

NATIONAL HIGHWAY TRAFFIC  
SAFETY ADMINISTRATION



# 2007 Motor Vehicle Occupant Safety Survey

**VOLUME 4**

Crash Injury and Emergency  
Medical Services Report

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16. Abstract  <p>The 2007 Motor Vehicle Occupant Safety Survey was the sixth in a series of periodic national telephone surveys on occupant protection issues conducted for the National Highway Traffic Safety Administration (NHTSA). Data collection was conducted by Schulman, Ronca &amp; 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 16 or older. Interviewing began January 9, 2007, and ended April 30, 2007. This report presents the survey findings pertaining to crash injury and emergency medical services, including trend data. Detailed information on the survey methodology, as well as copies of the questionnaires, are contained in a separate NHTSA report ("2007 Motor Vehicle Occupant Safety Survey. Volume I. Methodology Report").</p> <p>About one-in-four persons 16 and older (26%) reported having been injured in a vehicle crash where they required medical attention. Fifteen percent of the total population, 16 and older, has received injuries from motor vehicle crashes severe enough to prevent them from performing some of their normal activities for at least a week. Persons not wearing seat belts at the time of the (most recent) crash were much more likely to be hospitalized from the crash-related injuries compared to those wearing seat belts. The proportion of drivers who have a wireless phone with them when they drive has continued to increase, reaching 81 percent in 2007. About one-in-three carriers of wireless phones (33%) reported talking on the phone while driving during half or more of their trips. Most people (69%) believed that if there was a medical emergency in the neighborhood and an ambulance was called, it would arrive within 10 minutes. Most were confident the responders would know what to do.</p>					
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## **INTRODUCTION**

### **Background**

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

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

The following report presents findings from the 2007 Motor Vehicle Occupant Safety Survey pertaining to crash injury and emergency medical services. Section 1 presents the 2007 results. Section 2 compares findings across years, from 1994 through 2007.

### **Methodology**

The 2007 Motor Vehicle Occupant Safety Survey was conducted by Schulman, Ronca & Bucuvalas, Inc. (SRBI), a national survey research organization. SRBI conducted a total of 11,918 telephone interviews among a national population sample. To reduce the burden on respondents, the survey employed two questionnaires. A total of 5,908 interviews were completed in Version 1 and 6,010 interviews were completed in Version 2. Although some questions appeared in both versions (e.g., demographics, crash injury experience, seat belt use), each questionnaire had its own set of distinct topics. Each sample was composed of approximately 6,000 persons age 16 and older, including oversamples of persons ages 16-39. The procedures used in the survey yielded national estimates of the target population within specified limits of expected sampling variability, from which valid generalizations can be made to the general public.

The survey was conducted from January 9, 2007 to April 30, 2007. For a complete description of the methodology and sample disposition, including computation of weights, refer to the 2007 Motor Vehicle Occupant Safety Survey, Volume 1: Methodology Report. 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 (219 out of more than 11,000 cases) were analyzed as a separate multi-racial group. Because race and ethnicity were considered independently, each racial group could include both Hispanics and non-Hispanics, and the Hispanic analytic group included both Blacks and Whites.

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

There are also instances where a percentage is cited in text that combines two or more response categories, but that percentage differs by a percentage point from the sum of the component categories that also are listed in the report. This is because the numbers cited in the report have been rounded, whereas the numbers being combined are the unrounded numbers.



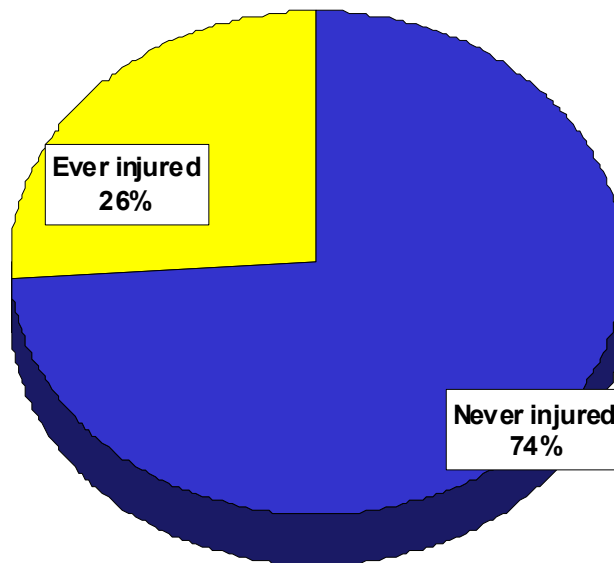
**SECTION 1: 2007 SURVEY RESULTS**



**Injuries in Vehicle Crashes**

About one-quarter of people (26%) 16 and older reported ever having been injured in a motor vehicle crash where they required medical attention. The proportions for males and females were 25 percent and 26 percent, respectively.

**Figure 1  
Crash Injury Experience, 2007**



Qx: Have you ever been injured in a motor vehicle accident? Only count injuries that required medical attention.

Qx: Have you ever been injured in a motor vehicle accident when you were a passenger, or have you ever been hit and injured by a motor vehicle when you were walking or riding a bike? Only count injuries that required medical attention.

Base: Total population 16 and over. Unweighted  $N=11,918$

Three-in-ten (30%)<sup>1</sup> of those who had ever been injured in a motor vehicle crash incurred a crash-related injury in the last five years. About 12 percent occurred 6 to 9 years ago, 14 percent occurred 10 to 14 years ago, and 42 percent occurred more than 14 years ago.

**Table 1**  
**When Most Recent Crash-Related Injury Occurred, 2007**

Qx: How long ago did [that/the most recent] accident occur?

Base: Ever injured in a vehicle accident.

Unweighted N=3,243

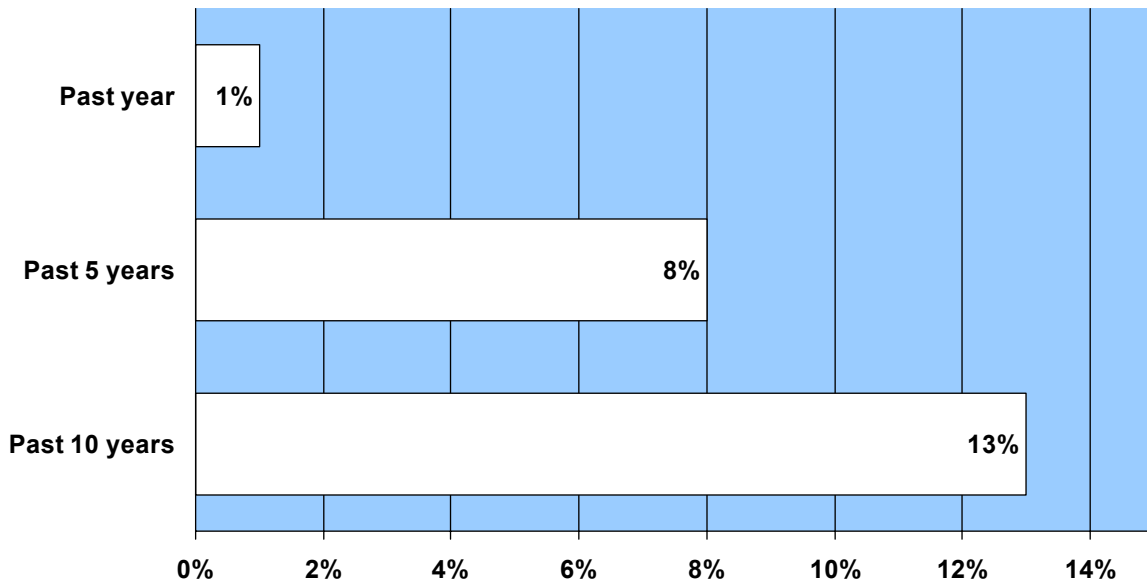
Within the past year.....	4%
1 year ago.....	4%
2 years ago.....	6%
3 years ago.....	5%
4 years ago.....	5%
5 years ago.....	6%
6 to 9 years ago.....	12%
10 to 14 years ago.....	14%
15 to 19 years ago.....	10%
20 to 29 years ago.....	15%
30 or more years ago.....	17%
Don't know/refuse.....	1%

<sup>1</sup> When a percentage is cited that combines two or more response categories, it is combined using non-rounded numbers. This combined percentage may differ slightly from the sum of the listed percentages for the component categories because the category percentages are rounded.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Another way to look at these data is to ask what proportion of the total population 16 and older had been injured in a crash in the last year, the last five years, or the last 10 years. This analysis showed that 1 percent of the total population was injured in a crash in the last year, 8 percent were injured in a crash in the last five years (this includes those who were injured in a crash in the last year), and 13 percent of the population were injured in a crash in the last ten years (this includes those who were injured in a crash in the last five years).

**Figure 2**  
**Percent of Total Population Injured in a Vehicle Crash Over Time, 2007**



Qx: Have you ever been injured in a motor vehicle accident? Only count injuries that required medical attention.

Qx: Have you ever been injured in a motor vehicle accident when you were a passenger, or have you ever been hit and injured by a motor vehicle when you were walking or riding a bike? Only count injuries that required medical attention.

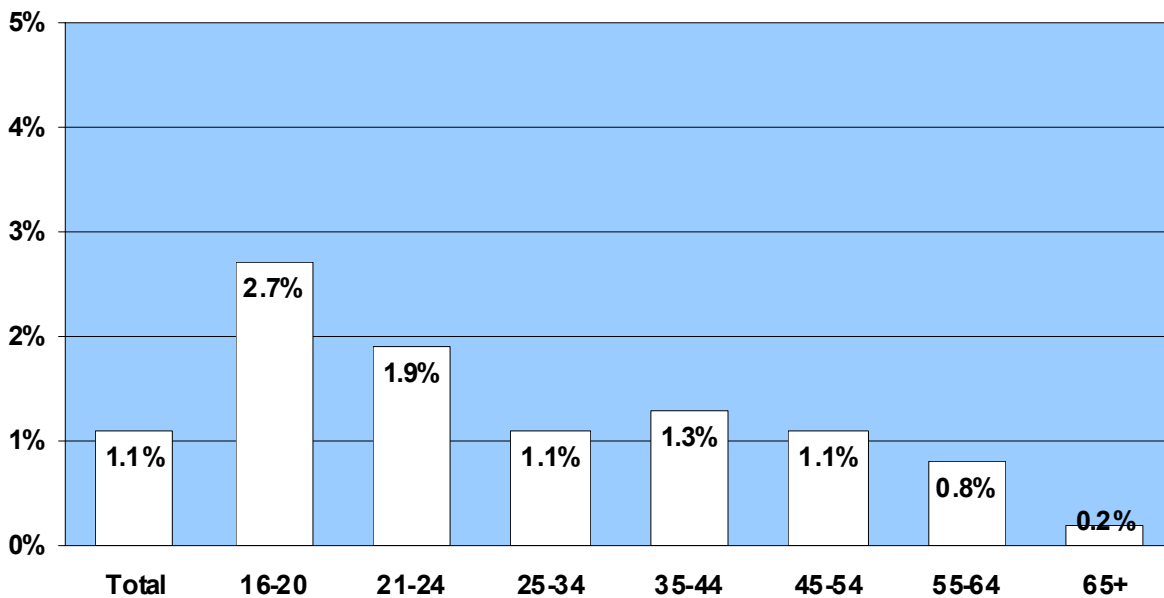
Qx: How long ago did [that/the most recent] accident occur?

Base: Total population 16 and over. Unweighted N=11,918

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

The prevalence of crash-related injuries in the last year was highest among those in the 16 to 20 age group (2.7%) and the 21 to 24 age group (1.9%). These age groups comprised more than one-third (35%) of all persons 16 and older who sustained crash-related injuries in the past year, and showed a rate more than two times the population average of 1.1 percent. The rate dropped to 1.1 percent of those in the 25 to 34 age group, 1.3 percent in the 35 to 44 age group, and 1.1 percent for those 45 to 54 years old. The proportion of persons with crash-related injuries in the past year was lowest for those 55 to 64 years old (0.8%) and those 65 and older (0.2%).

**Figure 3**  
**Percent Injured in a Vehicle Crash Last Year by Age, 2007**



Qx: How long ago did [that/the most recent] accident occur?

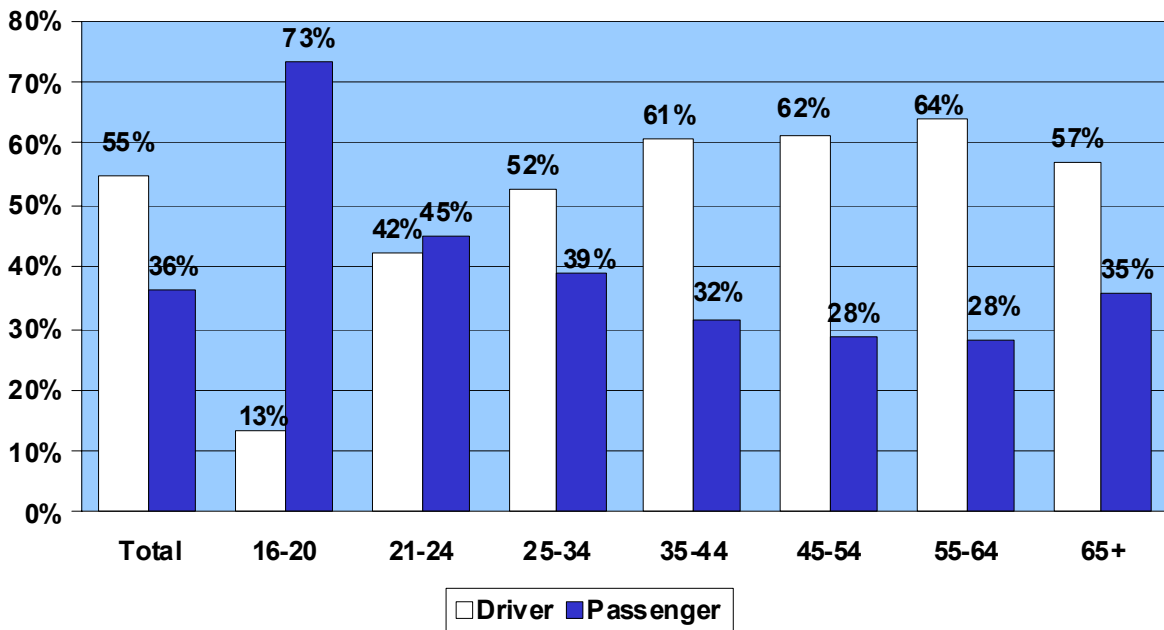
Base: Total population 16 and over.

Unweighted N=1,918

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

More than half (55%) of those injured in (most recent)<sup>2</sup> vehicle crashes were drivers. The bulk of the remaining crash victims (36%) were passengers, but some were pedestrians (5%), bicyclists (3%) or motorcyclists (1%). The youngest group (16 to 20) had the lowest proportion of injured that were drivers (13%) and highest proportion of injured that were passengers (73%). The proportion of crash victims that were drivers rose to more than two-fifths (42%) for those in the 21 to 24 age group and to over half (52%) of those in the 25 to 34 age group and to over half (52%) of those in the 25 to 34 age group. The proportions increased to 61 percent of those 35 to 44, 62 percent of those 45 to 54, 64 percent of those 55 to 64 and then declined to 57 percent of those 65 and older.

**Figure 4  
Injured by Driver/Passenger Status and Age, 2007**



Qx: Were you a driver or a passenger in that accident?

Base: Ever injured in a vehicle accident.

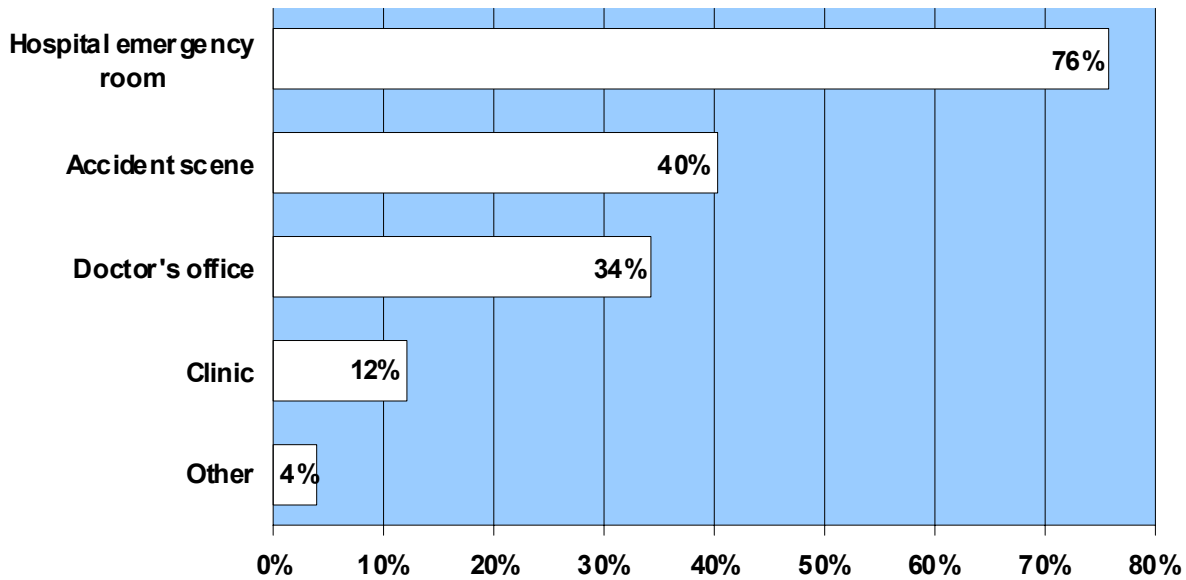
Unweighted N=3,243

<sup>2</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.

**Treated for Crash Injuries**

Those who received a crash-related injury requiring medical attention were asked where they were treated for those (most recent)<sup>3</sup> injuries. They were given the opportunity to report more than one type of treatment site if, in fact, they received treatment for those injuries at more than one place. About three-in-four (76%) were treated in a hospital emergency room. Additionally, four-in-ten (40%) were treated at the crash scene, about one-third (34%) reported being treated in a doctor's office, 12 percent were treated at a clinic, and 4 percent mentioned some other location.

**Figure 5  
Where Treated for Crash-Related Injuries\*, 2007**



Qx: At which of the following were you treated for your injuries?

Base: Ever injured in a vehicle accident.

Unweighted N=3,243

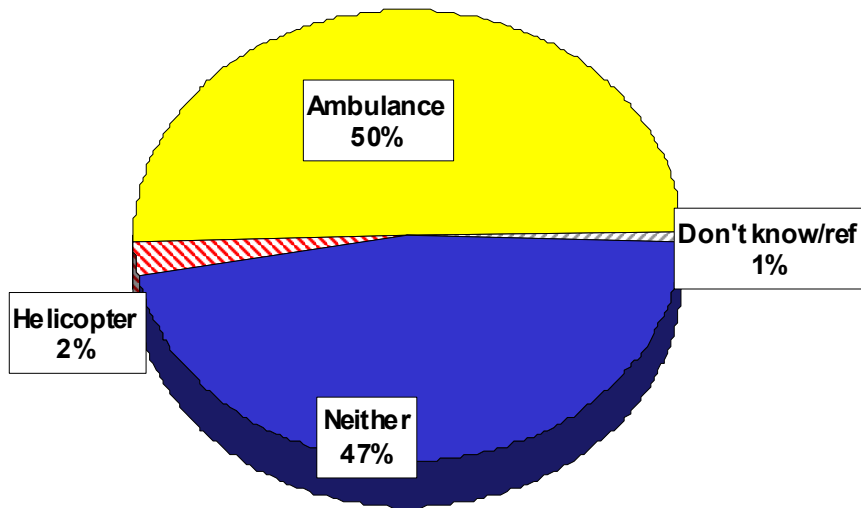
\* Total exceeds 100% since multiple responses were accepted

<sup>3</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.



About one-half (52%) of those injured in a vehicle crash were transported to another location for treatment by ambulance (50%) or helicopter (2%).<sup>4</sup>

**Figure 6**  
**How Transported From Crash Site, 2007**



Qx: Were you transported from the accident scene by ambulance or helicopter?

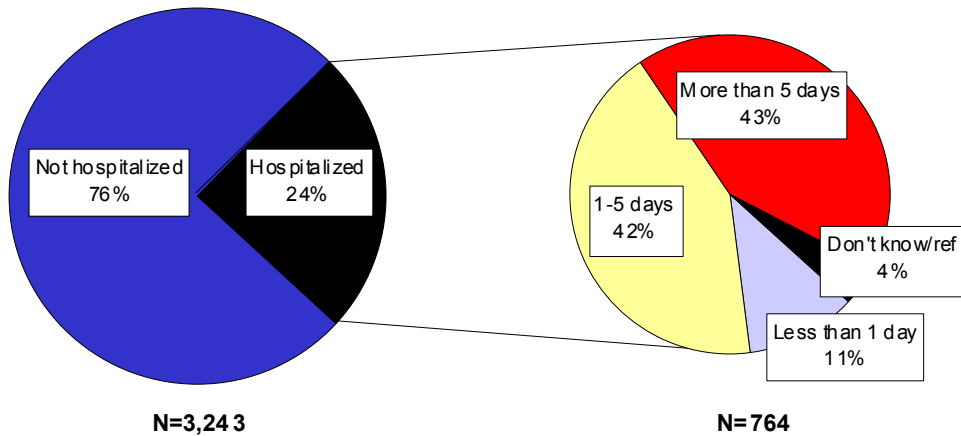
Base: Ever been injured in a vehicle accident.

Unweighted N=3,243

<sup>4</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.

About one-fourth (24%) of those injured in a vehicle crash were hospitalized.<sup>5</sup> More than two-fifths of those hospitalized (43%) reported being hospitalized for more than 5 days. This represented 10 percent of persons injured in crashes.

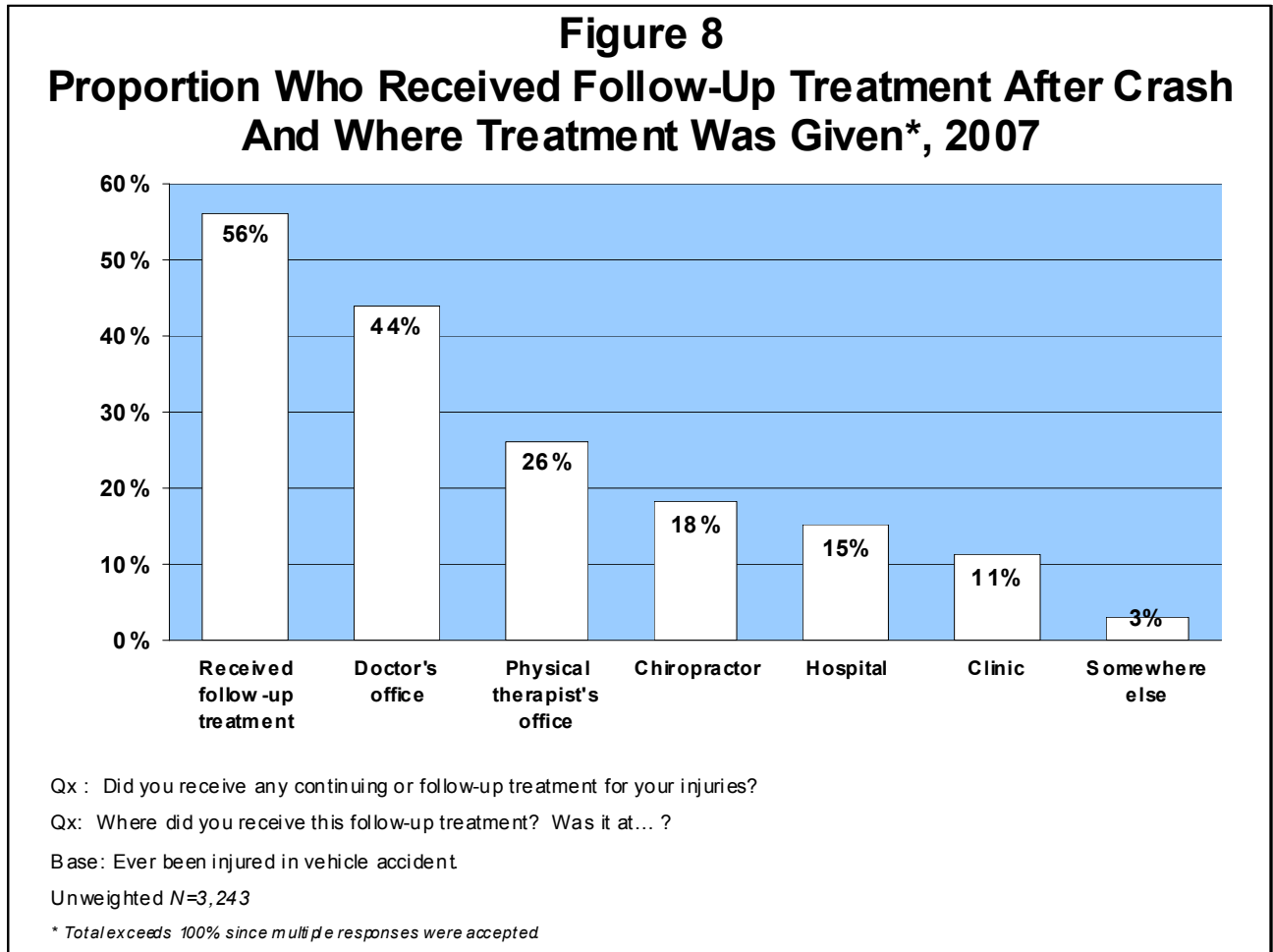
**Figure 7  
Length of Hospitalization, 2007**



Qx: Were you hospitalized?  
Qx: How long were you hospitalized?  
Base: Ever been injured in a vehicle accident.  
Unweighted N's listed above

<sup>5</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.

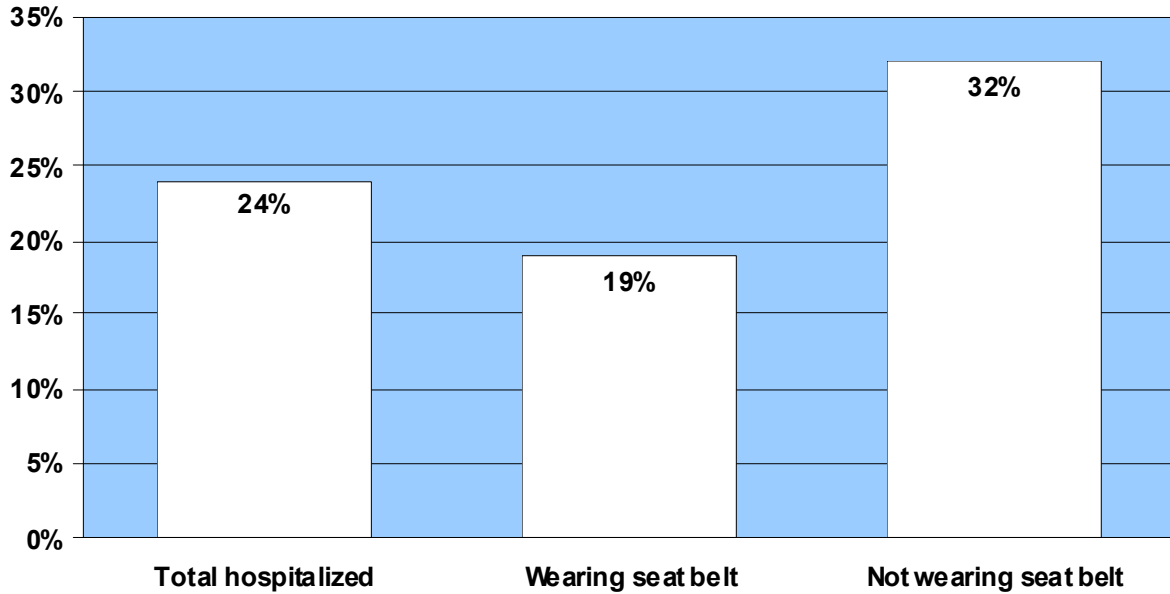
More than half (56%) of those injured in a vehicle crash received follow-up treatment.<sup>6</sup> Figure 8 shows the proportion of those who received follow-up treatment at specific locations as a percentage of everyone who had been injured. Forty-four percent of those injured received follow-up treatment at a doctor's office (nonspecific), 26 percent at a physical therapist's office, 18 percent at a chiropractor's office, 15 percent at a hospital, and 11 percent at a clinic.



<sup>6</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.

Use of seat belts at the time of the crash made a difference in the need for hospitalization. Persons who were not wearing their seat belt at the time of the crash were more likely to be hospitalized compared to those wearing a seat belt (32% versus 19%).

**Figure 9  
Hospitalized by Seat Belt Use, 2007**



Qx: Were you hospitalized?

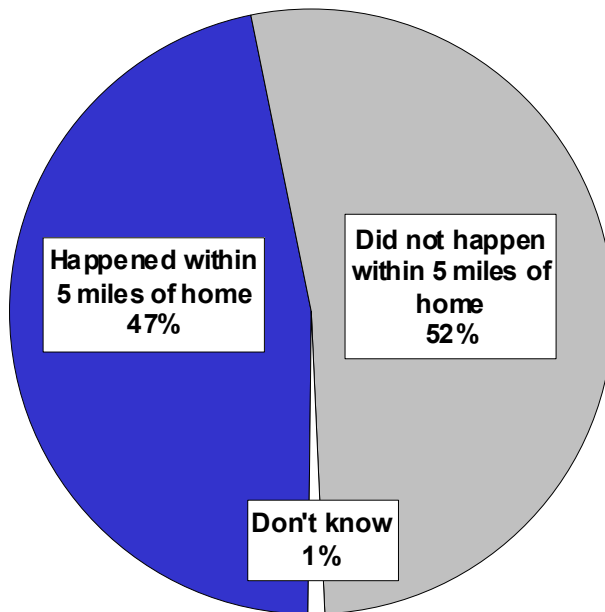
Qx: Were you wearing your seat belt at the time of the accident?

Base: Ever been injured in a vehicle accident.

Unweighted N=3,243

Just under half of those injured in a motor vehicle crash said the crash occurred within 5 miles of home (47%).

**Figure 10**  
**Crash Occurred Less Than Five Miles From Home, 2007**



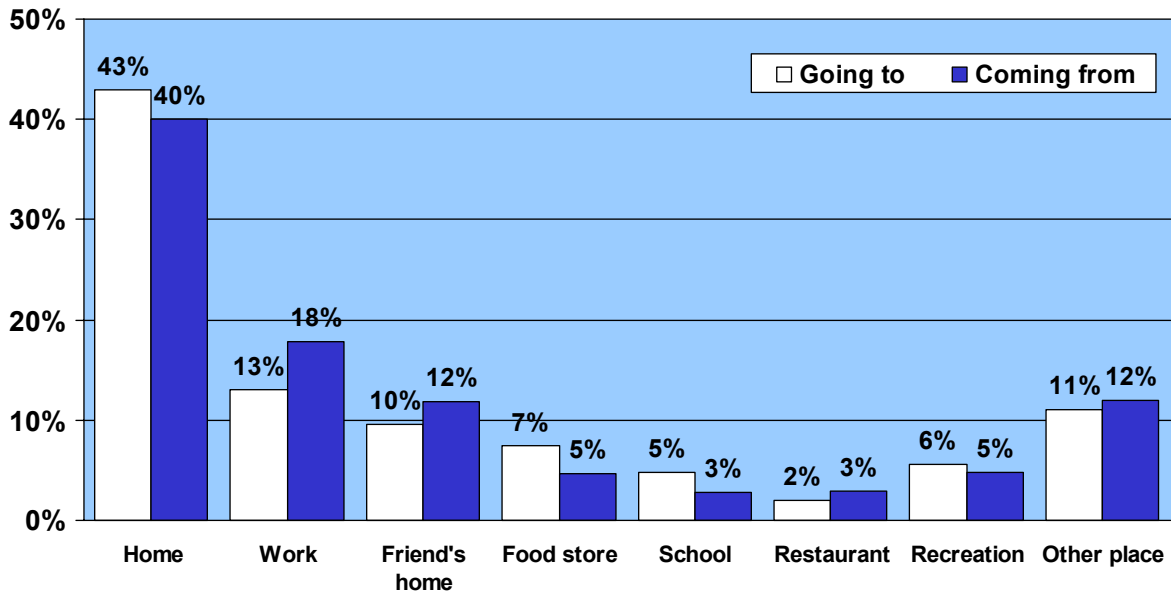
Qx: Did (that/the most recent) accident happen less than five miles from where you lived at the time of the accident?

Base: Ever been injured in a vehicle accident.

Unweighted N=1,604

Most of those who said they were injured in a crash that occurred within five miles of home were going home (43%) or coming from home (40%) when the crash occurred.

**Figure 11  
Where Going To and Coming From  
When Crash Occurred, 2007**



Qx: Where were you GOING when you had that accident? Were you going home, going to work, going to the food store, going to a friend's home or were you going somewhere else?

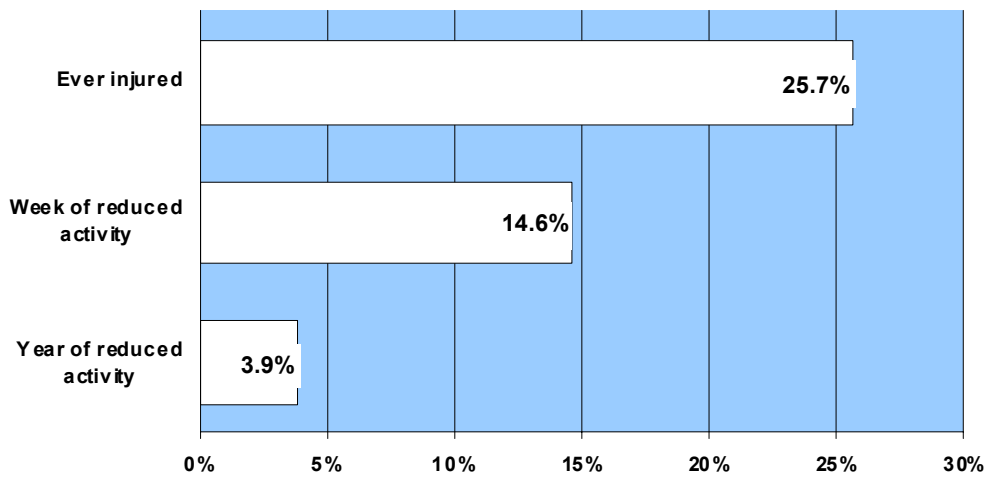
Qx: Where were you COMING FROM when you had that accident? Were you coming from ...

Base: Injured in a vehicle accident that was less than 5 miles from home.

Unweighted N=756

As mentioned earlier (Figure 1, page 3), 26 percent of the total population said they had been injured in a vehicle crash to the extent of needing medical attention. More than half of those ever injured, about 15 percent of the total population, had at some time been unable to perform some of their normal activities (work, school, household) for at least a week because of the crash. About 4 percent of the total population were unable to resume some of their normal activities even a year after the crash.

**Figure 12**  
**Level of Disability Resulting From a Vehicle Crash, 2007**



Qx: Have you ever been injured in a motor vehicle accident? Only count injuries that required medical attention.

Qx: Have you ever been injured in a motor vehicle accident when you were a passenger, or have you ever been hit and injured by a motor vehicle when you were walking or riding a bike? Only count injuries that required medical attention.

Qx: Did your injuries from that accident prevent you from performing any of your normal activities (work, school, household) for at least a week?

Qx: Have you ever received injuries from a vehicle accident that prevented you from performing any of your normal activities (work, school, household) for at least a week?

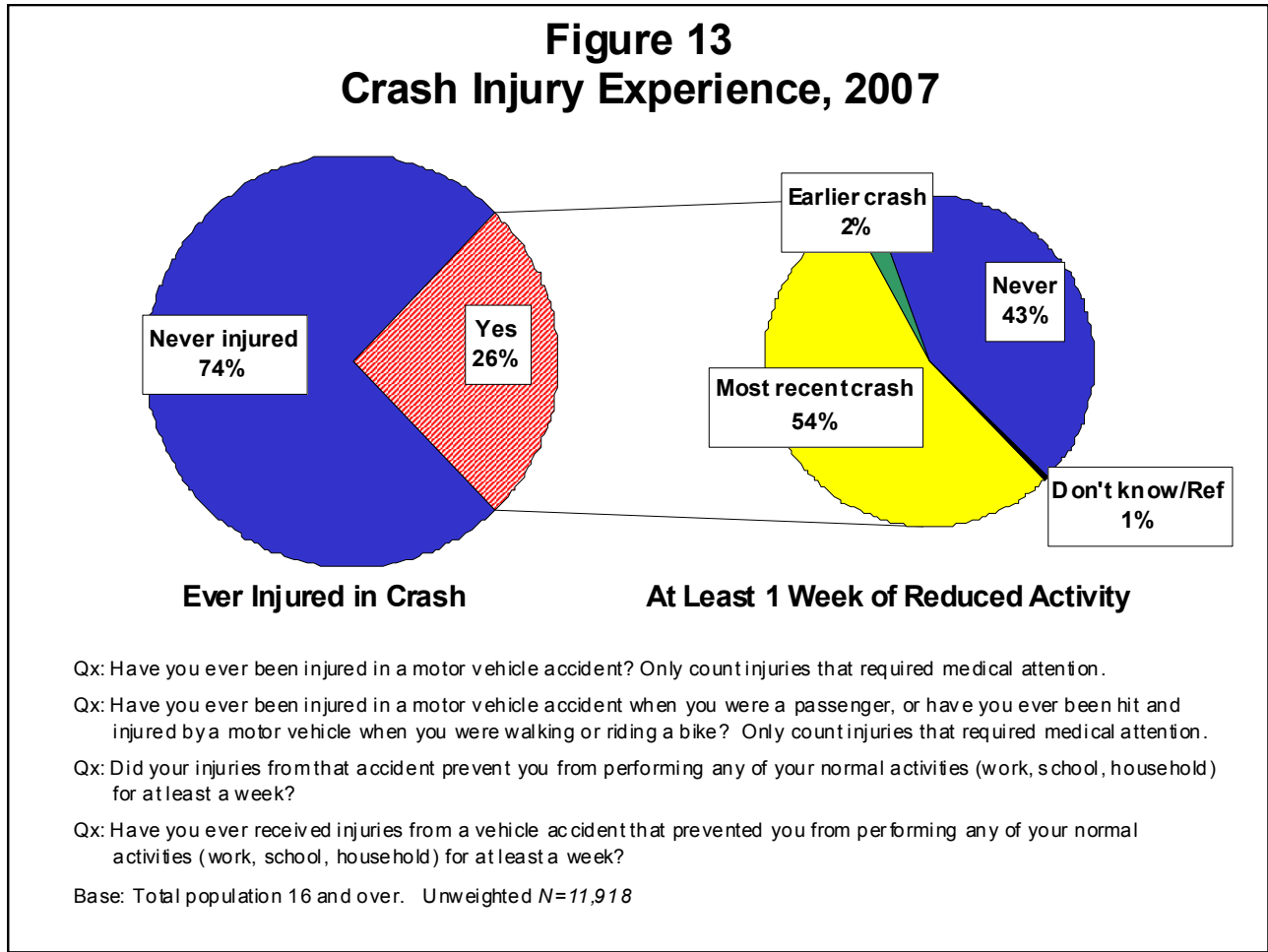
Qx: Were there any activities that you were unable to resume because of your injuries even a year after the accident?

Qx: Have you ever received injuries from a vehicle accident that prevented you from performing any of your normal activities (work, school, household) a year after the accident?

Base: Total population 16 and over. Unweighted N=11,918

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

About one-in-four (26%) had been injured in a motor vehicle crash to the point where they required medical attention. More than half of those ever injured (57%)<sup>7</sup> were injured to the point where they were unable to perform some of their normal activities (work, school, household) for at least a week either in the most recent crash (54%) or an earlier vehicle crash (2%). The remaining 43 percent reported that they had never incurred crash injuries that prevented them from performing all normal activities a week afterwards, or else reported that they were unsure.



<sup>7</sup> The number does not equal the sum of the components in the Figure due to rounding.



**Concerns About Stopping at a Crash**

Almost one-half (48%) of the public 16 and older have no concerns about stopping to help or call if they saw a crash where no one was at the scene to help. The most commonly mentioned concerns were about personal safety (20%) and their ability to provide assistance (8%). The third most often mentioned concern was about safety of the victim (6%). The fear of being sued for giving improper assistance was cited by 4 percent.

Females were more concerned about stopping at the site of a crash than males. While more than half of males (56%) had no concern about stopping to help or call, less than two-fifths (37%) of females had no concerns. Females were more concerned than males about their ability to provide assistance (11% vs. 7%). Females were also more concerned about personal safety issues than males (27% vs. 16%), including the possibility that the crash could be a trick to get them to stop (6% vs. 2%).

**Table 2**  
**Concerns About Stopping to Help at a Vehicle Crash**  
**By Gender, 2007**

Qx: Suppose that you are driving, you see an accident happen and no one is there at the scene to help. What concerns might you have about stopping to help? Anything else?

[Multiple responses were accepted.]

Base: Total population age 16 and over.

	<b>Total</b>	<b>Male</b>	<b>Female</b>
<i>Unweighted N (total population)</i>	6,010	2,793	3,217
<b>No concern/would stop to help or call</b>	<b>48%</b>	<b>56%</b>	<b>37%</b>
<b>Assistance (net)</b>	<b>8%</b>	<b>7%</b>	<b>11%</b>
Not knowing how to help/what to do	7%	6%	8%
People already there	*	*	*
Not physically able to help	1%	1%	3%
<b>Personal safety (net)</b>	<b>20%</b>	<b>16%</b>	<b>27%</b>
Trick to get you to stop	4%	2%	6%
Concern for my safety	15%	12%	19%
Fear of contracting HIV	*	*	*
Ability to stop safely	1%	1%	2%
Depends on safety of location	*	*	1%
Safety of family, kids, other occupants	2%	1%	3%
<b>Lawsuits/liability for improper assistance</b>	<b>4%</b>	<b>4%</b>	<b>3%</b>
<b>Victim's safety (net)</b>	<b>6%</b>	<b>6%</b>	<b>5%</b>
Possibility of causing further injury	2%	2%	1%
Extent of injuries	4%	4%	4%
<b>Other</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>
Don't want to see dead, mangled bodies	1%	1%	1%
If I were rushed, late, in a hurry	*	*	*
Other	2%	2%	2%
<b>Don't know/refuse</b>	<b>4%</b>	<b>3%</b>	<b>4%</b>

\* Less than 0.5%.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Overall, proportionately more Whites (51%) than African Americans/Blacks (40%) said they had no concerns about stopping at the site of a crash. Whites (10%) and non-Hispanics (9%) were more concerned than African Americans/Blacks (5%) and Hispanics (5%) about being unable to offer the correct assistance. Whites (22%) and non-Hispanics (22%) were more concerned about personal safety than African Americans/Blacks (18%) and Hispanics (14%). Whites (4%) and non-Hispanics (4%) were also slightly more concerned about the possibility of a lawsuit arising out of improper assistance than African Americans/Blacks (1%) or Hispanics (1%).<sup>8</sup>

**Table 3  
Concerns About Stopping to Help at a Vehicle Crash  
By Race & Ethnicity, 2007**

Qx: Suppose that you are driving, you see an accident happen and no one is there at the scene to help. What concerns might you have about stopping to help? Anything else?

[Multiple responses were accepted.]

Base: Total population age 16 and over.

	White	AfAm/Black	Hispanic	Non-Hispanic
<i>Unweighted N (total population)</i>	4,503	561	634	5,297
<b>No concern/would stop to help or call</b>	<b>51%</b>	<b>40%</b>	<b>35%</b>	<b>51%</b>
<b>Assistance (net)</b>	<b>10%</b>	<b>5%</b>	<b>5%</b>	<b>9%</b>
Not knowing how to help/what to do	8%	4%	5%	8%
People already there	*	*	-	*
Not physically able	2%	1%	1%	2%
<b>Personal safety (net)</b>	<b>22%</b>	<b>18%</b>	<b>14%</b>	<b>22%</b>
Trick to get you to stop	4%	6%	4%	4%
Concern for my safety	16%	13%	10%	16%
Fear of contracting HIV	*	*	*	*
Ability to stop safely	2%	1%	1%	1%
Depends on safety of location	*	*	*	*
Safety of family, kids, other occupants	2%	2%	1%	2%
<b>Lawsuits/liability for improper assistance</b>	<b>4%</b>	<b>1%</b>	<b>1%</b>	<b>4%</b>
<b>Victim's safety (net)</b>	<b>5%</b>	<b>9%</b>	<b>7%</b>	<b>6%</b>
Possibility of causing further injury	2%	1%	2%	2%
Extent of injuries	3%	8%	5%	4%
<b>Other</b>	<b>3%</b>	<b>2%</b>	<b>3%</b>	<b>3%</b>
Don't want to see dead, mangled bodies	1%	1%	1%	1%
If I were rushed, late, in a hurry	*	*	*	*
Other	2%	1%	1%	2%
<b>Don't know/refuse</b>	<b>3%</b>	<b>5%</b>	<b>6%</b>	<b>3%</b>

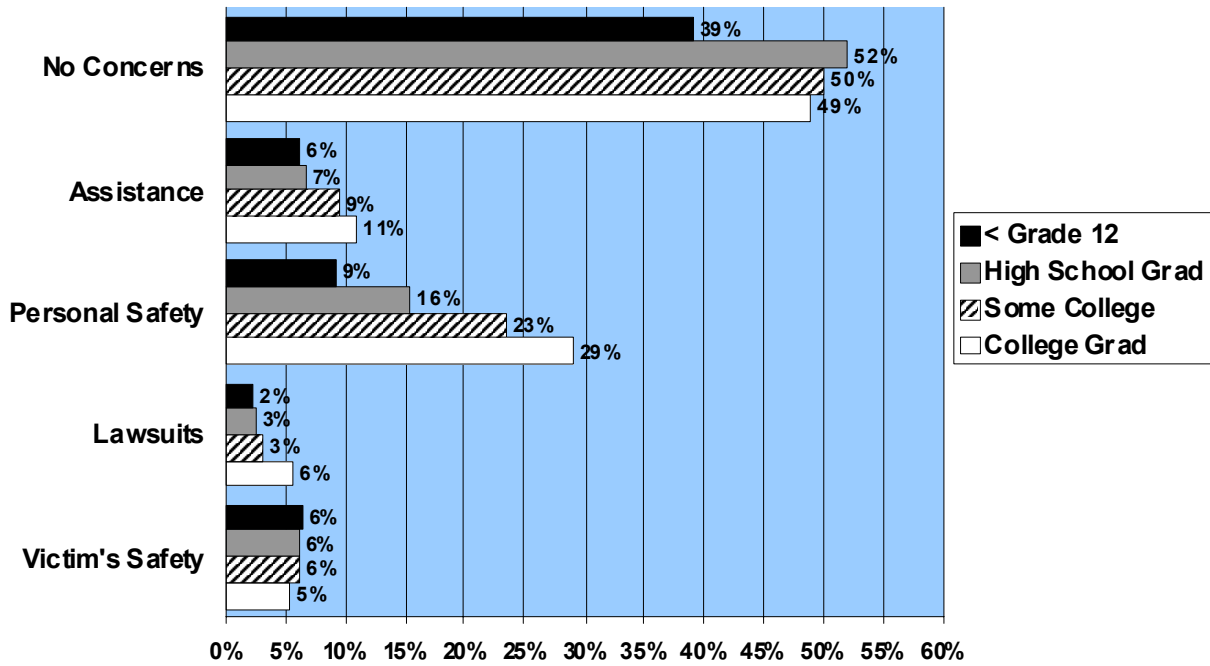
\* Less than 0.5%. - None. AfAm is an abbreviation for African American.

<sup>8</sup> 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.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Those with less than a twelfth grade education were least likely to say they had no concerns about stopping to help. Concerns about personal safety and ability to provide assistance increased as educational level increased.

**Figure 14  
Concerns About Stopping to Help at a Crash  
By Education, 2007**



Qx: Suppose that you are driving, you see an accident happen and no one is there at the scene to help. What concerns might you have about stopping to help? Anything else? [Multiple responses were accepted.]

Base: Total population age 16 and over.

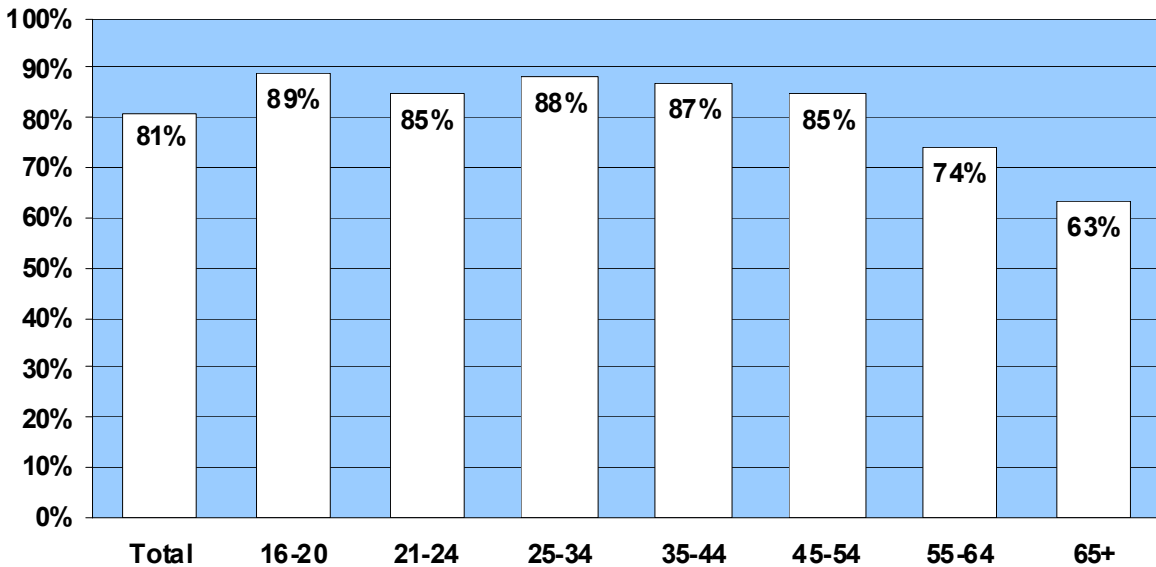
Unweighted N=6,010

**Availability and Use of Wireless Phones in Vehicle**

The availability of wireless phones in vehicles makes it easier for individuals who come upon a crash to report it to the police or call for EMS assistance. More than eight-in-ten of drivers 16 or older (81%) reported that they usually have a wireless phone in their vehicle when they drive.

While there was no difference in the proportion of males (81%) and females (81%) who reported carrying wireless phones with them when they drive, drivers over the age of 54 were less likely than younger drivers to have them. A phone was usually in the vehicle of 87 percent of those 16 to 54. The proportion of drivers with car phones then declines to 74 percent for those 55 to 64, and 63 percent for those 65 and older.

**Figure 15**  
**Usually Have a Wireless Phone in Vehicle by Age, 2007**



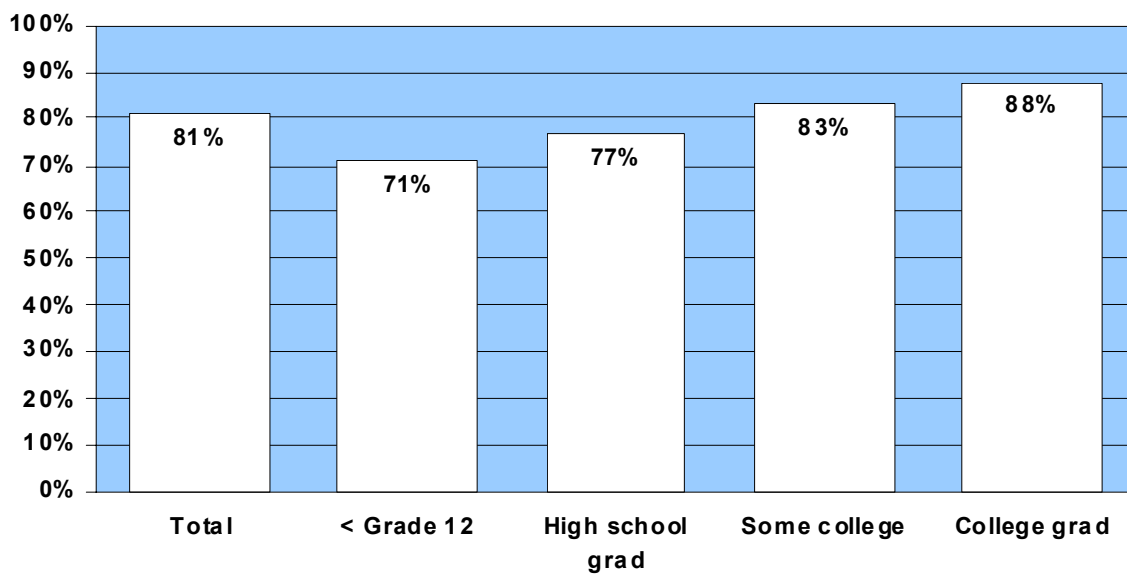
Qx: When you drive a motor vehicle, do you usually have a wireless phone of some type in the vehicle with you? This could be a car phone, a cellular phone, a PCS phone, a GSM phone or a satellite phone?

Base: Drivers.

Unweighted N=5,393

Having a wireless phone in the vehicle was directly related to educational level. Seventy-one percent of those who had not graduated from high school reported usually having a wireless phone with them in the vehicle when they drove. The percentage increased to 77 percent of those who graduated from high school, to 83 percent of those with some college experience, and to 88 percent of those who had graduated college.

**Figure 16**  
**Usually Have a Wireless Phone in Vehicle**  
**By Education, 2007**



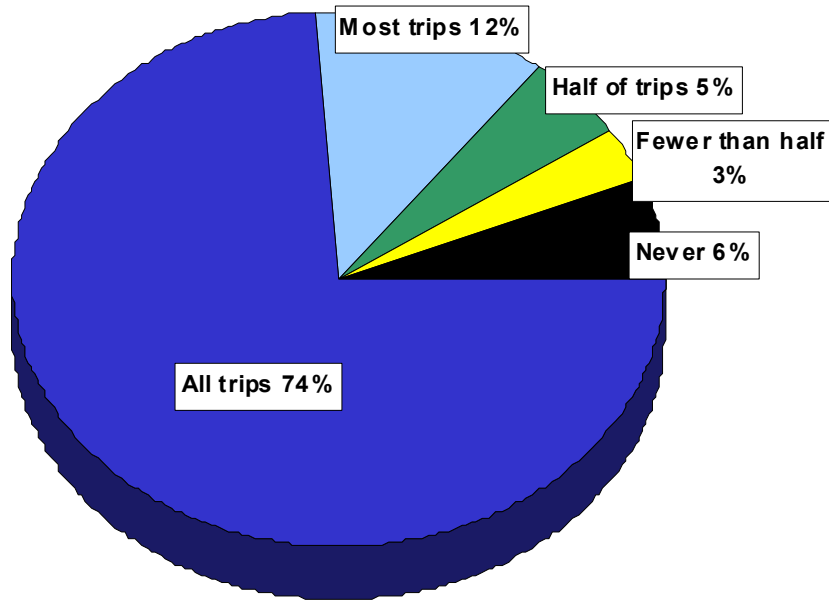
Qx: When you drive a motor vehicle, do you usually have a wireless phone of some type in the vehicle with you? This could be a car phone, a cellular phone, a PCS phone, a GSM phone or a satellite phone?

Base: Drivers.

Unweighted N=5,393

Of those who said they usually have a wireless phone in their vehicle when they drive, more than four-fifths (85%)<sup>9</sup> said that they keep the phone turned on so they can receive calls during all trips (74%) or most trips (12%). Another 5 percent said they keep the phone turned on during about half of their trips, and 3 percent said they keep their phone turned on during fewer than half of their trips. Six percent said that they never keep the phone turned on when they drive.

**Figure 17**  
**How Often Wireless Phone is on While Driving, 2007**



Qx: When you drive, how often would you say you keep the phone turned on so that you can receive calls? Would you say that you keep the phone turned on during all trips, most trips, about half your trips, fewer than half your trips or never?

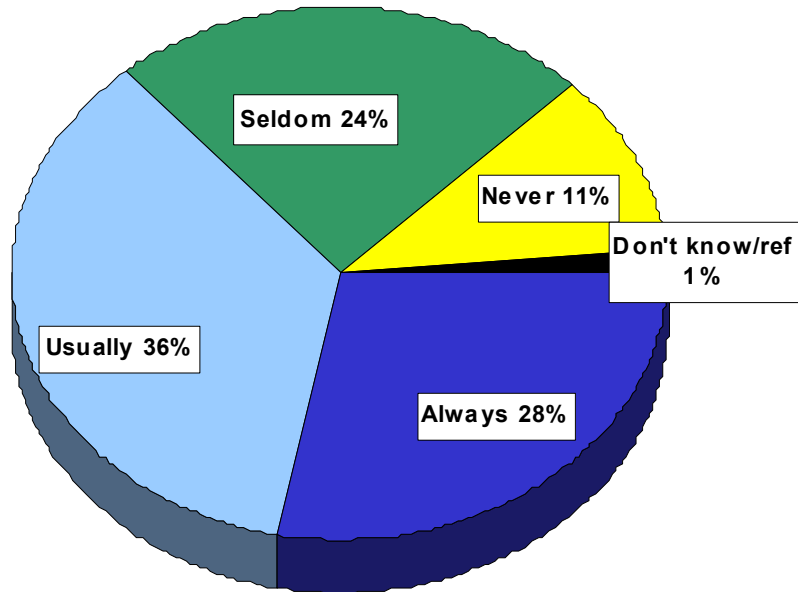
Base: Usually have a wireless phone in vehicle. Unweighted N=4,413

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

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Among drivers who at least sometimes kept the phone turned on to receive calls while in the vehicle, 64 percent said that they always (28%) or usually (36%) answered incoming calls when driving. Males (67%) were more likely than females (58%) to say they always or usually answered the phone while driving. Roughly similar percentages of Whites (65%), African Americans/ Blacks (62%), non-Hispanics (64%), and Hispanics (59%) said they always or usually answered the phone while driving.

**Figure 18**  
**How Often Answer Wireless Phone While Driving, 2007**



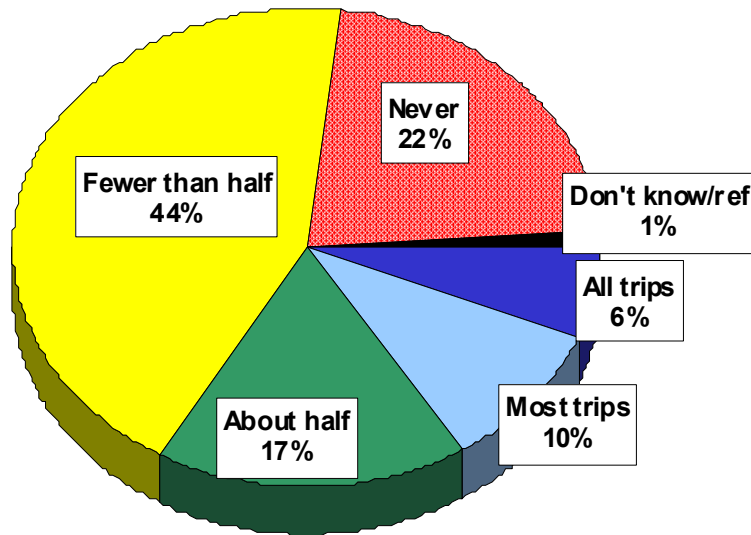
Qx: When you get a call on the phone while you are driving, how often do you answer the call? Would you say you always, usually, seldom, or never answer a call while driving?

Base: Keep the phone turned on to receive calls.

Unweighted N=4,124

Although most drivers said they had a wireless phone turned on when they drive, and most of those said they would answer the phone while driving, relatively few reported talking on the phone during most trips. Only 16 percent of drivers who usually carried a wireless phone said they talk on the phone while driving during most or all trips. Another 17 percent said they do so on about half their trips.

**Figure 19**  
**How Often Talk on Phone While Driving, 2007**



Qx: How often do you talk on the phone while you are driving? Would you say you talk on the phone while driving during...?

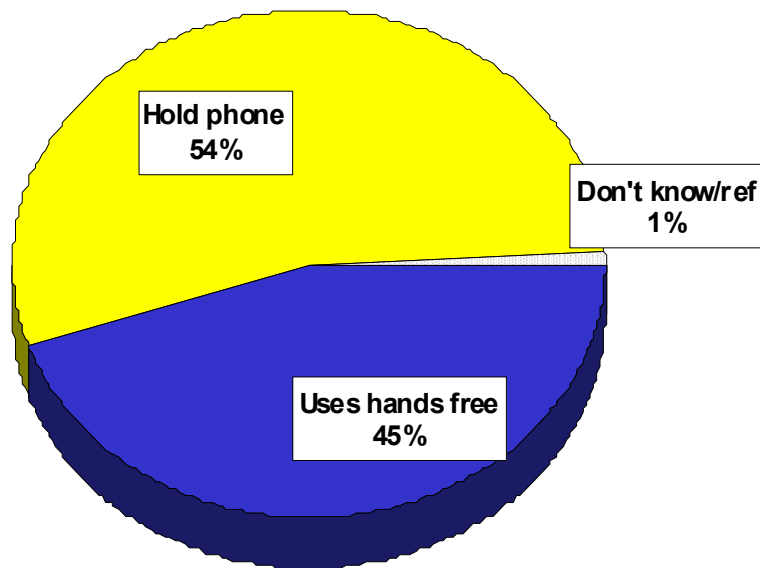
Base: Usually have a wireless phone in vehicle.

Unweighted N=4,413



Drivers who said they at least on occasion talked on the phone while driving were asked if they tend to hold the phone with their hand when they use it, or if they tend to use the phone hands free. More than one-half of respondents (54%) said they tend to hold the phone with their hand. Forty-five percent tend to use the phone hands free.

**Figure 20**  
**Usually Holds Phone With Hand**  
**Or Usually Uses Phone Hands Free, 2007**



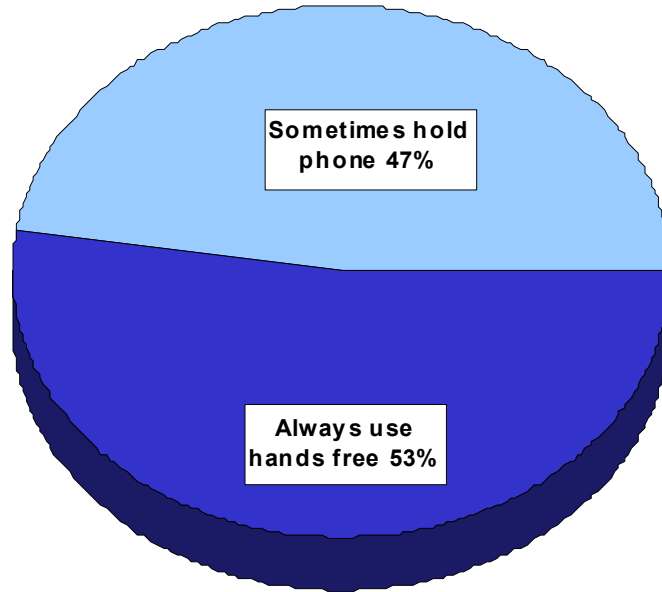
Qx: When you are talking on the phone while driving, do you tend to hold the phone with your hand or do you tend to use the phone hands free?

Base: At least on occasion talks on phone while driving.

Unweighted N=3,436

Almost half (47%) of drivers who tended to use the phone hands free also sometimes held it by hand when driving and talking on the phone.

**Figure 21**  
**How Often Use Wireless Phone Hands Free While Driving, 2007**



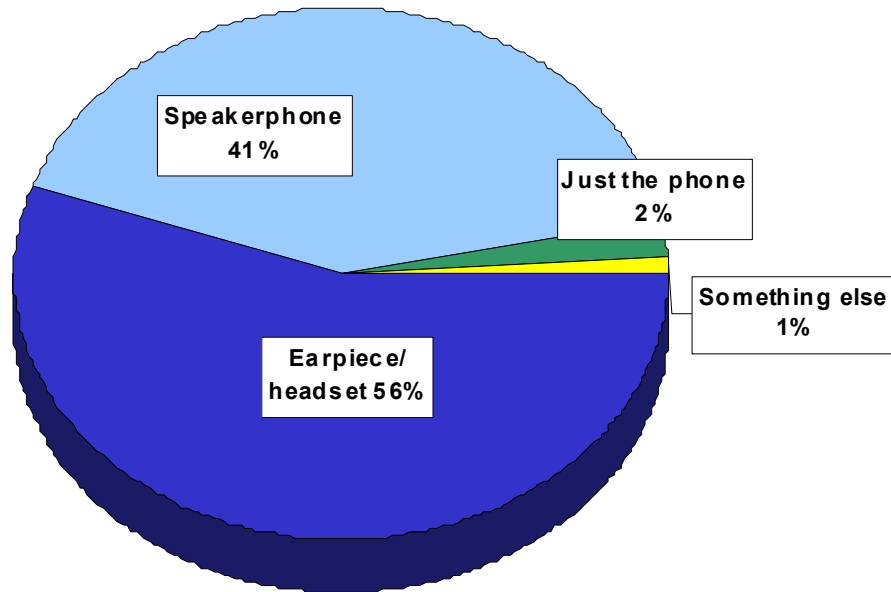
Qx: Do you always use the phone hands free when you are talking on the phone while driving, or do you sometimes hold the phone by hand when driving and talking on the phone?

Base: Tend to use the phone hands free when talking while driving.

Unweighted N=1,559

Drivers were more likely to use earpieces or headsets (56%) than use speakerphones (41%) during hands free operation of phones while driving.

**Figure 22**  
**Device Usually Used to Talk**  
**Hands Free While Driving, 2007**



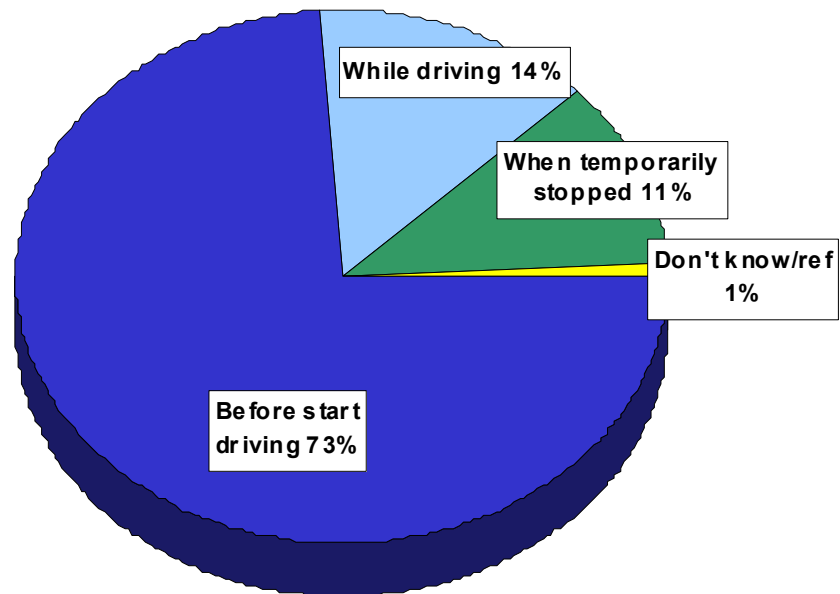
Qx: When you are talking on the phone while driving, do you usually use an earpiece or headset to talk, do you usually use a speakerphone to talk, or do you usually use something else to talk?

Base: Tend to use the phone hands free when talking while driving.

Unweighted N=1,559

The majority of drivers usually put their phone earpiece or headset on before they began driving (73%). Fourteen percent usually put the earpiece or headset on while driving and eleven percent usually put it on while temporarily stopped.

**Figure 23**  
**When is Earpiece/Headset Usually Put On, 2007**



Qx: When do you usually put the (earpiece/headset) on? Do you usually put the (earpiece/headset) on before you start driving, do you put it on while you are driving, or do you usually put it on while temporarily stopped?

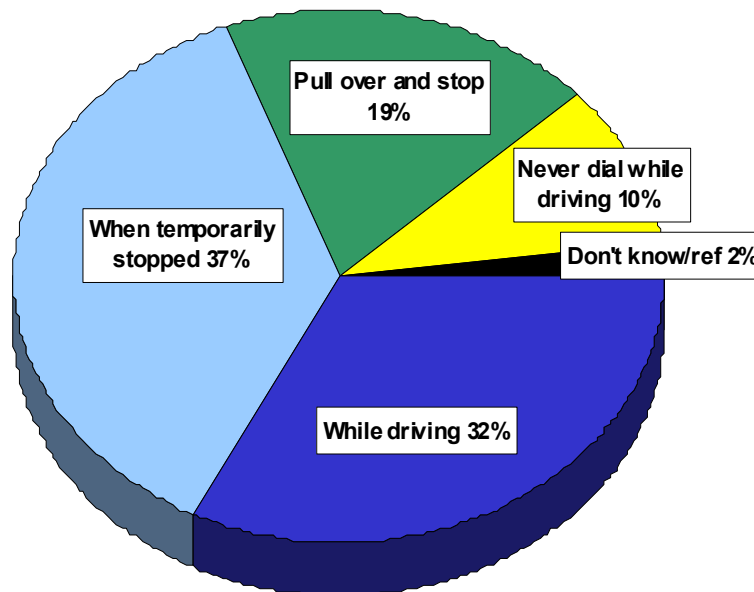
Base: Usually use an earpiece or headset when talking while driving.

Unweighted N=886

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

When making calls, about one-third (32%) said they tended to dial the phone while driving and 37 percent said they tended to dial during a temporary stop. Fewer drivers (19%) said they tended to pull over and stop before dialing the phone. Ten percent of drivers volunteered that they never dial while driving. Ten percent of drivers volunteered that they never dial while driving.

**Figure 24**  
**When is Phone Dialed While Driving, 2007**



Qx: When you are driving and want to dial the phone, do you tend to dial the phone while you are driving, do you tend to dial the phone while you are temporarily stopped, or do you tend to pull over and stop the motor vehicle before dialing?

Base: At least on occasion talks on the phone while driving.

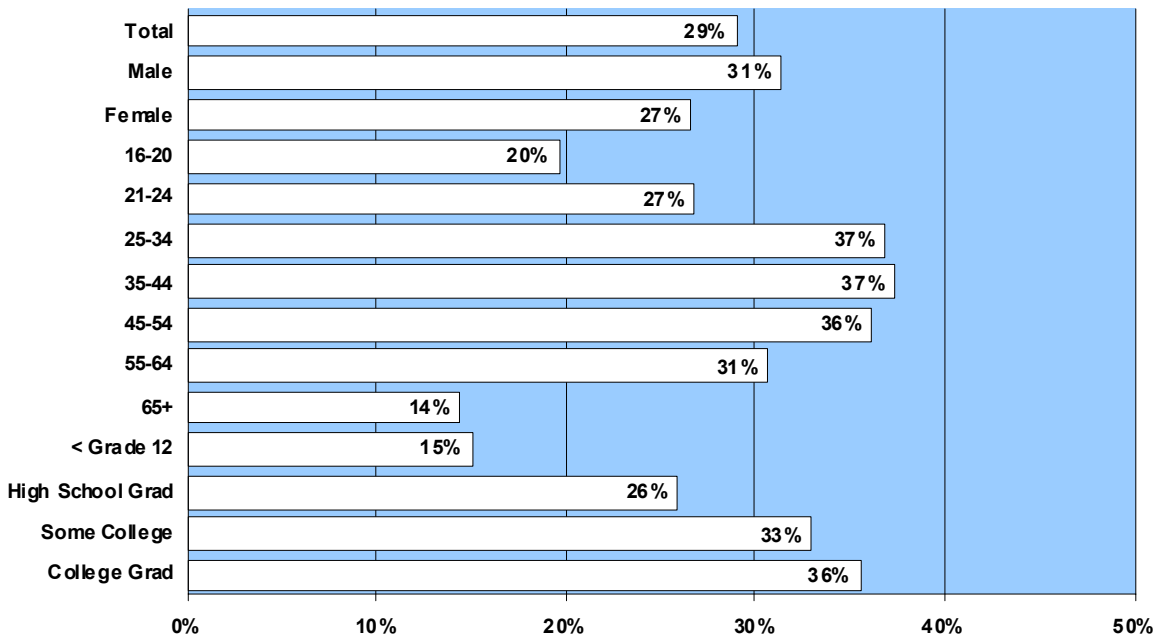
Unweighted N= 3,436

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

All drivers were asked if they had ever used a wireless phone to report an emergency while they were driving or riding in a motor vehicle. About three-in-ten (29%) answered “Yes.” There were differences by age, with the youngest and oldest drivers being least likely to have ever used a wireless phone to report an emergency while in a motor vehicle.

Drivers with more years of formal education were both more likely to carry a wireless phone with them while driving (see page 21), and more likely to have called in an emergency from a motor vehicle. Fifteen percent of those who had not graduated high school had used a wireless phone to report a road emergency. This increased to 26 percent and 33 percent for those who graduated high school or had some college experience, respectively, and to 36 percent for those who had graduated from college.

**Figure 25**  
**Used a Car/Cellular Phone to Report an Emergency**  
**By Gender, Age And Education, 2007**



Qx: Have you ever used a car phone or cellular phone or other type of wireless phone to report an emergency while you were driving or riding in a motor vehicle?

Base: Drivers.

Unweighted N=5,393

Those individuals who had used their phones to call in an emergency were asked the specific nature of the call. The majority (65%) made a call to report a vehicle crash. The next most common emergency reported was DWI or suspected drunk driving (10%). Other emergency situations reported by wireless phone were mentioned by 7 percent or less.

**Table 4**  
**Kind of Emergency Reported, 2007**

Qx: What kind of emergency did you call about?

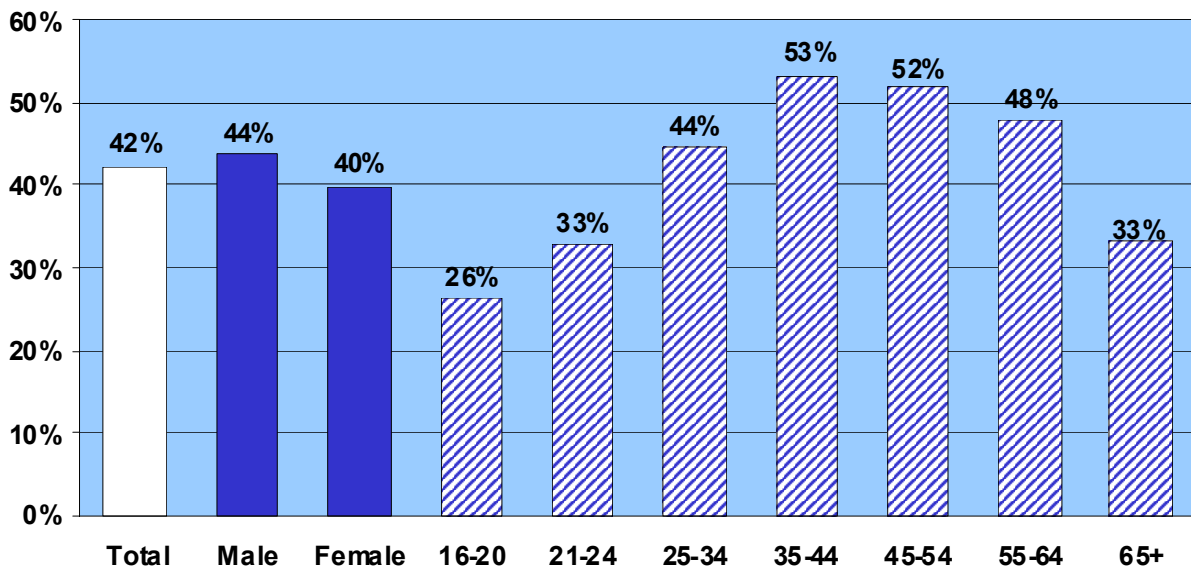
Base: Drivers who used a wireless phone in motor vehicle to report an emergency.

<i>Unweighted N</i>	<i>1,706</i>
Car or automobile accident	65%
DWI or suspected drunk driver	10%
Disabled or stalled car or automobile	7%
Reckless/aggressive driving	7%
Fire (unsp.)	6%
Criminal behavior	4%
Animal hit/struck	2%
Debris on roadway	2%
Person became ill or sick/medical emerg.	2%
Car or automobile fire	1%
Other	4%
Don't know	1%

**Knowledge of Initials “EMS”**

Over two-fifths of the population age 16 and older (42%) knew that the initials “EMS” stand for “emergency medical services/systems”. The percentage differed slightly between males (44%) and females (40%), and there was a curvilinear relationship with regard to age.

**Figure 26**  
**Know What the Initials “EMS” Stand For**  
**By Gender And Age, 2007**



Qx: Can you tell me what the initials “EMS” stand for?

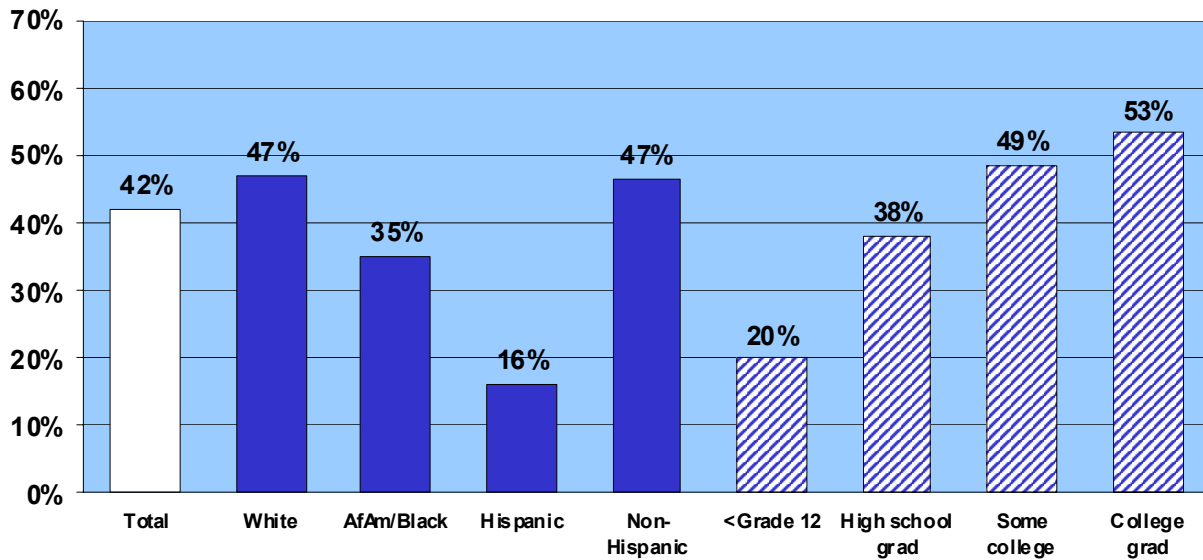
Base: Total population 16 and over.

Unweighted N=6,010



White respondents (47%) were more likely than African American/Black respondents (35%) to answer that EMS stood for emergency medical services, as were non-Hispanic respondents (47%) compared to Hispanic respondents (16%). Recognition increased as formal educational level increased.

**Figure 27**  
**Know What the Initials “EMS” Stand For**  
**By Race/Ethnicity And Education, 2007**



Qx: Can you tell me what the initials “EMS” stand for?

Base: Total population 16 and over.

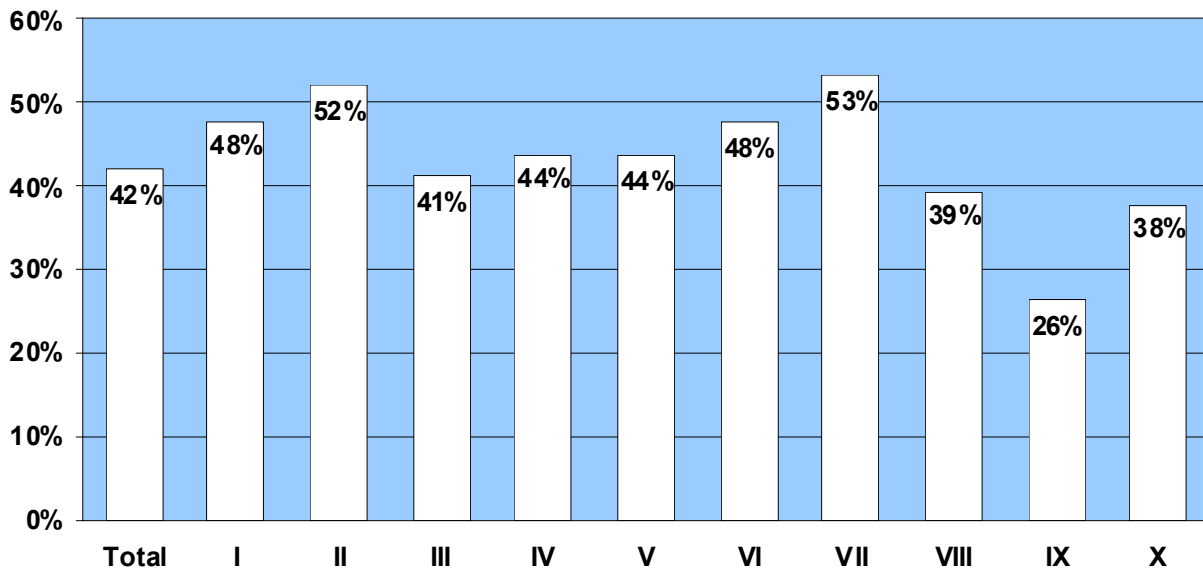
Unweighted N=6,010

\*AfAm is an abbreviation for African American.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

NHTSA segments the States into ten regions for purposes of programmatic outreach (see list of regions below).<sup>10</sup> The data showed lesser recognition in western regions of the country that “EMS” stands for emergency medical services, particularly in Region IX (26%). Recognition was highest in Region VII (53%).

**Figure 28  
Know What the Initials “EMS” Stand For  
By NHTSA Region, 2007**



Qx: Can you tell me what the initials “EMS” stand for?

Base: Total population 16 and over.

Unweighted N=6,010

<sup>10</sup> **National Highway Traffic Safety Administration Regions (as existed at the time of the survey: NHTSA introduced changes to this alignment during Fall 2007)**

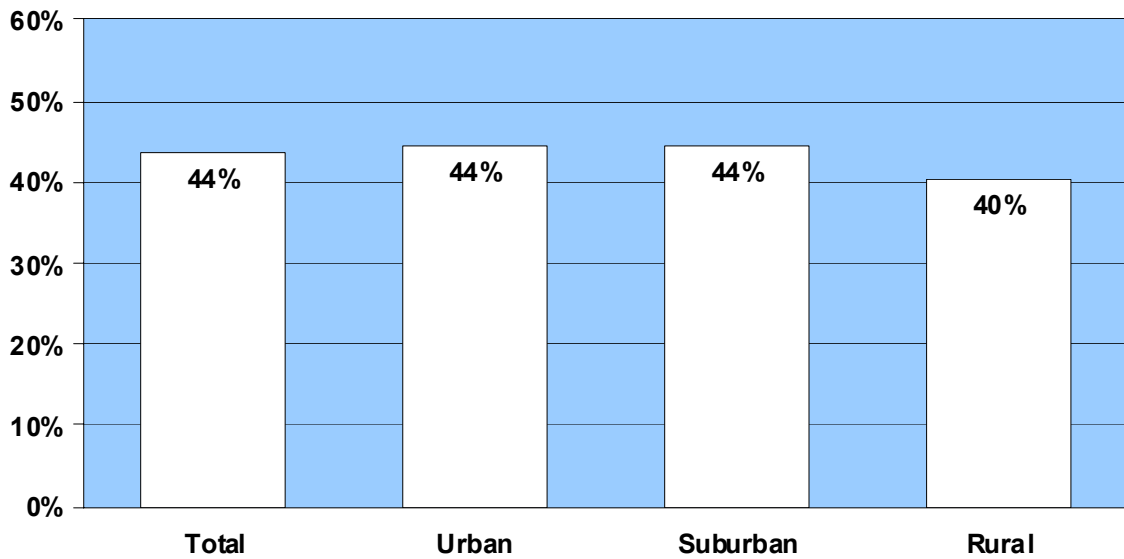
- |      |                       |   |
|------|-----------------------|---|
| I    | New England Region    | Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont                     |
| II   | Eastern Region        | New York, New Jersey  |
| III  | Mid Atlantic Region   | Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia             |
| IV   | Southeast Region      | Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee |
| V    | Great Lakes Region    | Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin                                     |
| VI   | South Central Region  | Arkansas, Louisiana, New Mexico, Oklahoma, Texas  |
| VII  | Central Region        | Iowa, Kansas, Missouri, Nebraska  |
| VIII | Rocky Mountain Region | Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming                                |
| IX   | Western Region        | Arizona, California, Hawaii, Nevada   |
| X    | Northwest Region      | Alaska, Idaho, Oregon, Washington   |

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

More than four-in-ten persons age 16 or older (44%) have called “9-1-1” or some other emergency number for help at some time in the past.

Similar percentages of residents of urban (44%), suburban (44%), and rural (40%) communities had called an emergency number for help.<sup>11</sup>

**Figure 29**  
**Ever Called Emergency Phone Number**  
**By Community Type, 2007**



Qx: Have you personally ever called 9-1-1 or another emergency number for help?

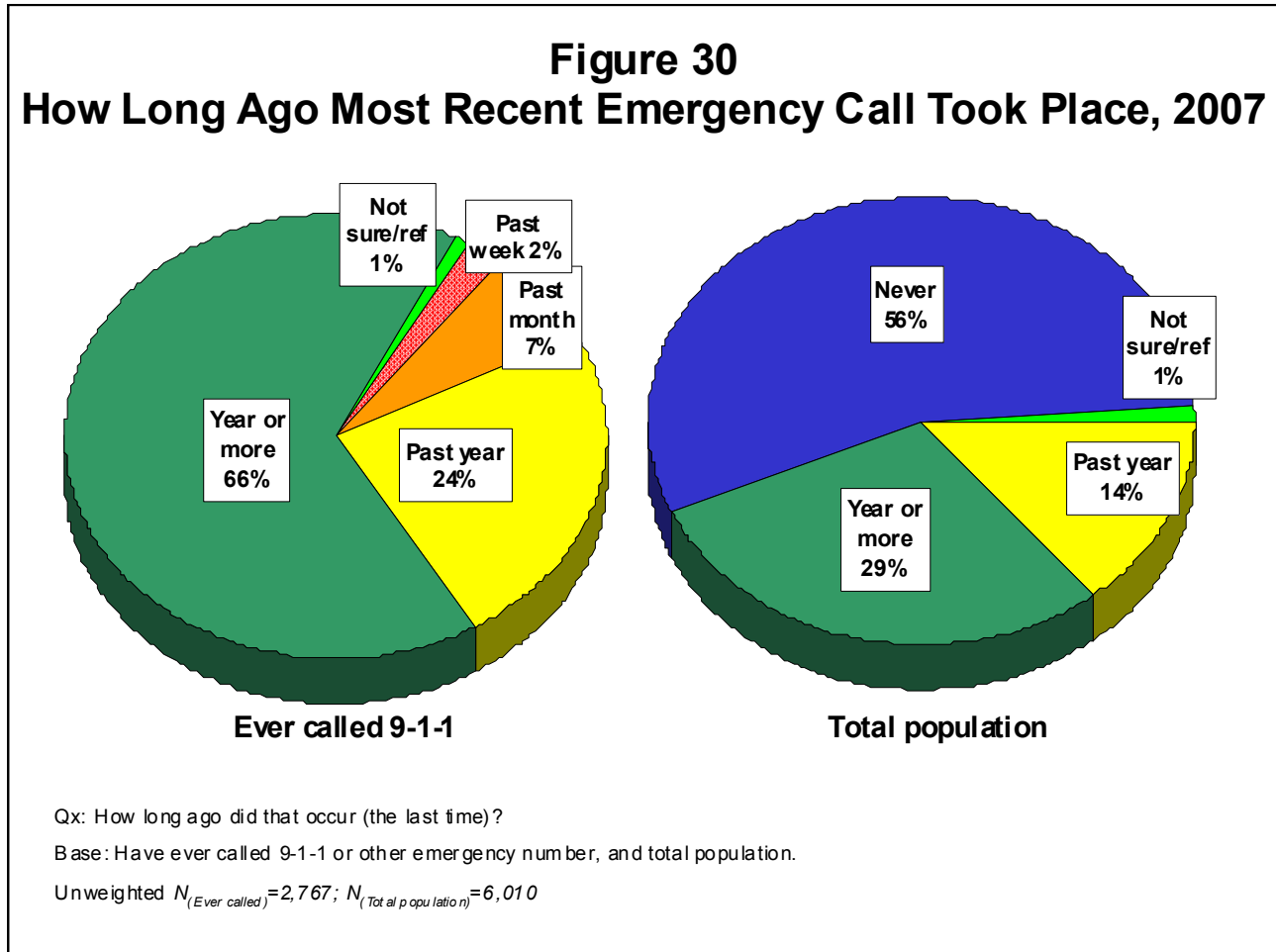
Base: Total population age 16 and over.

Unweighted N=6,010

<sup>11</sup> The "Urban," "Suburban," "Rural" designations are based on the federally defined Metropolitan Statistical Areas (MSA). If a telephone exchange is associated with a named central city, then it is coded as Urban, otherwise it is coded as Suburban. Telephone exchanges in counties that are not part of any MSA are coded as Rural.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Those individuals who had ever called “9-1-1” or another emergency response number were asked how long ago the most recent call occurred. One-third (33%) had called within the last year. This includes calls that took place in the last week (2%), the past month (7%), or within the last year (24%).<sup>12</sup> About two-in-three (66%) last called a year or more ago. For the total population age 16 and older, 14 percent had made an emergency call in the past week, month or year (i.e., 33% of the 44% who had ever made a call).

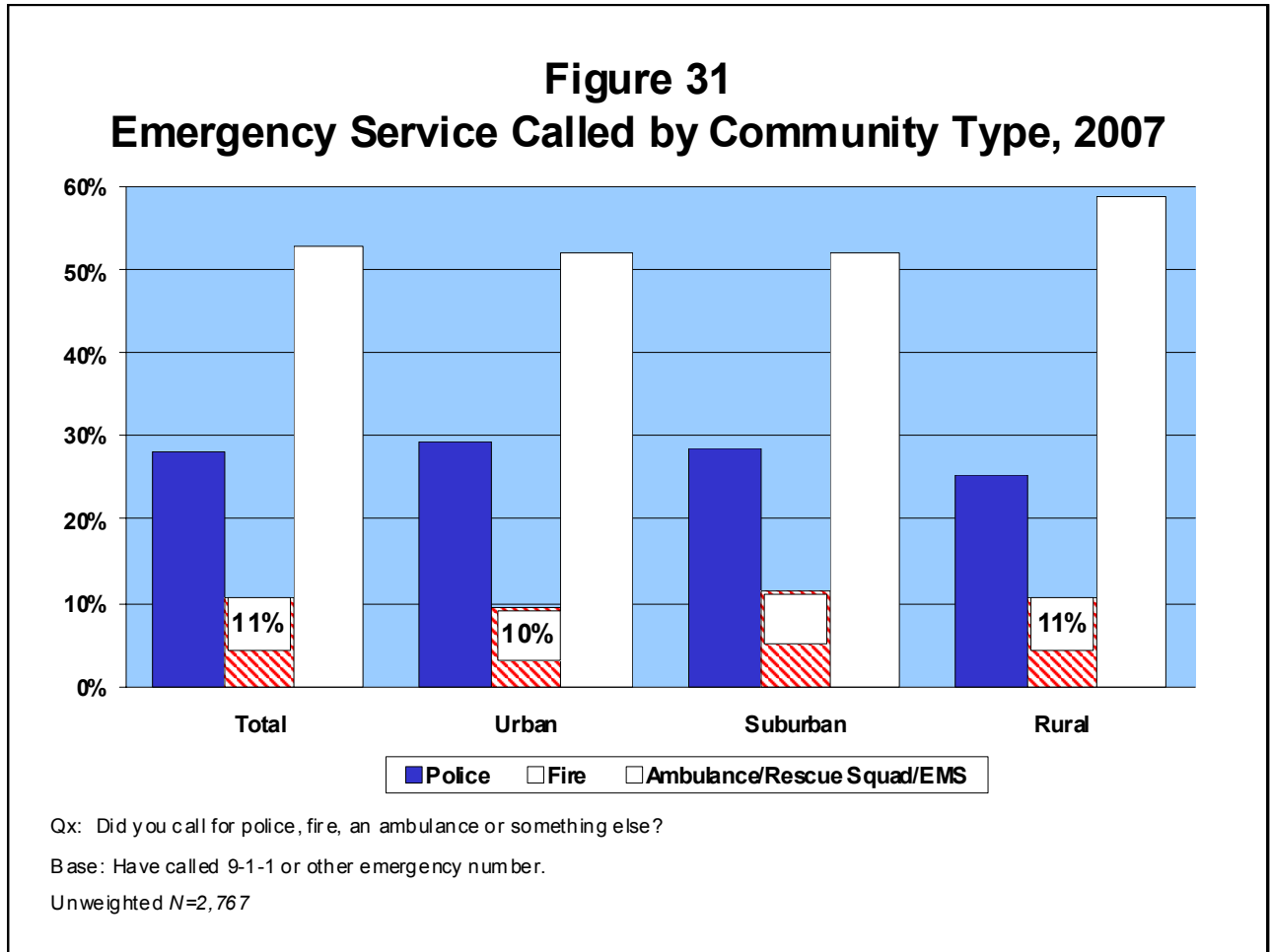


<sup>12</sup> "Past Month" means within the past month but not within the past week, and "Past Year" means within the past year but not within the past month.

**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Those who made emergency calls were also asked whom they called on the most recent occasion. A little more than half (53%) had called for an ambulance/rescue squad/EMS. Nearly three-in-ten (28%) called for the police and one-in-ten (11%) called for the fire department.

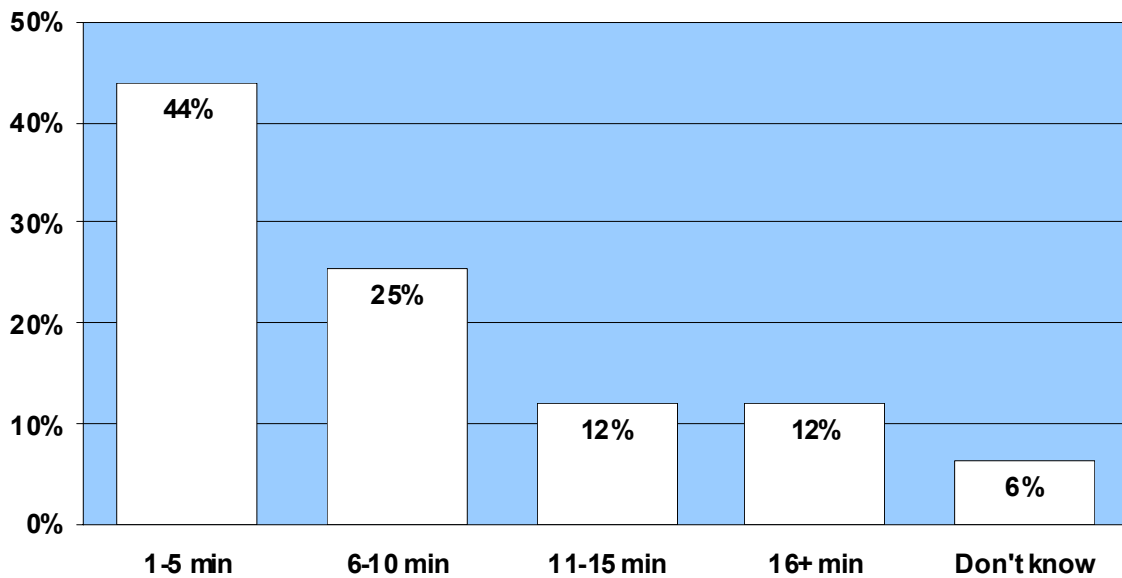
The percentage of persons who had called for the fire department or for the police was similar across community types. The percentage that had called for an ambulance/rescue squad/EMS was somewhat higher in rural areas.



**Expectations for Emergency Response**

When asked their expectations regarding ambulance response time, people generally thought it would take only a few minutes for an ambulance to arrive. About two-in-five (44%) said they expected an ambulance to arrive within five minutes of being called, about two-in-three (69%) expected an ambulance to arrive within 10 minutes, and about four-in-five (81%) expected it to arrive within 15 minutes.

**Figure 32**  
**Expected Time for Ambulance to Arrive, 2007**



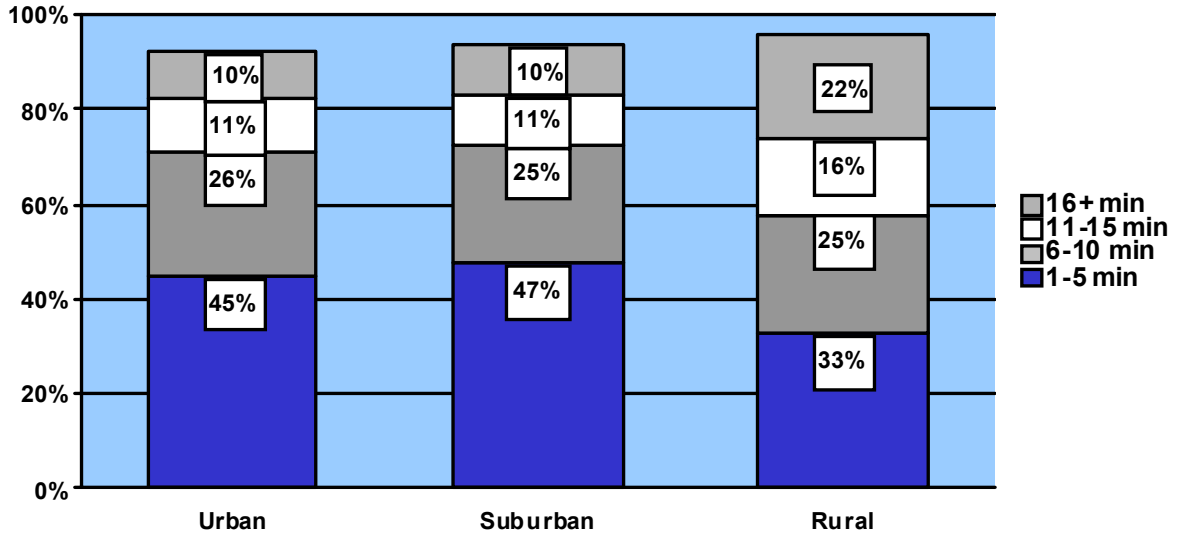
Qx: If there was a medical emergency in your neighborhood and you called an ambulance, how long do you think it would take for the ambulance to arrive?

Base: Total population 16 and over.

Unweighted N=6,010

Expectations in suburban and urban communities were similar. Forty-seven percent of suburban residents expected the ambulance to arrive within 5 minutes of being called and 72 percent expected it to arrive within 10 minutes. Among urban residents, 45 percent expected a 5 minute arrival time and 72 percent expected the ambulance to arrive within 10 minutes. Rural residents had the lowest expectations with 33 percent expecting a five minute arrival, and 58 percent expecting a 10 minute arrival.

**Figure 33**  
**Expected Time for Ambulance to Arrive**  
**By Community Type, 2007**

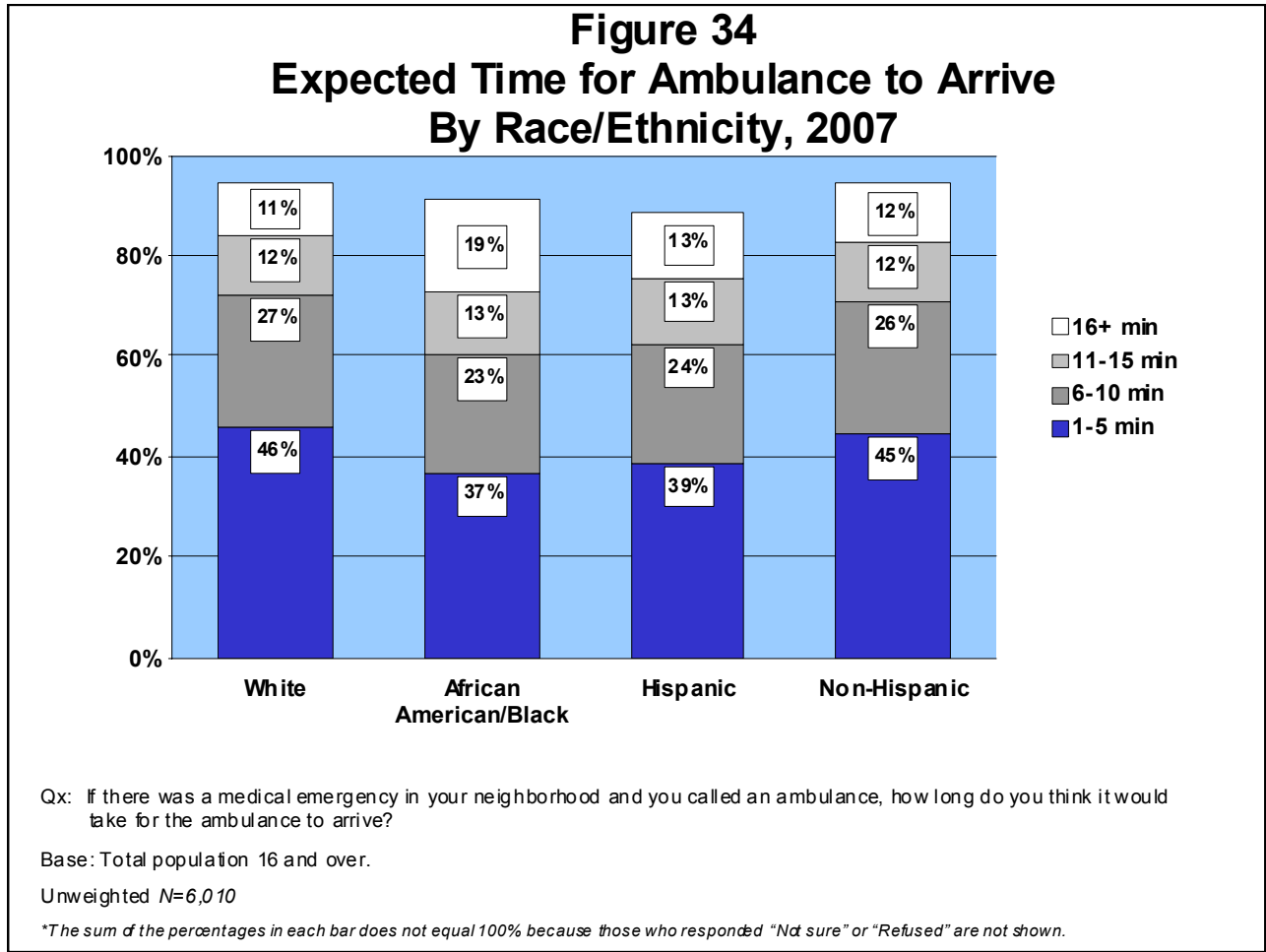


Qx: If there was a medical emergency in your neighborhood and you called an ambulance, how long do you think it would take for the ambulance to arrive?

Base: Total population 16 and over.

Unweighted N=6,010

Expectations about ambulance response time varied by race and ethnicity. More than two-in-five Whites (46%) expected the ambulance to arrive within five minutes of being called and 72 percent expected it to arrive within 10 minutes. African Americans/Blacks had the lowest expectations, with only 37 percent expecting arrival within five minutes and 60 percent<sup>13</sup> within 10 minutes. About four-in-ten Hispanics (39%) expected the ambulance to arrive within five minutes and three-fifths (63%) expected it to arrive within 10 minutes.



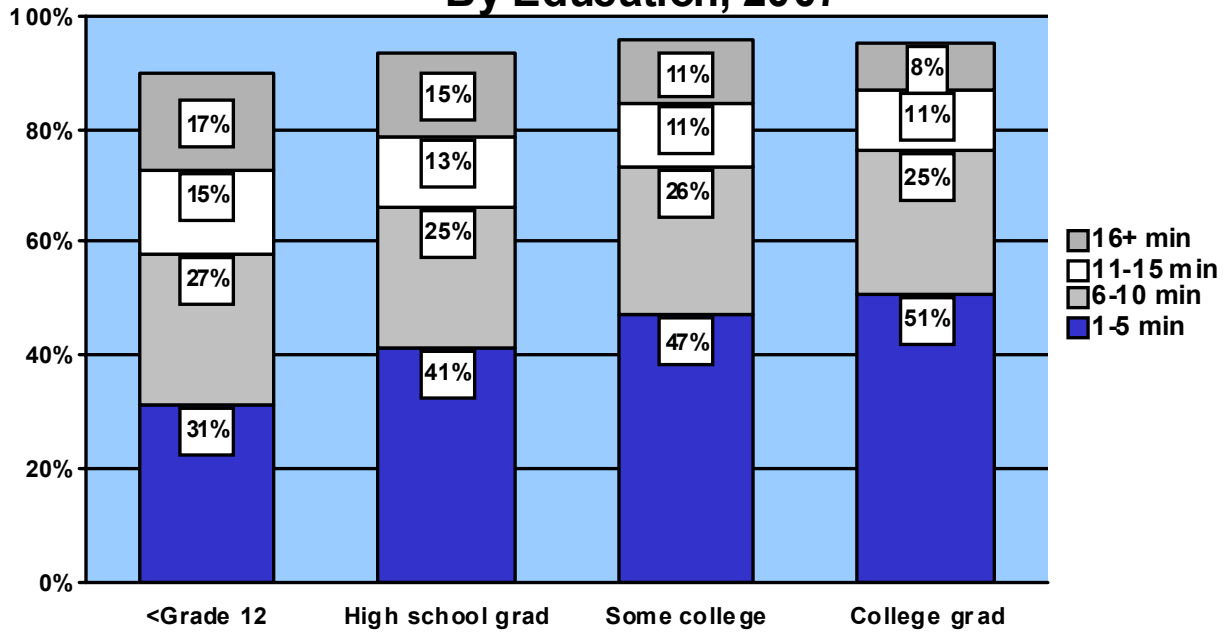
<sup>13</sup> The number does not equal the sum of the components in the Figure due to rounding.



**2007 MOTOR VEHICLE OCCUPANT SAFETY SURVEY: Crash Injury and EMS**

Expectations about ambulance response time tended to increase with education. Those who had not graduated high school had the lowest expectations of an ambulance arriving within five minutes (31%). The percentage then increased to 41 percent of high school graduates, 47 percent of those with some college experience, and 51 percent of college graduates. The proportions expecting the ambulance to arrive within 10 minutes increased from 58 percent for those who had not completed high school, to 66 percent for high school graduates, 73 percent for those with some college experience, and 76 percent for college graduates.

**Figure 35  
Expected Time for Ambulance to Arrive  
By Education, 2007**



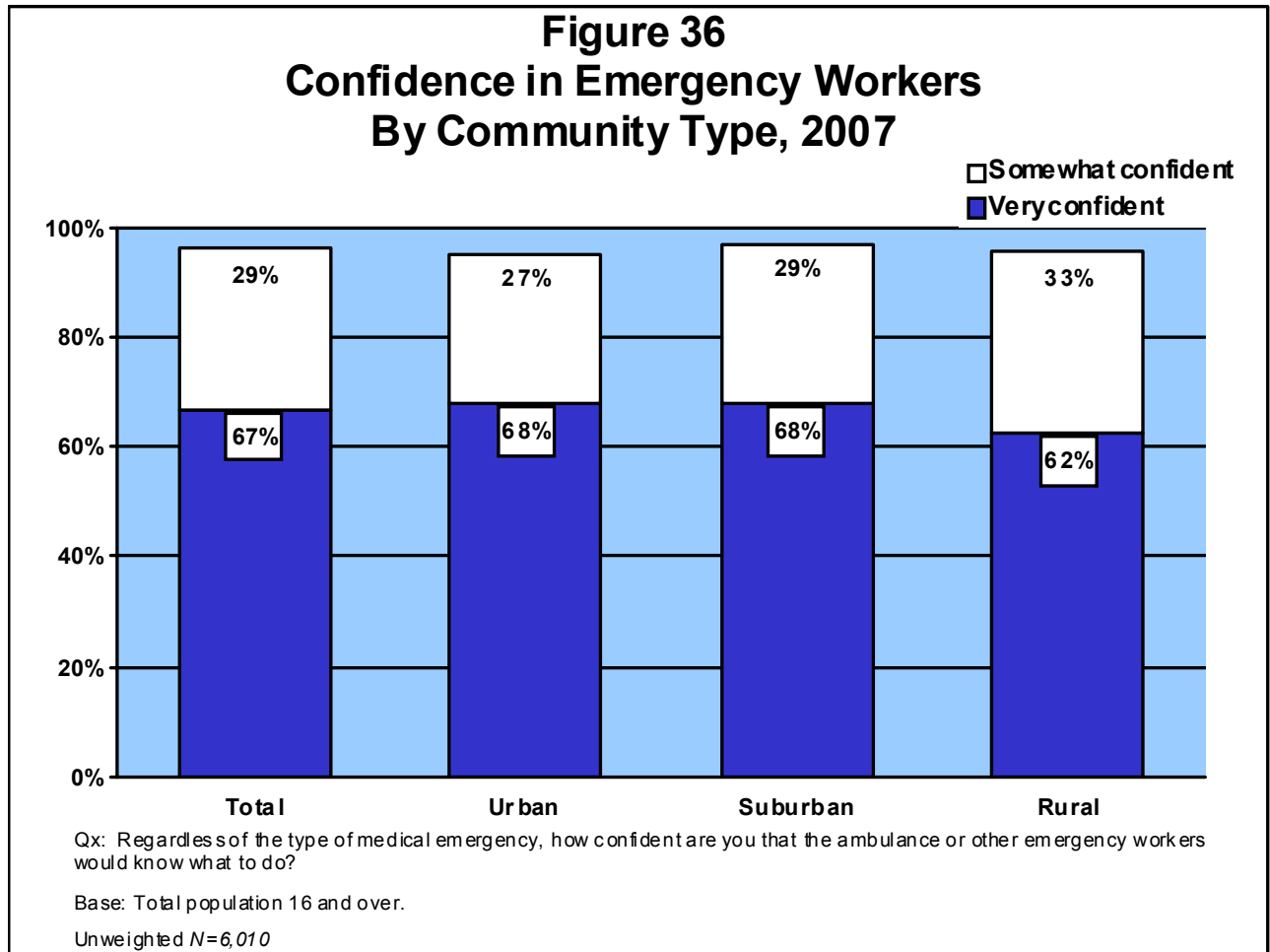
Qx: If there was a medical emergency in your neighborhood and you called an ambulance, how long do you think it would take for the ambulance to arrive?

Base: Total population 16 and over.

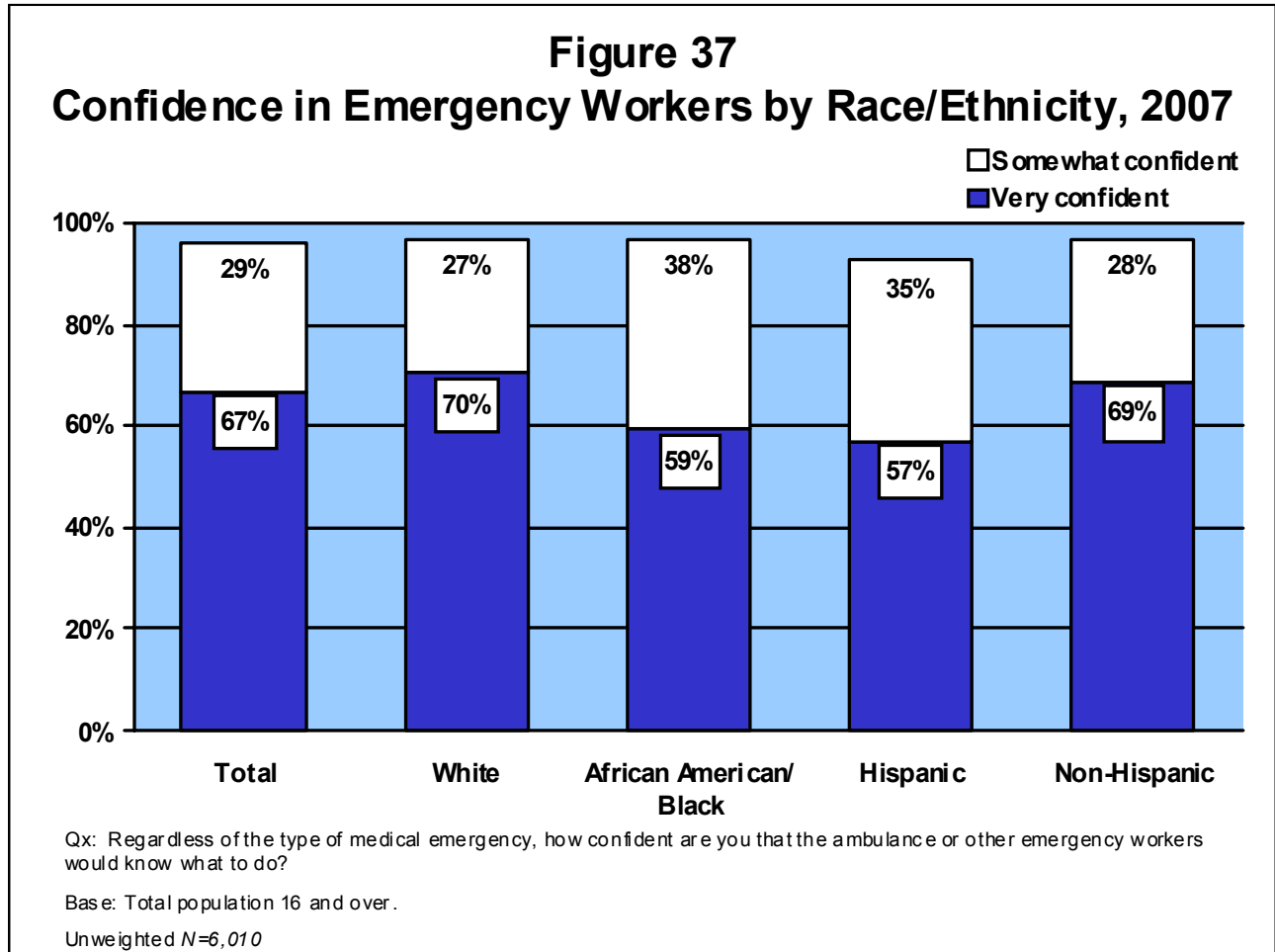
Unweighted N=6,010

**Confidence in Emergency Workers**

About two-thirds of the public 16 and older (67%) were “very confident” that the ambulance or other emergency workers would know what to do and an additional 29 percent were “somewhat confident.” Confidence in emergency workers was about the same in suburban (97%), urban (95%) and rural communities (95%).



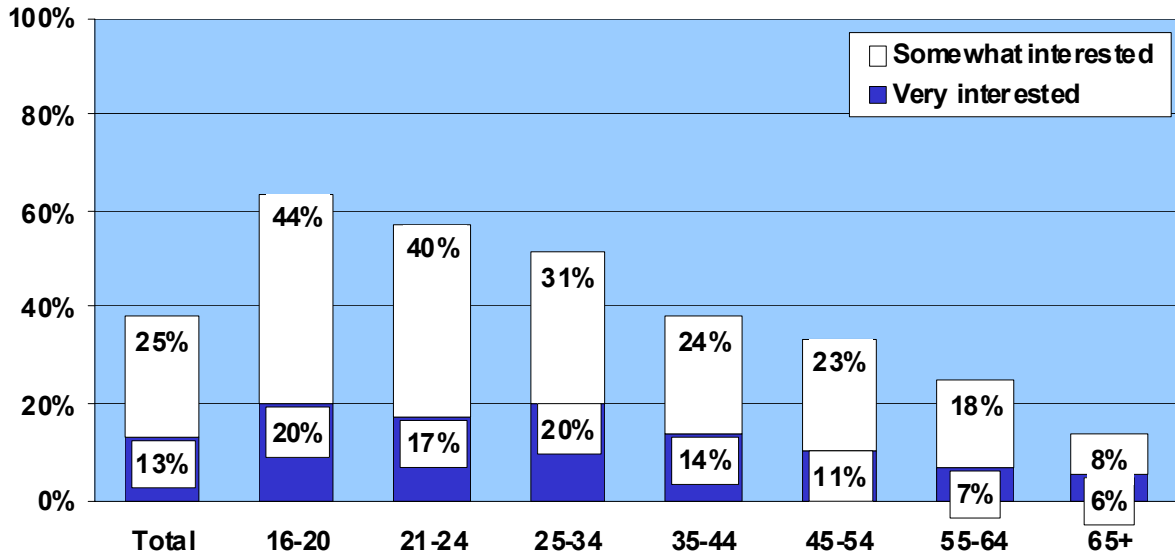
Among the racial and ethnic groups analyzed in Figure 37, Hispanics showed the least confidence in the capabilities of emergency workers.



**Interest in Training to Become an EMS Provider**

Respondents were asked how interested they would be in taking training to become an emergency medical services provider, assuming it was low cost and convenient. About two-in-five (38%) said they would be very interested (13%) or somewhat interested (25%) in this type of training. Interest in such a course was inversely related to age, that is, as people got older, interest declined. More than half in the 16 to 20 (64%), 21 to 24 (57%) and 25 to 34 (51%) age groups said they would be interested. From this point interest declined to 38 percent in the 35 to 44 group, 34 percent in the 45 to 54 group, 25 percent in the 55 to 64 group, and finally to 14 percent for those 65 and older.

**Figure 38**  
**Interest in Training to Become an EMS Provider by Age, 2007**



Qx: Assuming it was reasonably priced and in a convenient location, how interested would you be in taking training to become an emergency medical services provider?

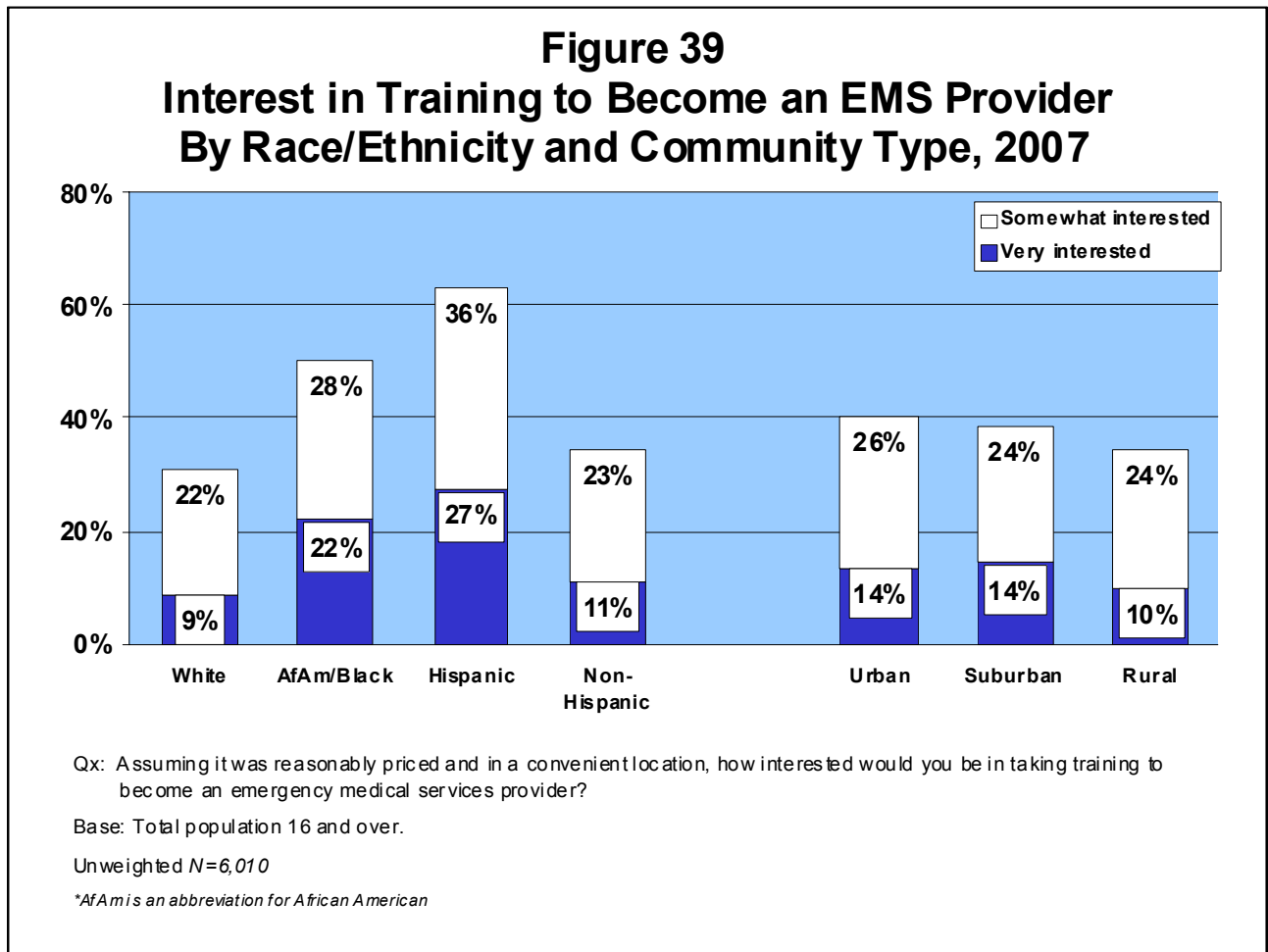
Base: Total population 16 and over.

Unweighted N=6,010

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Only 32 percent<sup>14</sup> of Whites and 34 percent of non-Hispanics were interested in training to become an EMS provider compared to 50 percent of African Americans/Blacks and 63 percent of Hispanics. About one-in-five African Americans/Blacks (22%) and about one-fourth of Hispanics (27%) were very interested in such training, compared to about one-in-ten Whites (9%) and non-Hispanics (11%).

Interest in training was highest in urban areas with four-in-ten urban residents (40%) either very interested (14%) or somewhat interested (26%). Interest dropped to 38 percent among suburban residents and 35 percent for residents of rural communities.

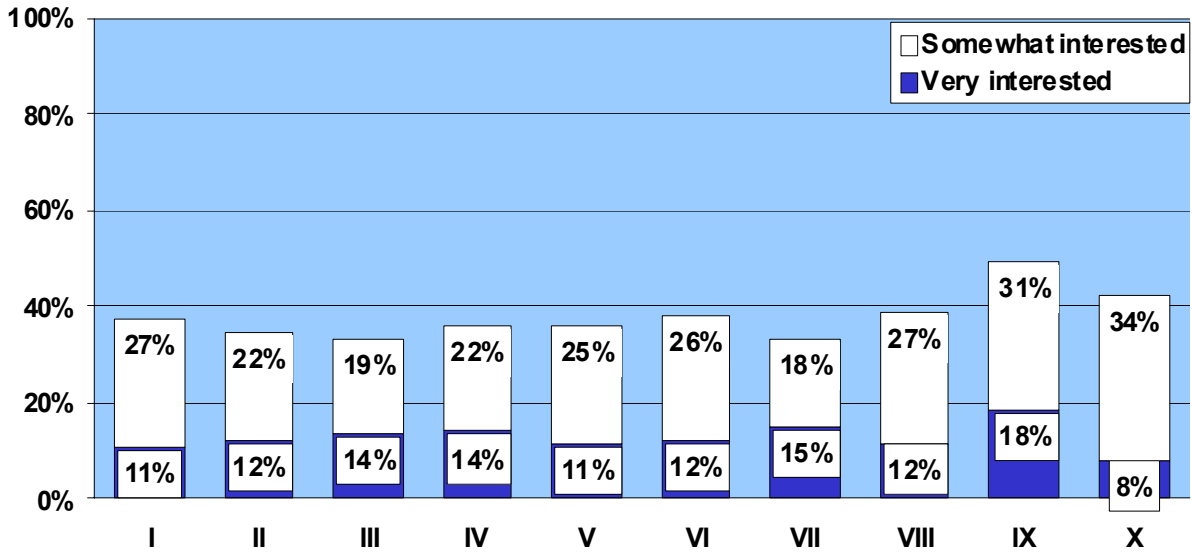


<sup>14</sup> Combined numbers may not equal the sum of the components in the Figure due to rounding.

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Interest in this type of training was highest in NHTSA Region IX where almost half (49%) expressed interest. Interest was lowest (33%) in Regions III and VII. In the remaining regions, interest was in the 34% to 42% range.<sup>15</sup>

**Figure 40  
Interest in Training to Become an EMS  
Provider by NHTSA Region, 2007**



Qx: Assuming it was reasonably priced and in a convenient location, how interested would you be in taking training to become an emergency medical services provider?

Base: Total population 16 and over.

Unweighted N=6,010

<sup>15</sup> **National Highway Traffic Safety Administration Regions (as existed at the time of the survey: NHTSA introduced changes to this alignment during Fall 2007)**

- |      |                       |   |
|------|-----------------------|---|
| I    | New England Region    | Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont                     |
| II   | Eastern Region        | New York, New Jersey  |
| III  | Mid Atlantic Region   | Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia             |
| IV   | Southeast Region      | Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee |
| V    | Great Lakes Region    | Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin                                     |
| VI   | South Central Region  | Arkansas, Louisiana, New Mexico, Oklahoma, Texas  |
| VII  | Central Region        | Iowa, Kansas, Missouri, Nebraska  |
| VIII | Rocky Mountain Region | Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming                                |
| IX   | Western Region        | Arizona, California, Hawaii, Nevada   |
| X    | Northwest Region      | Alaska, Idaho, Oregon, Washington   |

## CONCLUSIONS

Some of the notable findings from the crash injury, wireless phone use, and Emergency Medical Services components of the 2007 Motor Vehicle Occupant Safety Survey include:

- More than one-quarter of persons age 16 and over (26%) had been injured in a vehicle crash at some time in the past where they required medical attention, including an estimated 1 percent of the total population age 16 and older who were injured in the past year.
- People who were not wearing a seat belt at the time of the crash were much more likely to be hospitalized compared to those wearing a seat belt (32% versus 19%).
- Of those who were ever injured in a vehicle crash, 57 percent (15% of the total population) had received injuries severe enough to prevent them from performing some of their normal activities (work, school, household) for at least a week. Four percent of the total population 16 and older had sustained crash injuries that prevented them from performing some of their normal activities a year after the crash.
- Males were more likely than females to state that they had no concerns about stopping to help victims at a crash site, or stopping to call for help (56% to 37%). Females were more likely to express concerns about not being able to provide assistance (11% to 7%) and about personal safety (27% to 16%).
- More than four in five drivers (81%) said they usually have a wireless phone in the vehicle with them when they drive. More than four-fifths of these drivers (85%) kept the phone turned on during all or most trips so that calls could be received.
- Among drivers who at least sometimes kept the phone turned on to receive calls while in the vehicle, more than six-in-ten (64%) said that they would either always or usually answer a call while driving.
- One-third of drivers (33%) who usually had a wireless phone in the vehicle with them said that they talk on the phone while driving during half or more of their trips.
- About three-in-ten drivers (29%) have used a car phone to report an emergency while they were driving or riding in a motor vehicle.
- Less than half of persons age 16 and older have called “9-1-1” or some other emergency number some time in the past (44%).
- About two-in-five people 16 and older expect an ambulance to arrive within five minutes after being called (44%) and about seven-in-ten (69%) expect arrival within 10 minutes.
- Nearly everyone was very confident (67%) or somewhat confident (29%) in the abilities of the emergency response personnel to know what to do in a medical emergency.
- More than one-third of the population 16 and older (38%) are interested in taking training to become emergency medical service providers. Interest is greatest among the youngest age groups.



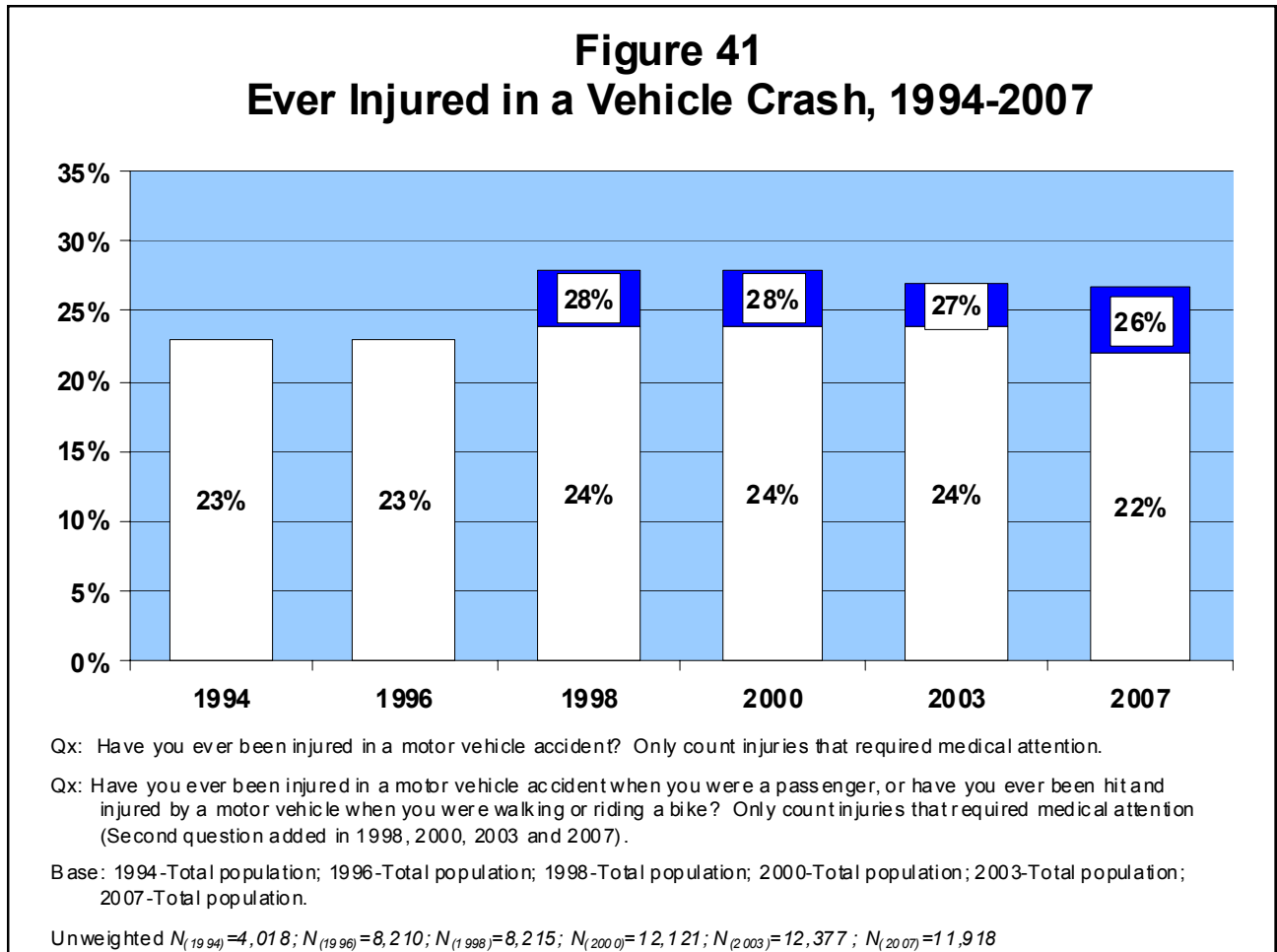


**SECTION 2: TRENDS, 1994-2007**



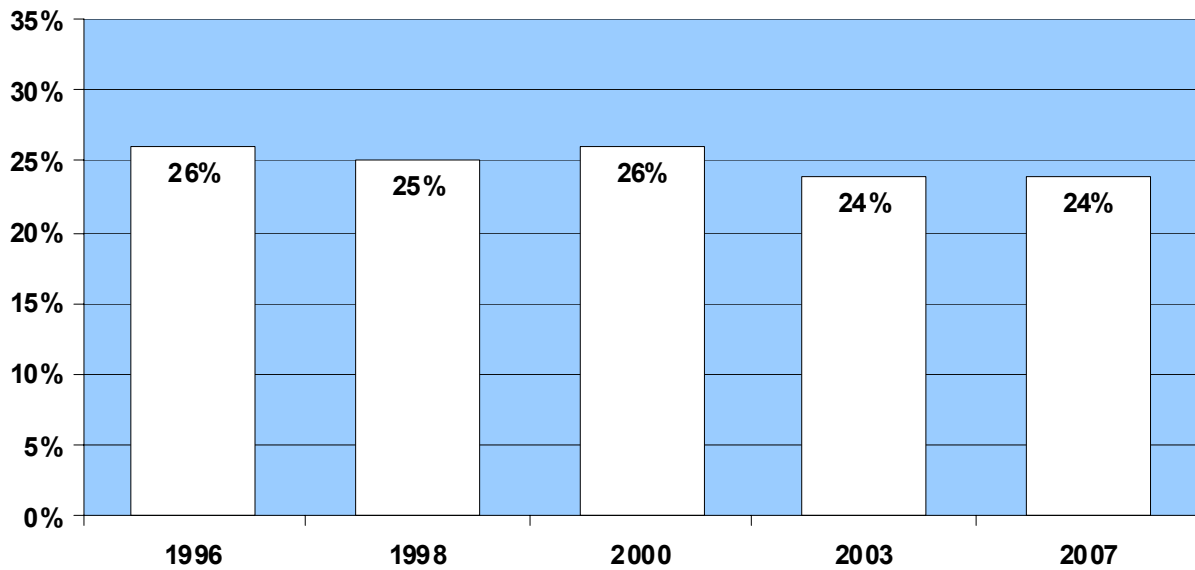
**Injuries in Vehicle Crashes, 1994-2007**

In 1994 and 1996, MVOSS used a single question to identify the percentage of the population age 16 and older ever injured in a motor vehicle crash to the extent that they required medical attention. Twenty-three percent had been injured according to data from both years. However, there were indications that some respondents had discounted certain types of injuries. In 1998, a second question was added to capture persons who may otherwise have discounted injuries as vehicle passengers, or as pedestrians or bicyclists hit by a motor vehicle. While there was little change from earlier years in the results of the first question, the addition of the second question increased the total percentage of persons injured by several percentage points in all subsequent years (e.g., to 26% in 2007).



The MVOSS has consistently found that about one-quarter of those injured in a motor vehicle crash were hospitalized as a result.

**Figure 42**  
**Hospitalized After a Vehicle Crash, 1996-2007**



Qx: Were you hospitalized?

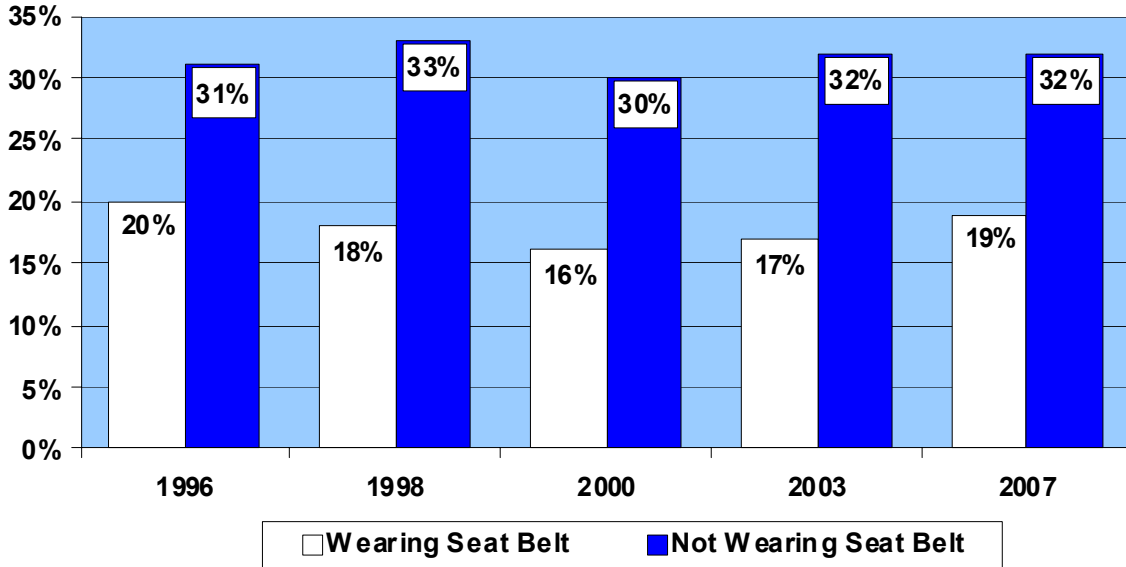
Base: 1996-Ever been injured in a vehicle accident; 1998-Ever been injured in a vehicle accident; 2000-Ever been injured in a vehicle accident; 2003-Ever been injured in a vehicle accident; 2007-Ever been injured in a vehicle accident.

Unweighted  $N_{(1996)}=1,974$ ;  $N_{(1998)}=1,155$ ;  $N_{(2000)}=3,582$ ;  $N_{(2003)}=3,470$ ;  $N_{(2007)}=3,243$

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Use of seat belts at the time of the crash made a difference in the need for hospitalization. Less than one-in-five persons who were wearing a seat belt at the time of the crash were hospitalized, compared to more than three-in-ten who were not wearing a seat belt at the time of the crash.

**Figure 43  
Hospitalized by Seat Belt Use, 1996-2007**



Qx: Were you hospitalized?

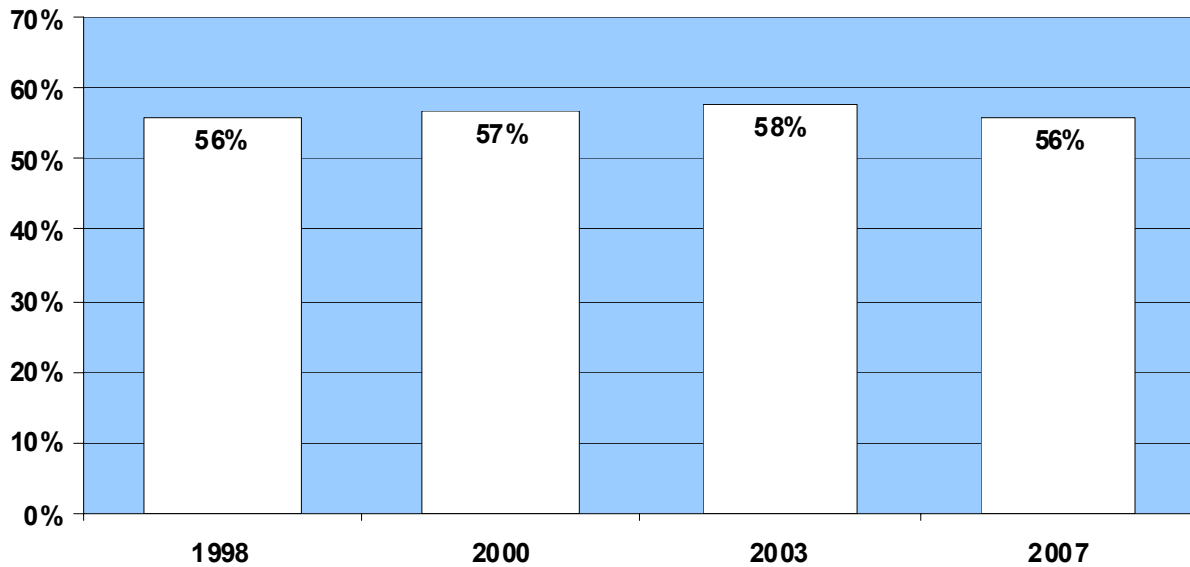
Qx: Were you wearing your seat belt at the time of the accident?

Base: 1996-Ever been injured in a vehicle accident; 1998-Ever been injured in a vehicle accident; 2000-Ever been injured in a vehicle accident; 2003-Ever been injured in a vehicle accident; 2007-Ever been injured in a vehicle accident.

Unweighted  $N_{(1996)}=1,974$ ;  $N_{(1998)}=1,155$ ;  $N_{(2000)}=3,582$ ;  $N_{(2003)}=3,470$ ;  $N_{(2007)}=3,243$

Close to three out of five (56%) of those ever injured in a vehicle crash received follow-up treatment.<sup>16</sup> This has been a consistent finding since the question was first asked in 1998.

**Figure 44**  
**Proportion Who Received Follow-Up Treatment**  
**After Crash, 1998-2007**



Qx: Did you receive any continuing or follow-up treatment for your injuries?

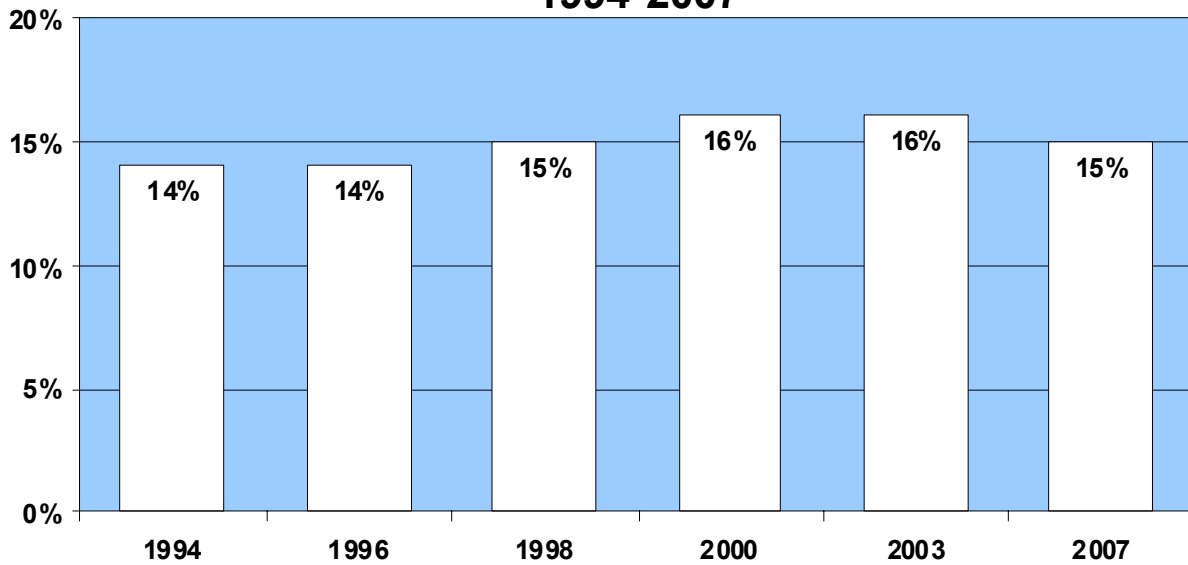
Base: 1998-Ever been injured in a vehicle accident; 2000-Ever been injured in a vehicle accident; 2003-Ever been injured in a vehicle accident; 2007-Ever been injured in a vehicle accident.

Unweighted  $N_{(1998)}=1,247$ ;  $N_{(2000)}=3,582$ ;  $N_{(2003)}=3,470$ ;  $N_{(2007)}=3,243$

<sup>16</sup> In cases where a respondent was injured in multiple crashes, data are presented only for the most recent crash.

More than half of those ever injured had received injuries severe enough to prevent them from performing some of their normal activities (work, school, household) for at least a week. In 2007, this translated into 15 percent of the total population being previously disabled for at least a week after a motor vehicle crash.

**Figure 45**  
**Disabled for at Least a Week After Vehicle Crash,**  
**1994-2007**

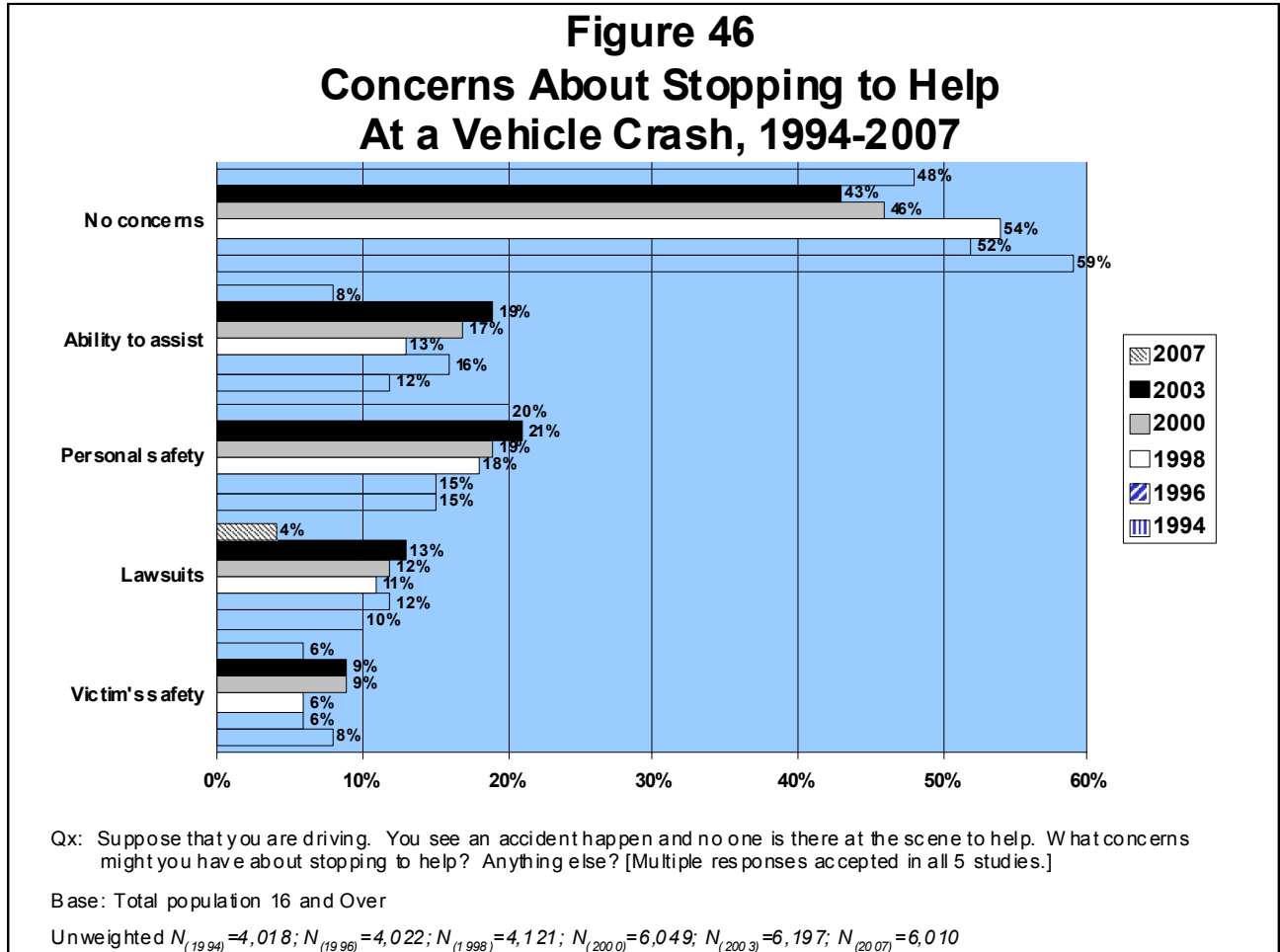


Qx: Have you ever been injured in a motor vehicle accident? Only count injuries that required medical attention.  
 Qx: Have you ever been injured in a motor vehicle accident when you were a passenger, or have you ever been hit and injured by a motor vehicle when you were walking or riding a bike? Only count injuries that required medical attention.  
 Qx: Did your injuries from that accident prevent you from performing any of your normal activities (work, school, household) for at least a week?  
 Qx: Have you ever received injuries from a vehicle accident that prevented you from performing any of your normal activities (work, school, household) for at least a week?

Base: Total population 16 and over. Unweighted  $N_{(1994)}=4,018$ ;  $N_{(1996)}=4,022$ ;  $N_{(1998)}=4,121$ ;  $N_{(2000)}=6,049$ ;  $N_{(2003)}=6,197$ ;  $N_{(2007)}=11,918$

**Concerns About Stopping at a Crash, 1994-2007**

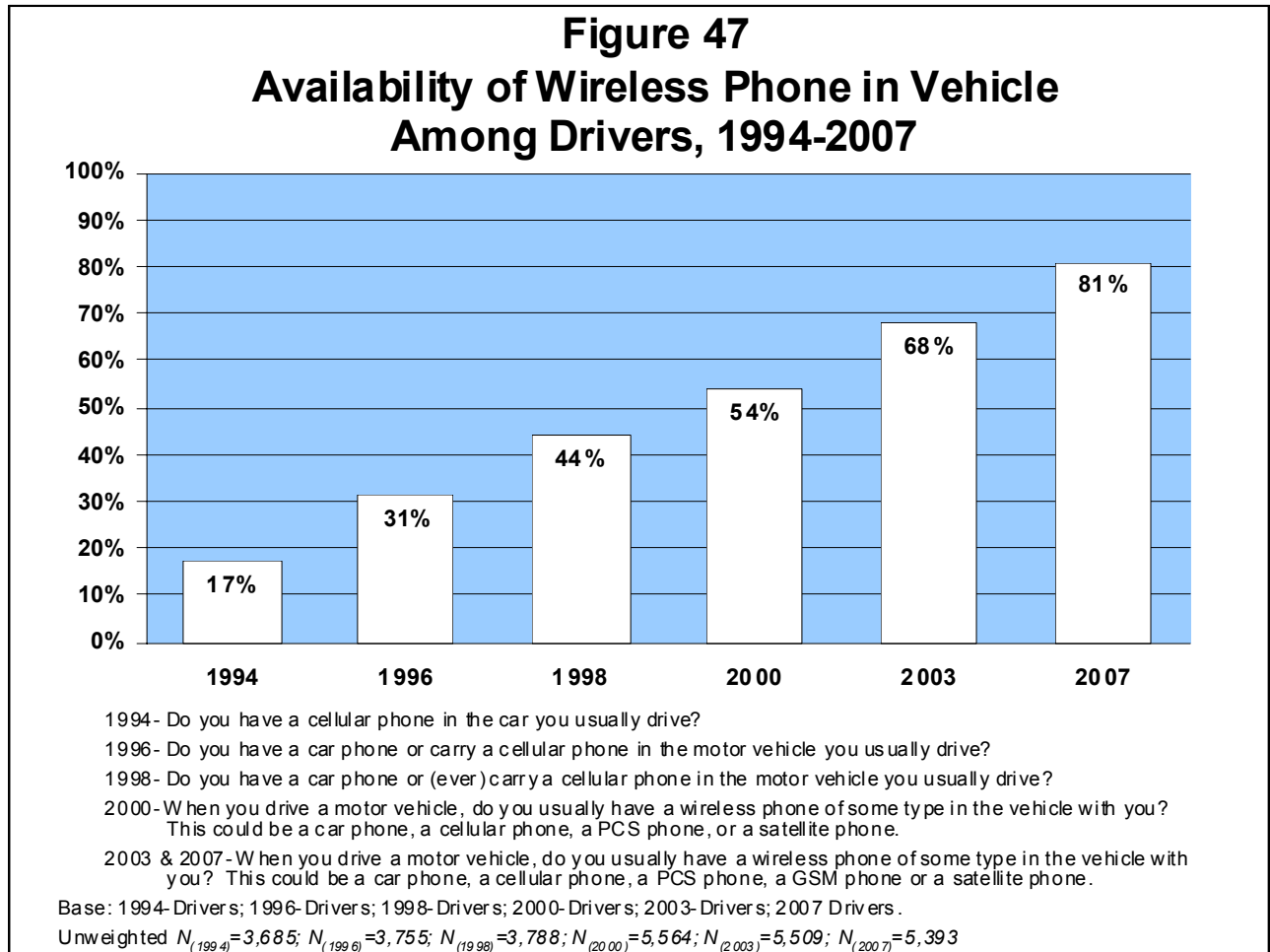
Since 2000, less than one-half of the public 16 and older have had no concerns about stopping at the scene of a vehicle crash to offer assistance. Concerns about personal safety held steady over that time period at about 20 percent of the population, while concerns about legal liability or the ability to provide assistance dropped noticeably in 2007 compared to earlier years.





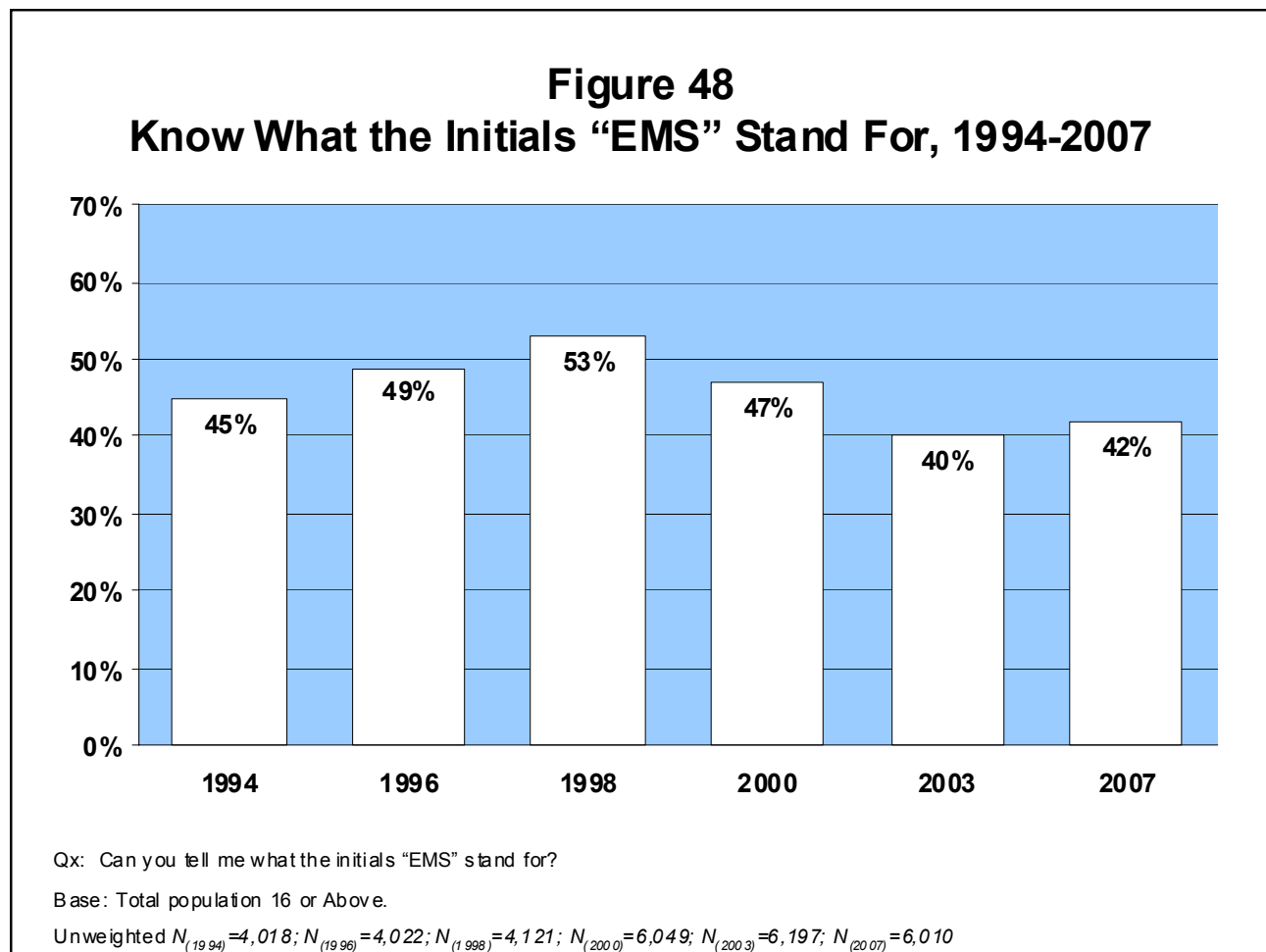
**Availability of Wireless Phones in Vehicle, 1994-2007**

There have been several changes over the years in the wording of the survey question asking drivers whether they carry a car phone with them in the vehicle they drive. While this presents difficulties in comparing obtained percentages across the six surveys, it remains clear from the data that there has been a steady increase in drivers who carry wireless phones with them in the vehicle.



**Knowledge of Initials “EMS”, 1994-2007**

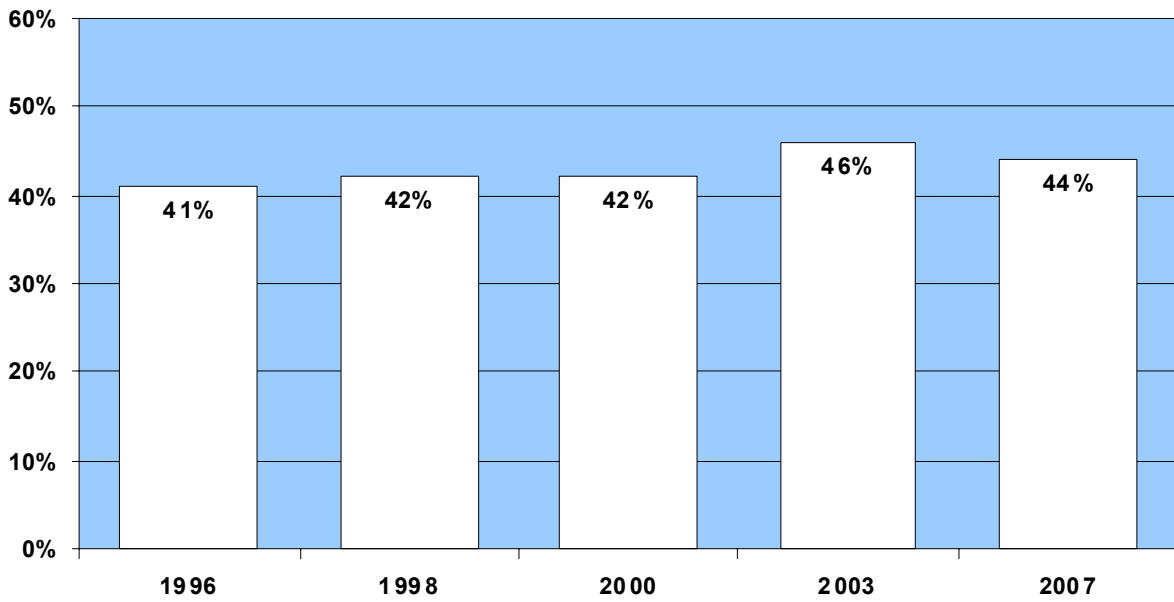
Overall, the ability to correctly recall what the initials “EMS” stand for rose steadily from 1994 to 1998, but has since fallen from that peak.



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More than two-in-five persons age 16 or older have called “9-1-1” or some other emergency number for help at some time in the past. The percentage who said they had called “9-1-1” was 41 percent in 1996 and 44 percent in 2007.

**Figure 49  
Ever Called Emergency Phone Number, 1996-2007**



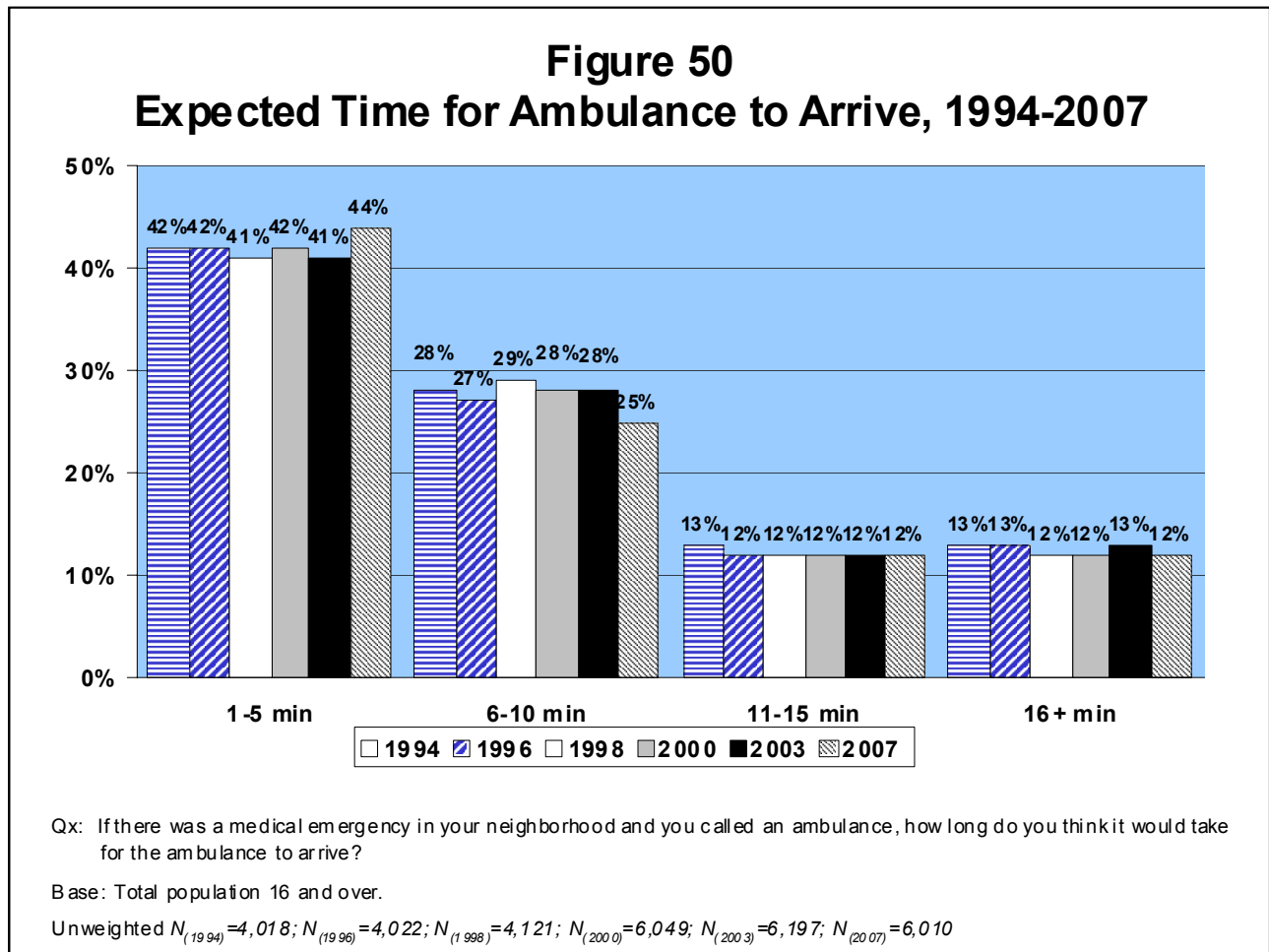
Qx: Have you personally ever called 9-1-1 or another emergency number for help?

Base: Total population 16 and Over.

Unweighted  $N_{(1996)}=4,022$ ;  $N_{(1998)}=4,121$ ;  $N_{(2000)}=6,049$ ;  $N_{(2003)}=6,197$ ;  $N_{(2007)}=6,010$

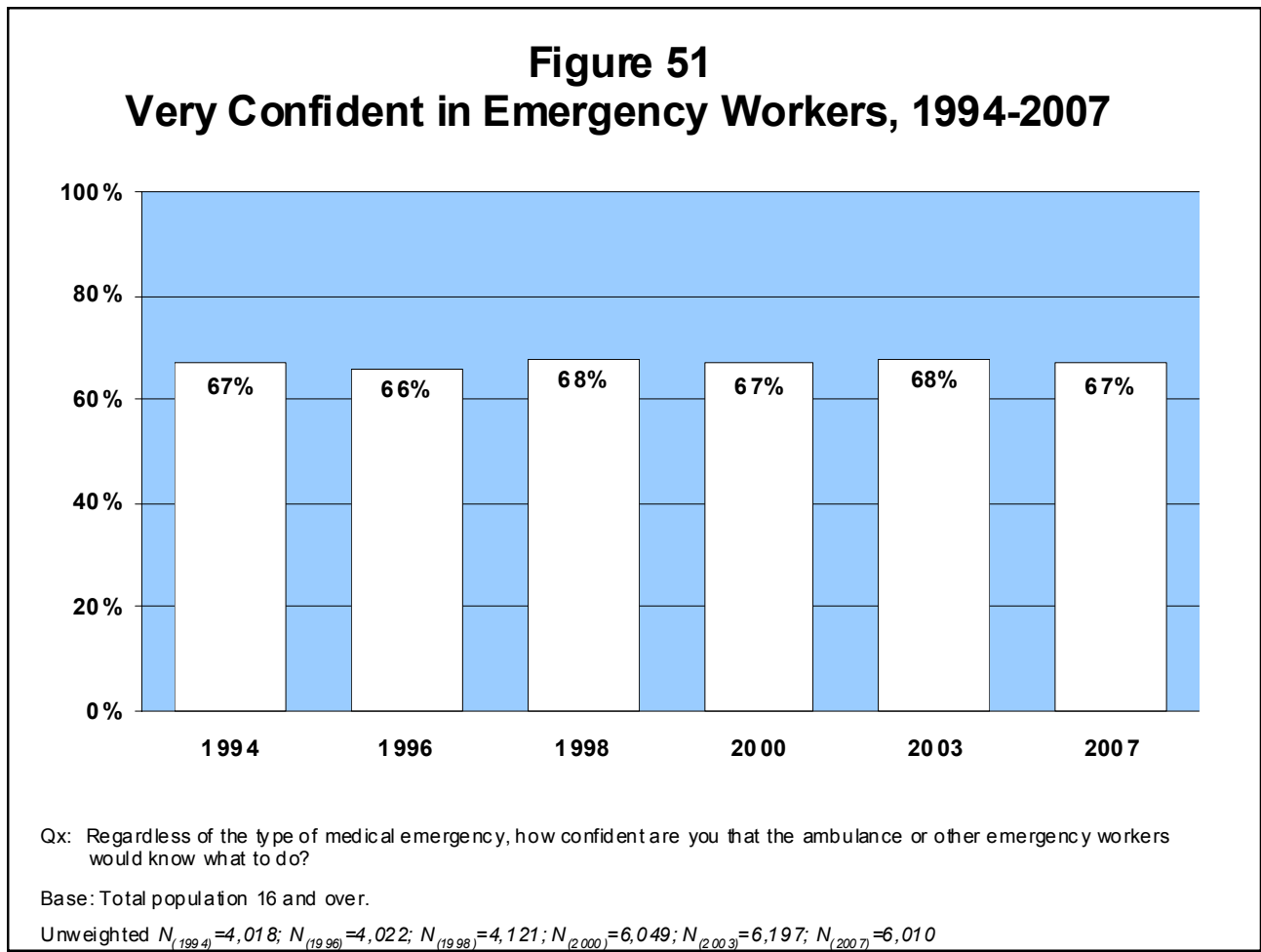
**Expectations for Emergency Response, 1994-2007**

There has been essentially no change in expected response time in a medical emergency. About two-fifths of the population 16 and older expect an ambulance to arrive within five minutes after being called, and just over two-thirds expect it to arrive within 10 minutes.



**Confidence in Emergency Workers, 1994-2007**

Overall, the percentage that reported being very confident in emergency workers knowing what to do remained relatively unchanged from 1994 to 2007 (66%-68%).



## CONCLUSIONS

In most areas addressed by this report, there has been little change from 1994 to 2007<sup>17</sup>:

- The survey continues to show that slightly more than one-quarter of the population age 16 and older have been injured in a vehicle crash to the point where medical attention was required.
- The survey has also consistently found that about one-fourth of injured crash victims were hospitalized and that hospitalization was more likely if seat belts were not worn. Results concerning the proportion of crash-injured people who received continuing or follow-up treatment (almost three-in-five), and the proportion who were disabled to some extent for at least a week after the crash (about one-in-seven) have likewise been very consistent across years.
- There has been little change in the percentage of the total population that at some time in the past had called “9-1-1” or another emergency number for help, somewhat over 40 percent.
- There also has been little change in the expected time for an ambulance to arrive when called for a medical emergency, or in the public’s confidence in the ability of EMS personnel to give the appropriate assistance.

A notable exception is the presence of wireless phones, with the percentage of drivers who usually have a wireless phone in the vehicle with them having increased dramatically since 1994.

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<sup>17</sup> For questions asking if an event had “ever” occurred to the respondent or if the respondent had “ever” taken a particular action, little aggregate change would typically be expected over time.

## **2007 SURVEY RESULTS**

### **APPENDIX A: \*PRECISION OF SAMPLE ESTIMATES**

\*Reprinted from:

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





Precision of Sample Estimates

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

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

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

Where:

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

The sample sizes for the surveys are large enough to permit estimates for sub-samples of particular interest. Table 5, on the next page, presents the expected size of the sampling error for specified sample sizes of 12,000 and less, at different response distributions on a categorical variable. As the table shows, larger samples produce smaller expected sampling variances, but there is a constantly declining marginal utility of variance reduction per sample size increase.

**TABLE 5**  
**Expected Sampling Error (Plus or Minus)**  
**At the 95% Confidence Level**  
**(Simple Random Sample)**

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

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

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

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

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

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

where:

- ASE = allowance for sampling error at the 95% confidence level;
- h = a stratum;
- g = number of strata;
- $W_h$  = proportion of stratum h to total population ( $N_h/N$ );
- $f_h$  = sampling fraction in stratum h – sample size divided by population size in stratum h ( $n_h/N_h$ );
- $n_h$  = the sample size for the stratum h.
- $s_h^2$  = sample variance in stratum h – for proportions, this is equal to  $\frac{n_h}{n_h - 1} p_h(1 - p_h)$

Although Table 5 above provides a useful approximation of the magnitude of expected sampling error, precise calculation of allowances for sampling error requires the use of this formula. To assess the design effect for sample estimates, we calculated sampling errors for the disproportionate sample for a number of key variables using the above formula. These estimates were then compared to the sampling errors for the same variables, assuming a simple random sample of the same size. The two strata ( $h_1$  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 42.2 percent while the proportion for the 40 and over stratum ( $w_2$ ) was 57.8 percent.

As shown in Table 6, the disproportionate sampling increases the confidence interval for total sample estimates by an average of 17.1 percent, compared to a simple random sample of the same size. This means the sample design decreases the sampling precision for total population estimates somewhat, while increasing the precision of sampling estimates for the sub-sample aged 16-39 years old. Since the maximum difference in the point estimate between the stratified disproportionate sample and a simple random sample is less than .34 of a percentage point, the sampling error table for a simple random sample will provide a reasonable approximation of the precision of sampling estimates in the survey.

**TABLE 6**  
**Design Effect on Confidence Intervals for Sample Estimates**  
**Between Disproportionate Sample Used in Occupant Protection Survey**  
**and a Proportionate Sample of Same Size**

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

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

Estimating Statistical Significance

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

To test whether or not a difference between two sample proportions is statistically significant, a rather simple calculation can be made. The maximum expected sampling error (i.e., confidence interval in the previous formula) of the first sample is designated  $s_1$  and the maximum expected sampling error of the second sample is  $s_2$ . The sampling error of the difference between these estimates is  $sd$  and is calculated as:

$$sd = \sqrt{(s_1^2 + s_2^2)}$$

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 7. This table can be used to determine the size of the difference in proportions between drivers and non-drivers or other sub-samples that would be statistically significant.

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**TABLE 7. 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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