one percent of persons who had a child under the age of 9 in the household favored ticketing at every opportunity, as opposed to 59% who did not have a child in that age range living in their household.

Figure 90
Level Of Support For Enforcing Car Seat Laws By Presence Of Child Under Age 9 In Household



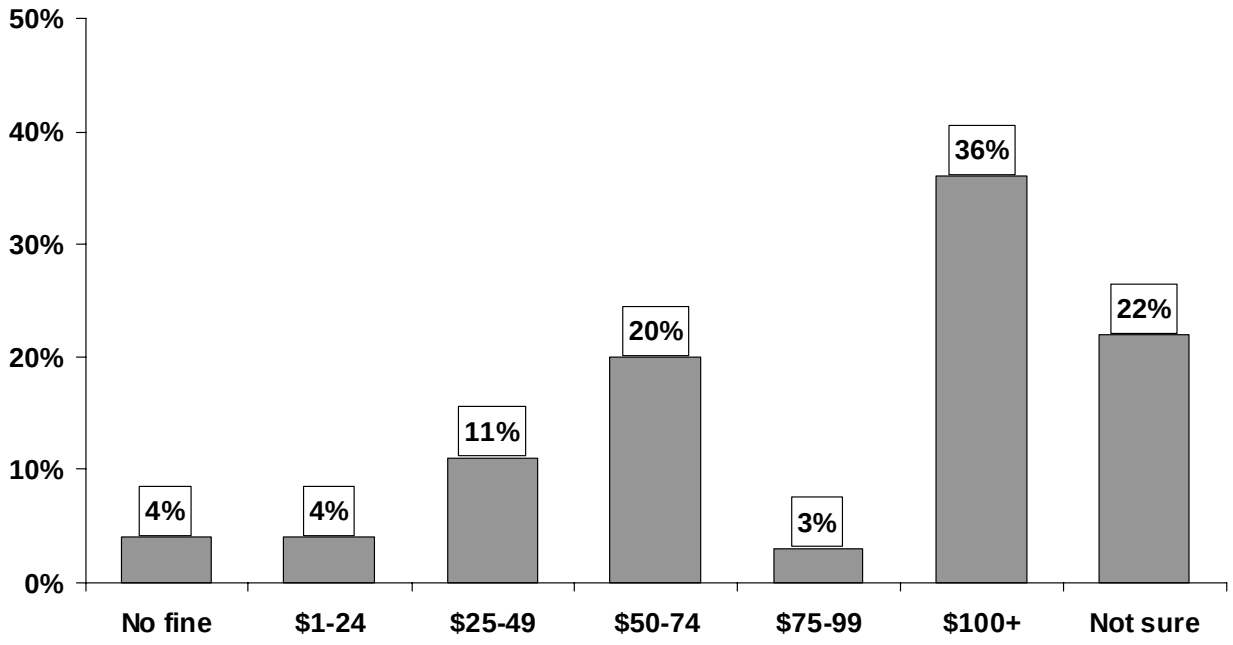
Qx: How do you personally feel about the police enforcement of child car seat laws? On a scale of 1 to 10, where 1 means police should hardly ever give tickets and 10 means police should give a ticket at every opportunity for violation of child car seat laws, how strict should police enforcement be?

Base: Total population age 16+.

Unweighted N's listed above.

Regardless of their attitude about police enforcement of child car seat laws, respondents age 16 and older were asked what they thought the minimum fine should be for violation of the laws. A majority (59%) believed the fine should be $50 or more, with more than one-third of the public (36%) favoring a fine of $100 or more.

Figure 91
Preferred Minimum Fine For Violation Of Car Seat Laws

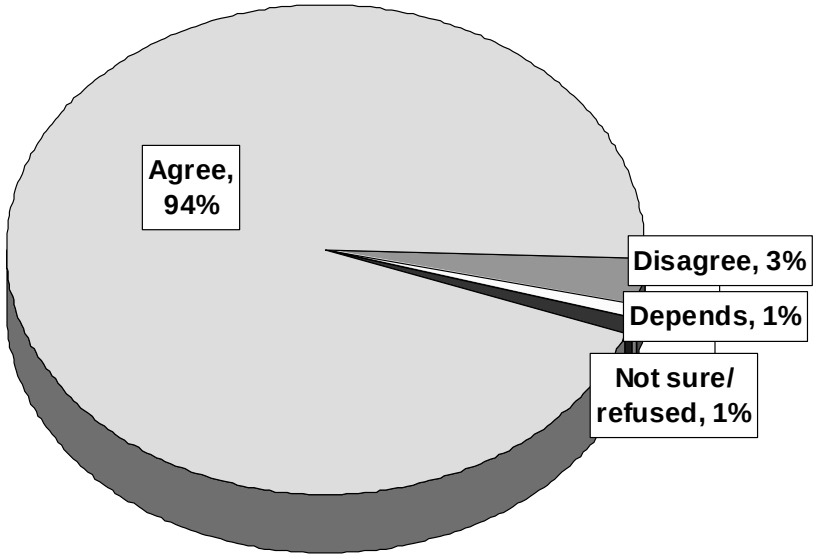


Qx: What do you think the minimum fine should be for violation of child car seat laws?
Base: Total population age 16+.
Unweighted N=6197

Attitudes About Occupant Restraint Requirements For Children Who Outgrow Car Seats

Ninety-four percent of persons age 16 and older agreed that children should be required by law to wear safety belts once they have outgrown car seats, including booster seats. Three percent disagreed and 1% believed that it depended on the age of the child.

Figure 92
Children Should Be Required To Wear Safety Belts When They Have Outgrown Car Seats



Qx: What about when children outgrow a child car seat, including booster seats? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

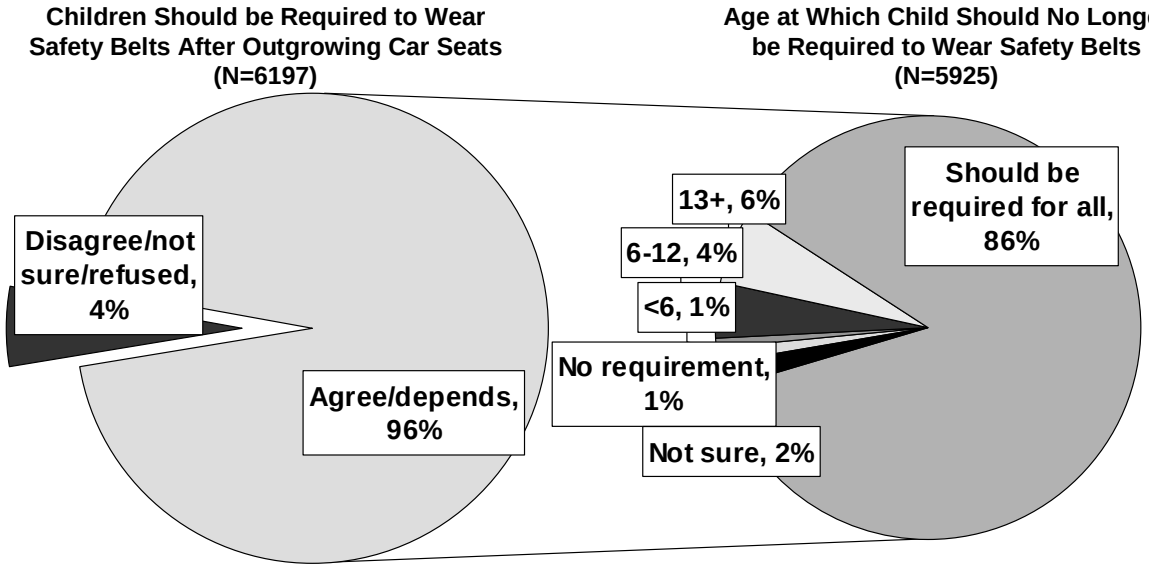
Base: Total population age 16+.

Unweighted N=6197

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

Those who agreed that children should be required to wear safety belts after outgrowing car seats/booster seats, or said it depended on the child's age, were asked if there was an upper age limit beyond which children should not be required to wear safety belts. The vast majority (86%) rejected the notion of an upper age limit by saying that safety belt use should be required for all children (which equated to 82% of the total population age 16 and older). The remaining respondents either offered a specific age as an age limit, reversed their previously stated support for the safety belt requirement, or said they did not know if there should be an age limit.

Figure 93
Age At Which Children Should No Longer Be Required To Wear Safety Belts



Qx: What about when children outgrow a child car seat, including booster seats? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

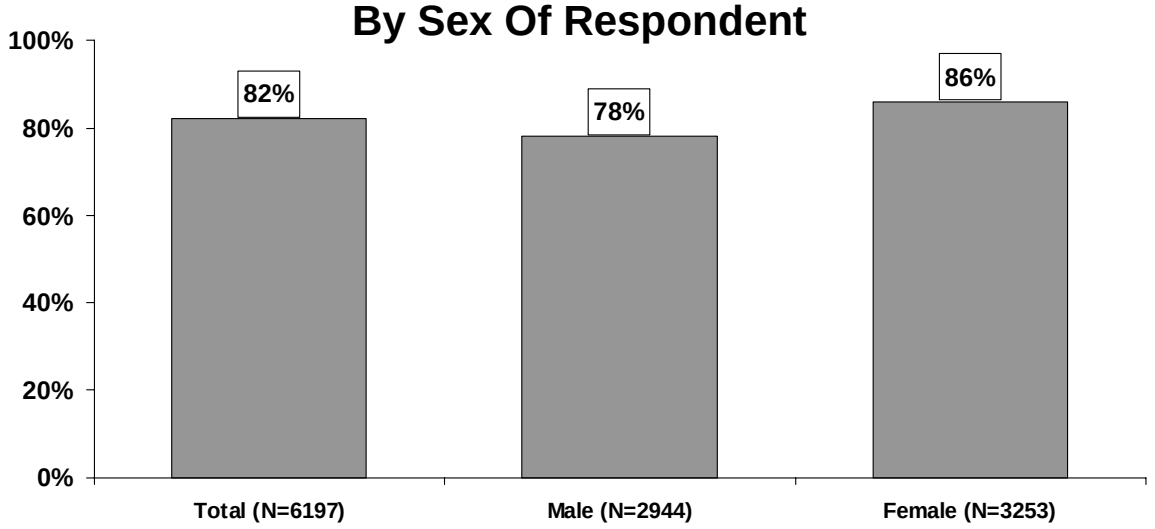
Qx: How old do you think children should be before they are not required by law to wear seat belts or do you think all children should be required to wear them?

Base: Total population age 16+.

Unweighted N's listed above.

As stated on the previous page, 82% of the public age 16 and older believed that all children should be required to wear safety belts after outgrowing car seats (86% of the 96% who agreed there should be a requirement or said it depended on the child's age). Females (86%) were more likely to favor the requirement for all children than were males (78%).

Figure 94
Believe Children Of All Ages Should Be Required To Wear Safety Belts If They Are Too Big For Car Seats By Sex Of Respondent



Qx: What about when children outgrow a child car seat, including booster seats? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

Qx: How old do you think children should be before they are not required by law to wear seat belts or do you think all children should be required to wear them?

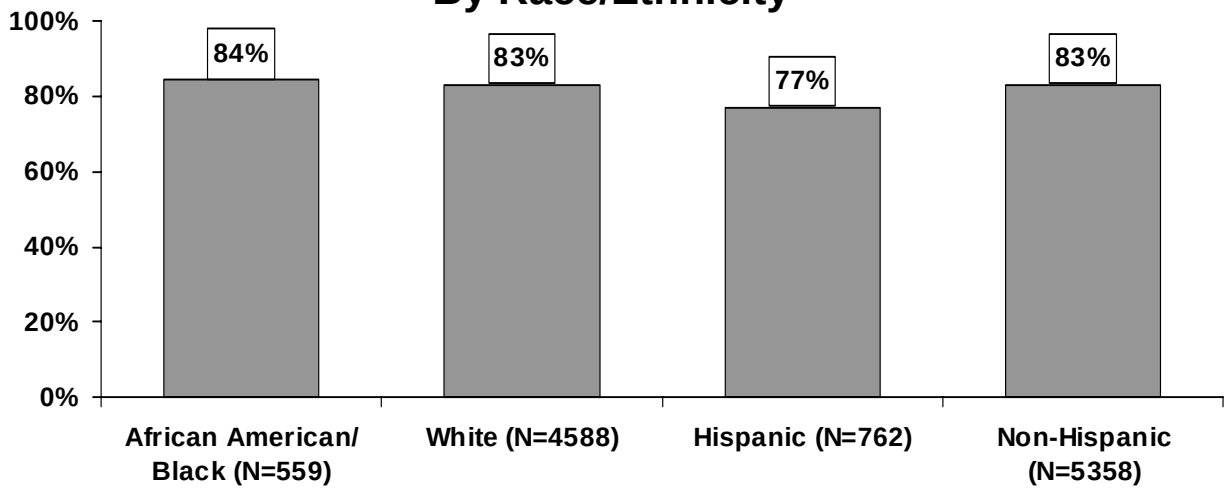
Base: Total population age 16+.

Unweighted N's listed above.

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

More than three-quarters of persons in each racial/ethnic group believed that all children should be required by law to wear safety belts after outgrowing car seats.

Figure 95
Believe Children Of All Ages Should Be Required To Wear Safety Belts If They Are Too Big For Car Seats By Race/Ethnicity



Qx: What about when children outgrow a child car seat, including booster seats? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

Qx: How old do you think children should be before they are not required by law to wear seat belts or do you think all children should be required to wear them?

Base: Total population age 16+.

Unweighted N's listed above.

See page xx for background information on racial and ethnic categories.

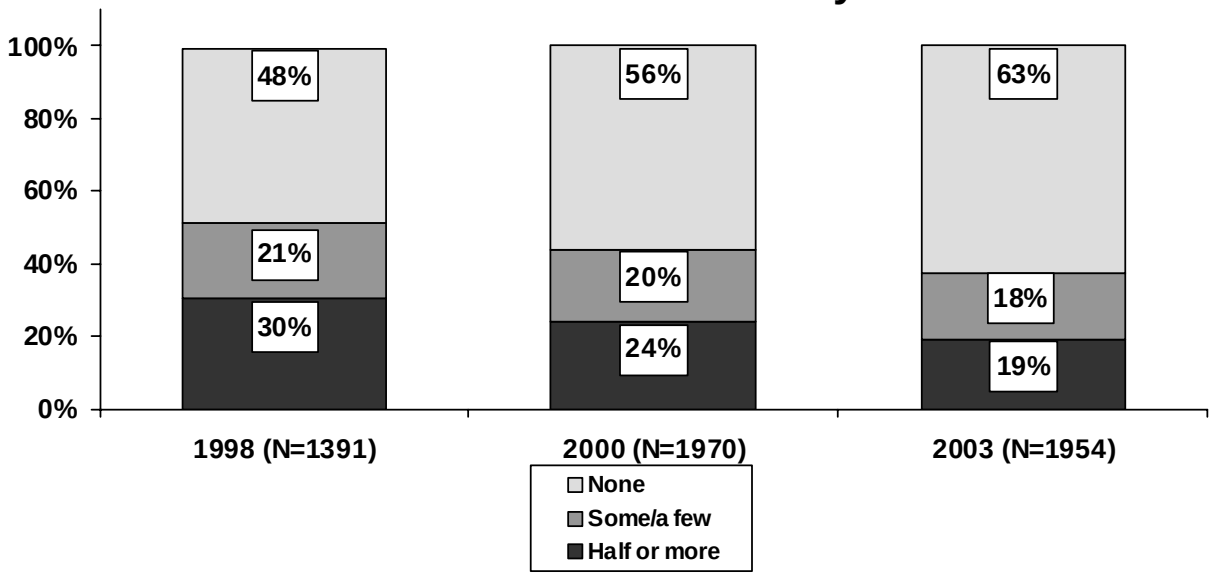
2003 SURVEY RESULTS

CHAPTER 8: TRENDS 1994 - 2003

Proportion Of Trips That Child Age 12 Or Younger Rides In Front Seat, 1998-2003.

The 1998 survey introduced questions asking the seating position of children age 12 and younger. Drivers who lived with one or more children in this age range were asked the proportion of trips that the youngest child rode in the front seat during the past 30 days when traveling with the respondent. In 1998, 30% said that the child rode in the front seat on half or more trips. The number decreased to 24% in 2000, and further decreased to 19% in 2003.

Figure 96
Proportion Of Trips That Youngest Child Rode In The Front Seat In The Past 30 Days: 1998-2003



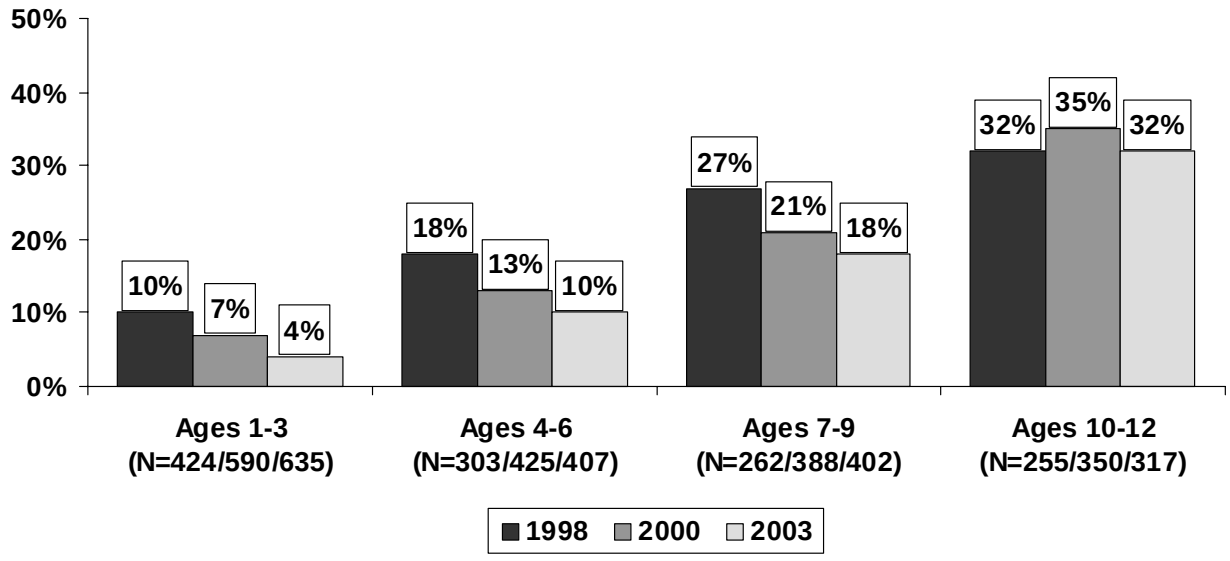
Qx: Think about all the times this child rode with you in the past thirty days, both with and without other passengers. About what proportion of those trips would you say that the child rode in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children age 12 or younger. Unweighted N's listed above.

Change In Seating Position Of Child Age 12 Or Younger From 12 Months Ago, 1998-2003

Figure 97 shows less movement to the front seat among younger children in 2003 compared to the survey findings in 2000 and 1998. This pattern levels out for children ages 10 through 12.

Figure 97
More Likely To Ride In The Front Seat Than 12 Months Ago By Child's Age: 1998-2003



Qx: Compared to 12 MONTHS ago, is this child more likely to ride in the front seat when you drive, as likely to ride in the front seat, or less likely to ride in the front seat?

Base: Drives a motor vehicle other than a motorcycle, and lives with one or more children ages 1 to 12.

Unweighted N's listed above.

Differences Between Current MVOSS Data And Previous MVOSS Data Concerning Child Restraint Use

Most of the detailed information in the MVOSS concerning attitudes, knowledge, and behavior regarding use of child restraints comes from a subgroup of the survey sample labeled parents/caregivers. Page 30 provides the definition of the group for the 2003 survey. This definition differs from that used in 1994-1998 in that the age range for the children was expanded for the 2000 survey. In 2000, drivers entered the parents/caregivers subgroup if they were parents/caregivers of children under age 9. In the surveys conducted from 1994 through 1998, they entered the subgroup if they were parents/caregivers of children under age 6. The 2000 survey extended the age range in order to fully cover the generally recommended ages for booster seat use (ages 4 to 8).

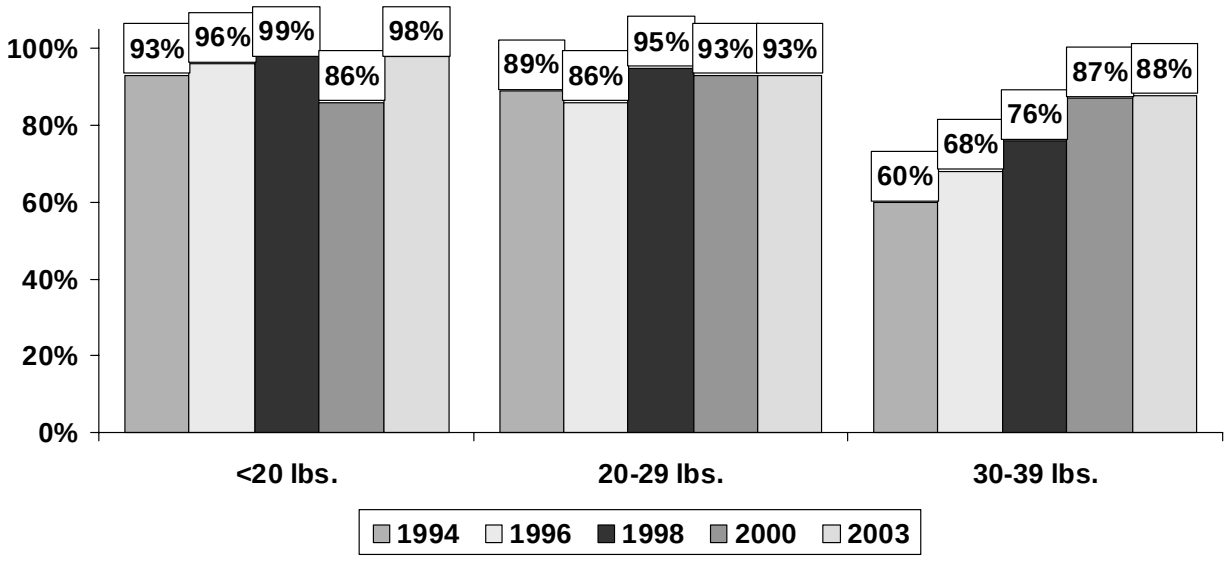
Because the definition of parents/caregivers changes, this means that the 2000 and 2003 survey results were derived from a somewhat different subgroup than in 1994-1998, thereby affecting comparability of results. The expanded age range not only resulted in inclusion in the 2000 and 2003 survey of drivers who would have been ineligible for the parents/caregivers subgroup in previous years (i.e., respondents whose youngest child was in the 6-8 age range), but also changed the referent child who would have been selected for some respondents (i.e., if respondents had children both in the 0-5 and 6-8 age ranges, the referent child no longer was restricted to the 0-5 age range in the 2000 and 2003 survey).

The vast majority of child restraint questions were asked only of parents/caregivers whose child used a child car seat at least on occasion. Since child car seat users continue to be predominantly under the age of 6, the effect on survey results of the change in parent/caregiver definition may have been negligible for most questionnaire items. Therefore, this report presents on the following pages trend data from parents/caregivers for the entire 1994-2003 period so that readers have the opportunity to compare results across years. **However, readers should exercise caution in interpreting the trends due to the above-stated issues of comparability of data.**

Reported All The Time Car Seat Use By Child's Weight, 1994-2003

Figure 98 suggests that the increases in child restraint use by children 30-39 pounds may be starting to level off, while not quite reaching the level found for children 20-29 pounds. Reported "all the time" child restraint use by infants under 20 pounds returned to the high level obtained during the late 1990s, reinforcing the hypothesis in 2000 that the dip in usage that year stemmed from errors in recording weight. The survey results presented in Figure 98 exclude the 40+ pound weight category because of the change in definition of the parent/caregiver group described on the previous page.

Figure 98
Reported "All Of The Time" Car Seat Use
By Child's Weight: 1994-2003



Qx: How much does (AGE) weigh?

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

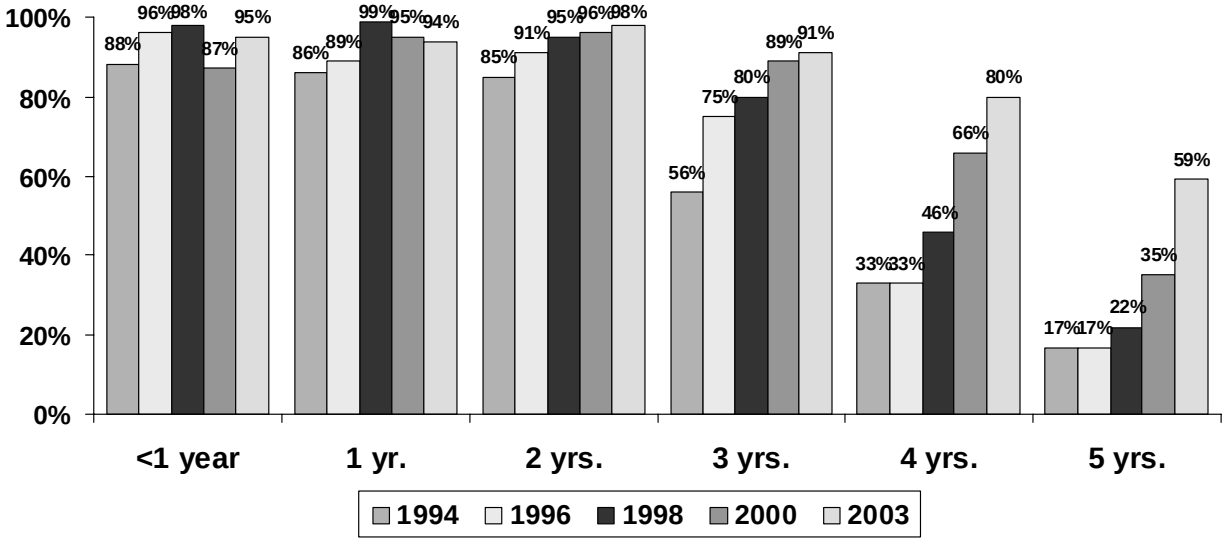
Base 1994-1998: Parents/caregivers of children under age 6.

Base 2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

Reported All The Time Car Seat Use By Child's Age, 1994-2003

Figure 99 shows continued increase in 2003 of child restraint use by children in the 2-to-5-year range, with the greatest gains occurring among children ages 4 and 5. The Figure also shows a decrease in 2000 in "all the time" car seat use by infants but it is recovered in 2003.

Figure 99
Reported "All Of The Time" Car Seat Use
By Child's Age: 1994-2003



Qx: What is the age of the (CHILD)?

Qx: When you are driving and the (AGE) rides in the vehicle with you, how often does (he/she) ride in a child car seat? Child car seats include infant seats, toddler seats and booster seats. Would you say (he/she) rides in a child car seat all of the time, most of the time, some of the time, rarely, or never?

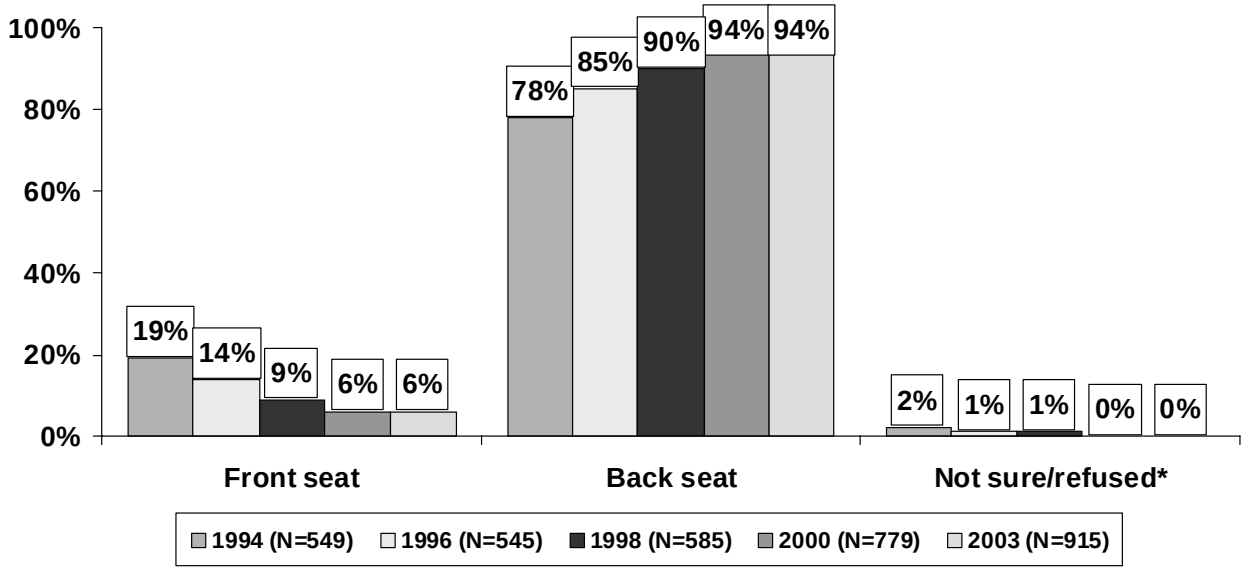
Base 1994-1998: Parents/caregivers of children under age 6.

Base 2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

Location Of Car Seat, 1994-2003

From 1994 to 2000, the survey found children in car seats increasingly placed in the back seat. No further increase materialized in 2003 as 94% of parents/caregivers in both the 2000 and 2003 surveys reported that the child usually rode in the back seat when in the car seat.

Figure 100
Placement Of Child's Car Seat: 1994-2003



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 on occasion rides in a child car seat.*

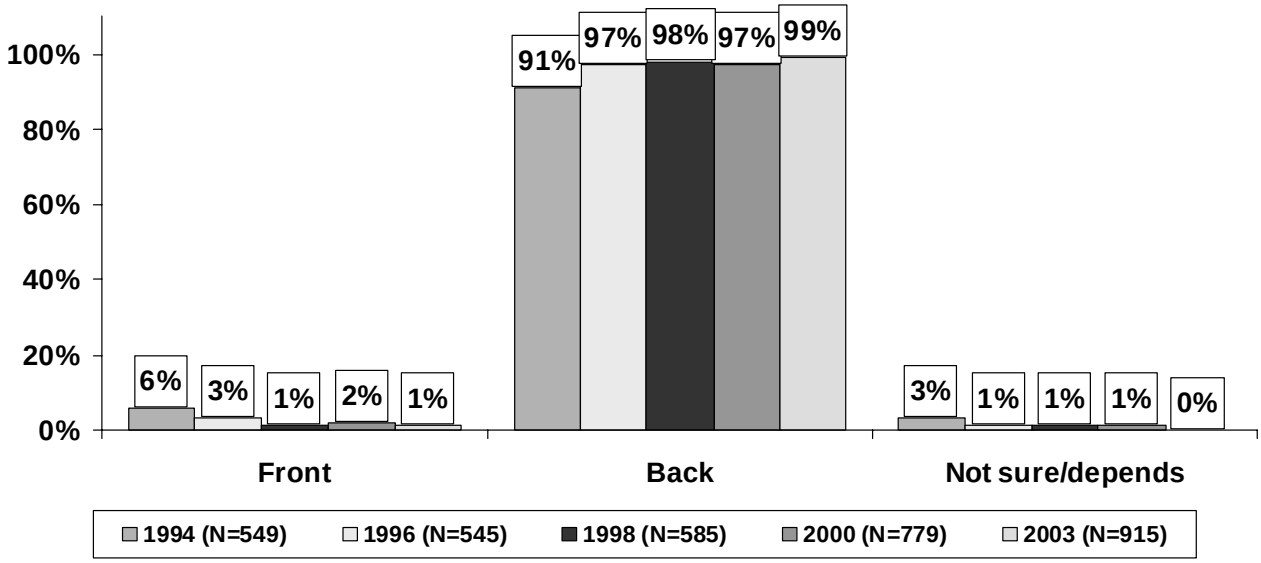
1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

**There were 0.4% Not sure/refused in 2000, which was rounded to 0%.*

Ninety-nine percent of parents/caregivers of children who used car seats in 2003 knew that the back seat was the safest location to place a child car seat in the vehicle, which was similar to findings from the previous three surveys.

Figure 101
Where It Is Considered Safest To Place The Child Car Seat: 1994-2003



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?

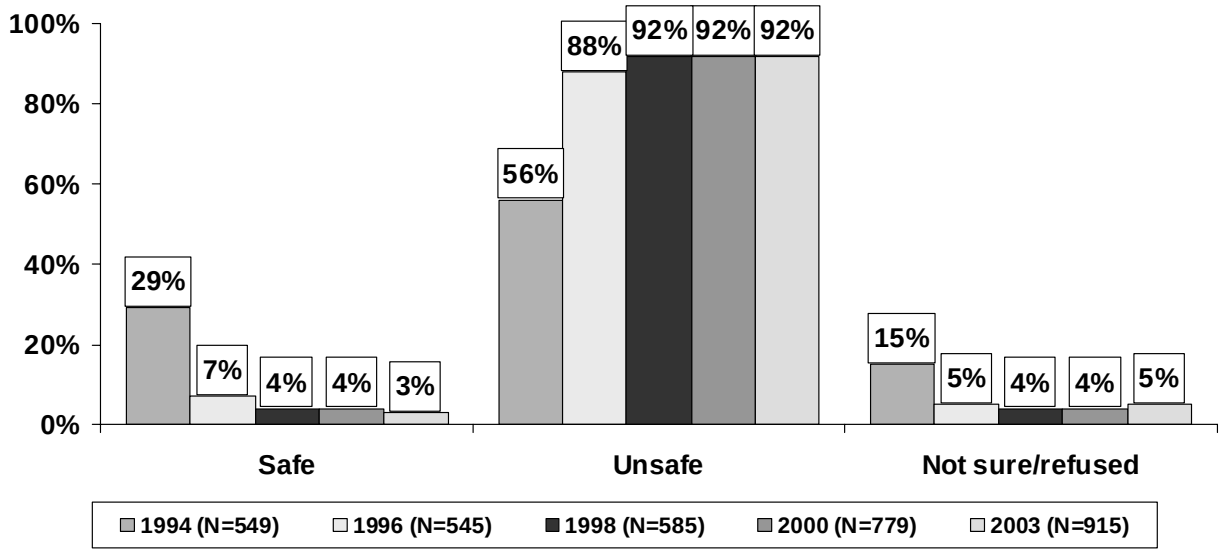
Base: Child at least on occasion rides in a child car seat.

1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

There was no difference between 1998, 2000 and 2003 in the percentage (92%) of parents/caregivers who were aware of the danger of placing a rear facing infant seat in the front seat of a vehicle having a frontal passenger air bag. Figure 102 shows that knowledge of the danger has remained high since a large jump in public awareness between 1994 and 1996.

Figure 102
Safe Or Unsafe To Place Rear Facing Car Seat In Front With Frontal Passenger Air Bag: 1994-2003



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 on occasion rides in a child car seat.

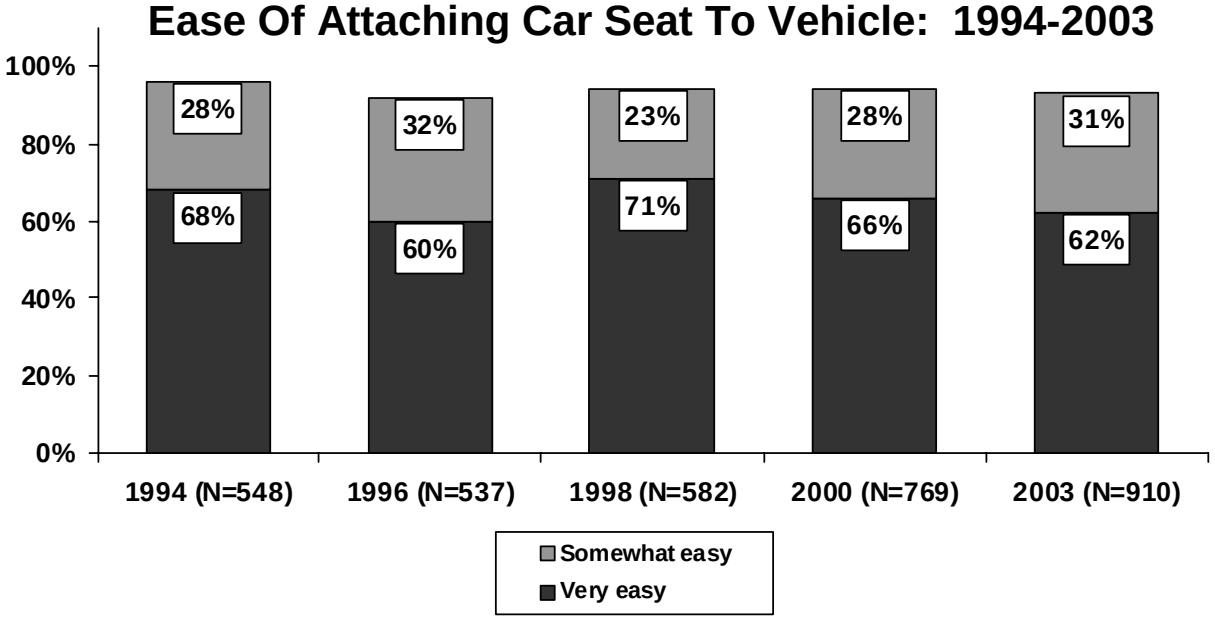
1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

Ease Of Use, 1994-2003

In 2003, 62% of the parents/caregivers said that it was very easy to attach the child car seat to the vehicle, compared to 66% in 2000 and 71% in 1998.

Figure 103
Ease Of Attaching Car Seat To Vehicle: 1994-2003



Qx: How easy is it for you to attach the child car seat to the vehicle you usually drive… very easy, somewhat easy, or not easy at all?

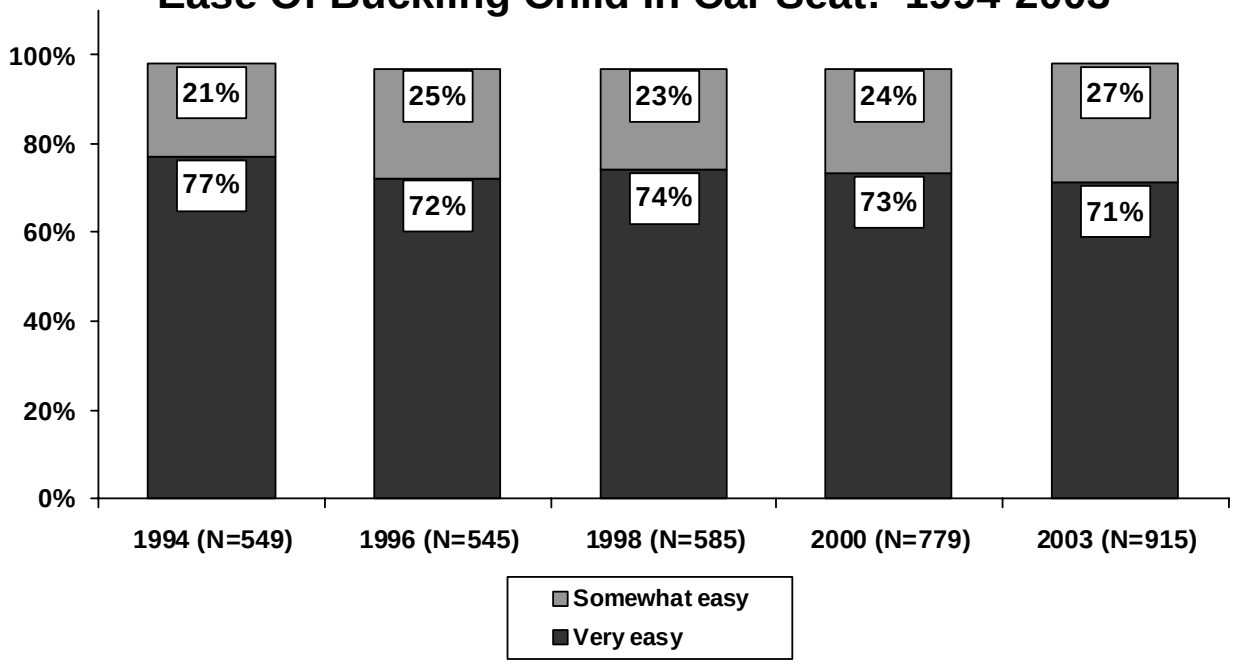
Base: Child at least on occasion rides in a child car seat, and the car seat did not come attached to the vehicle.

1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

More than seven-in-ten parents/caregivers considered it very easy to properly buckle their child into the car seat regardless of the survey year.

Figure 104
Ease Of Buckling Child In Car Seat: 1994-2003



Qx: How easy is it for you to properly buckle your child into the child car seat?

Base: Child at least on occasion rides in a child car seat.

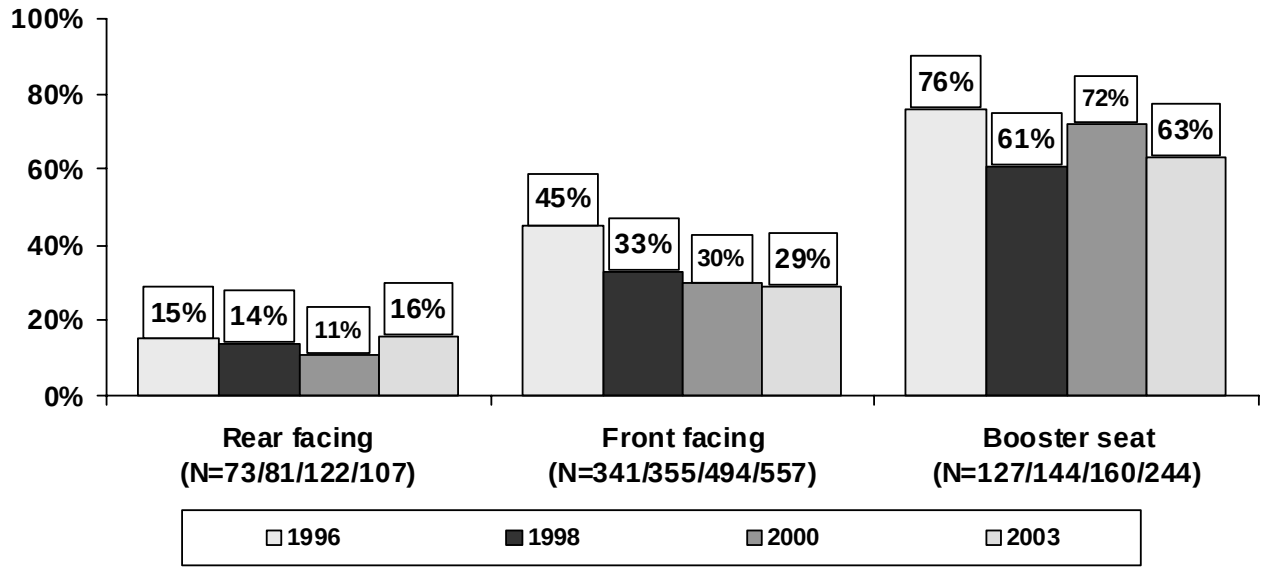
1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

Expected Restraint System For Child After Outgrowing Current Seat, 1996-2003

There was little difference between 1996 and 2003 survey results in the percentage of children expected to graduate directly to safety belts from rear facing child safety seats. The percentage of children expected to graduate from front facing child safety seats to safety belts has declined from 45% in 1996 to 29% in 2003.

Figure 105
Expect Child To Use Safety Belts After Outgrowing Current Car Seat: 1996-2003



Qx: When your (AGE) outgrows his/her current child car seat, do you expect him/her to use a different type of car seat, a seat belt or something else??

Base: Child at least on occasion rides in a child car seat.

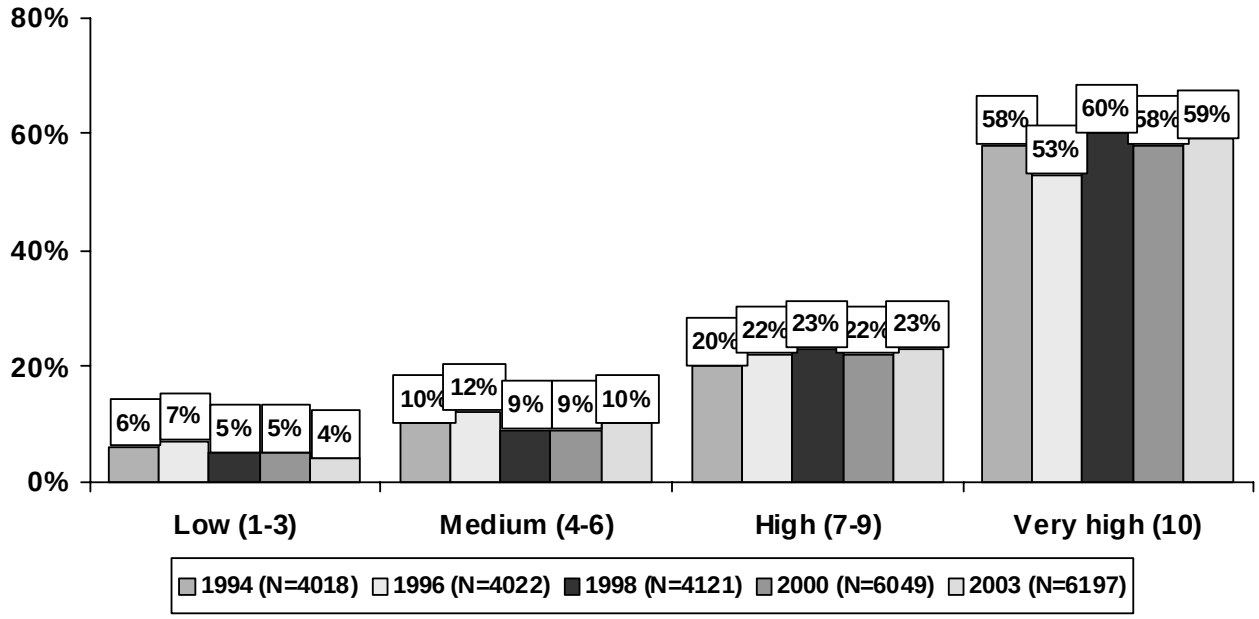
1994-1998: Parents/caregivers of children under age 6.

2000-2003: Parents/caregivers of children under age 9 (see page 30 for definition).

Support For Enforcing Car Seat Laws, 1994-2003

In 2003, 59% of the public believed that police should give a ticket at every opportunity for violations of car seat laws. There was no appreciable change from 1994 (58%).

Figure 106
Level Of Support For Enforcing Car Seat Laws Using 10-Point Scale: 1994-2003



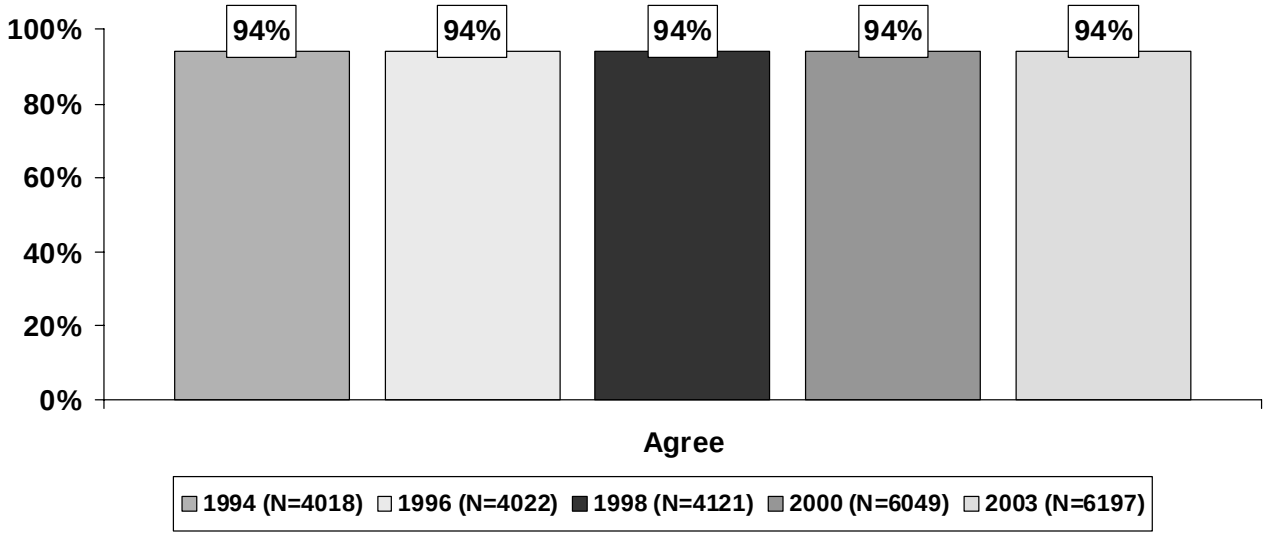
Qx: How do you personally feel about the police enforcement of child car seat laws? On a scale of 1 to 10, where 1 means police should hardly ever give tickets and 10 means police should give a ticket at every opportunity for violations of car seat laws, how strict should police enforcement be?

Base: Total population age 16+.

Support For Laws Requiring Safety Belt Use After Child Has Outgrown Car Seat, 1994-2003

In each of the survey years, 94% of the public agreed that children who have outgrown child car seats should be required by law to wear safety belts when riding in a vehicle.

Figure 107
Children Should Be Required To Wear Safety Belts When They Have Outgrown Car Seats: 1994-2003



Qx (1994-1996): What about when children under the age of 6 outgrow a child car seat? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

Qx (1998-2000): What about when children outgrow a child car seat? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

Qx (2003): What about when children outgrow a child car seat, including booster seats? Do you agree or disagree that they should be required by law to wear seat belts when riding in a vehicle?

Base: Total population age 16+.

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 19, 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 19
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:

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

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 19 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 20, 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 20
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		
	p=	HYPOTHETICAL PROPORTIONATE SAMPLING*	CURRENT DIS-PROPORTIONATE SAMPLING ESTIMATES	DIFFERENCE IN CONFIDENCE INTERVALS ABOUT
VARIABLE (Version 1 only)				
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 accident	*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-side 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 21. 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 21. 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			
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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