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Older Drivers, The Age Factor in Traffic Safety

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16. Abstract

The report presents an overview of the traffic safety problem in relation to the age of the driver. Emphasis is placed on the older drivers. Crash involvement rates are developed for each age group of drivers based on their estimated annual travel. The consequences of these crashes, in terms of injuries and fatalities, are analyzed to assess the contribution of older ages to the safety problem.

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Older Drivers,

The Age Factor in Traffic Safety

by

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Scope

It is well known that there are a number of general driver characteristics that have a significant influence on how safely the driving task is performed. For example, intoxicated drivers are much more likely to be involved in a fatal crash than sober drivers. Similarly, young, inexperienced drivers have a high incidence of crash involvements.

Although the issue has been addressed for some time, attention is again focused on the relationship between driver age and crash experience, in particular as it relates to older drivers. This increased interest is a result of numerous factors, including:

- The sizeable number of traffic fatalities among older people.
- Increases in the number and longevity of older persons.
- Increased number of older drivers, and increased driving by these drivers.

Available evidence suggests these trends will continue for the foreseeable future, and for this reason it is important that the crash experience of older drivers be examined to ensure that highway safety efforts properly address this segment of the driving population.

The analyses presented in this report are directed toward the answering of two major questions:

(1) Are older drivers more likely to be involved in a motor vehicle crash than drivers of other ages, and if true, under what conditions?

(2) Once involved in a crash, are older drivers more prone to suffer a severe or fatal injury?

These analyses will assist in understanding the crash problem of older drivers, and developing effective and appropriate solutions where necessary.

Data Sources

There is no unique source of data to address older driver issues. In order to develop an accurate understanding of the crash experience of older drivers and the injury consequences of these crashes, data from several sources are required. This report makes use of available State and National data for each specific estimate. In many cases, several sources are used to produce a single estimate.

In addressing the question of the older driver's involvement in traffic crashes and their resulting injuries, files from individual States were used because they provide information on the totality of the police reported crash involvements, including crashes resulting in property damage, injury, and fatalities. This information is helpful in developing an understanding of the general characteristics of the older driver's crash experience as it compares to drivers in other age groups, regardless of injury consequences. Analyses of these data provide insight into the types of crashes older drivers are experiencing and their general characteristics. As such, the results of these analyses are helpful in understanding the overall scope and significance of the older driver issue. State accident data, when combined with other information on population, number of licensed drivers, and vehicle miles of travel (VMT) can be used for calculating a variety of involvement and injury rates which can be used to contrast the crash experience of older drivers with that of other segments of the driving population. However, these rates, although useful in understanding the relationship between age and crash experience, provide no insight into the relationship between the driving patterns of the older drivers and their crash experience. This can only be accomplished through a comprehensive analysis of exposure data capable of providing reliable estimates of travel for specific groups of drivers under fairly specific conditions. Examples of exposure information needed to address this issue more comprehensively include day/night travel, mileage by road type, mileage by roadway characteristics, etc. Such data, however, are not available.

In focusing on older drivers in fatal crashes, data from the Fatal Accident Reporting System (FARS) were used in combination with other State data. These combined sources permit an examination of the older driver's fatal crash experience while taking into account their involvement in all types of crashes and the number of licensed drivers in these States. Analysis of these data provides some good insight as to the increased vulnerability of older drivers to injuries, including fatal injuries.

Information contained in the FARS file consists of encoded reports on all fatal crashes which occur on the nation's highways. Each State and the District of Columbia participate in the system by submitting the required information in a national standard format. FARS is sponsored and managed by the National Center for Statistics and Analysis, in the National Highway Traffic Safety Administration.

The state data presented in this report were obtained from five states: Maryland, Michigan, Pennsylvania, Texas, and Washington. These States were chosen because of the completeness of their records, and their detailed recording of crash data. All five States were used to derive crash rates. Data from Texas were also utilized to determine if the severity of the crash is dependent on the age of the driver. These five States account for about 20 percent of the national total of highway travel and police reported motor vehicle crashes.

The number of licensed drivers in each age group is available for 45 individual States and the Nation from the Drivers Licenses report published by the Federal Highway Administration (FHWA). The ratio of National to State licenses, for each age group in the 5 States, was used to prorate the crash involvement and injury counts in these States to the Nation.

Estimates of the vehicle miles of travel for each age group were based on the average annual travel estimates published in the National Personal Transportation Survey (NPTS) report for 1983 and the number of licensed drivers in each group.

Results

Overview

The following sections contain the results of various analyses of older drivers' crash experience. Data are presented which describe the overall magnitude of this experience, its general characteristics, and injury consequences.

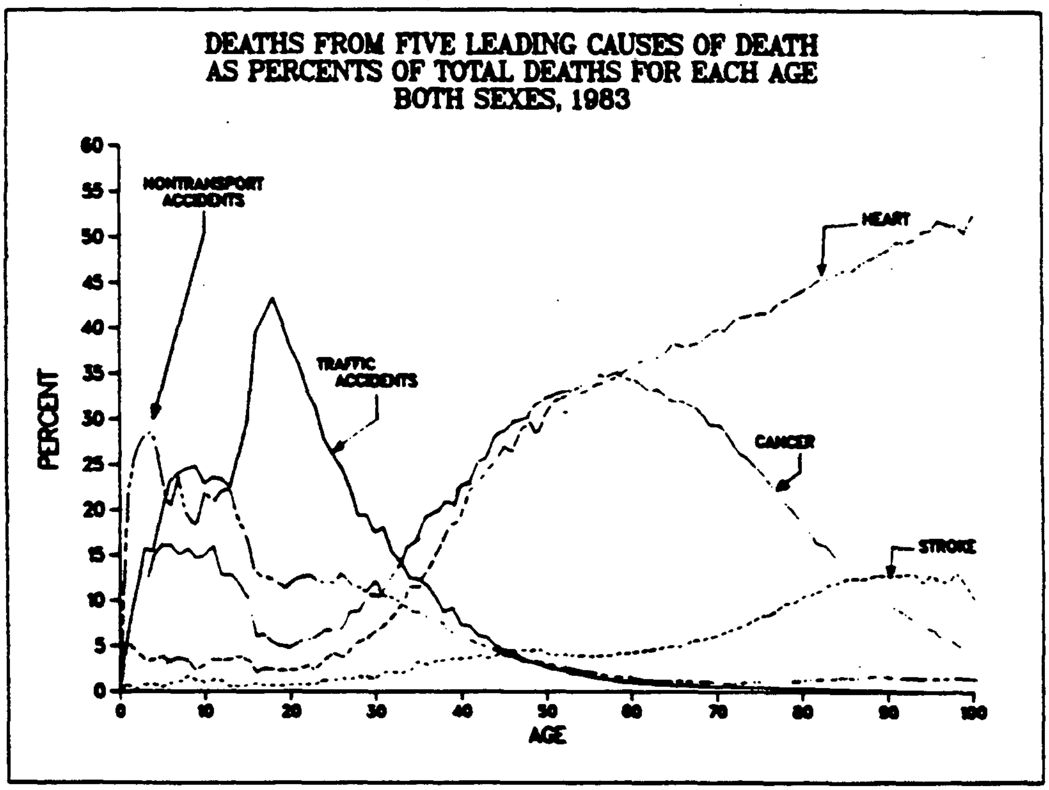
Information extracted from state accident files was used to provide an overview of the magnitude and general characteristics of older drivers' crash experience. Data obtained from FARS, in combination with other state data, were employed in the analysis of crash consequences. All results are presented in graphical form with the age of the driver being the focal point of each graph.

Data describing the magnitude of older drivers' crash experience contrasts traffic deaths with other forms of death, thus providing a clear measure of the relative significance of traffic crashes as a leading cause of death in this age group. The analysis of crash characteristics, on the other hand, examines the overall risk of being involved in a crash for drivers of different ages, the kind of infractions that they are charged with in the crash, and the general characteristics of the crashes they experience. These data provide a good characterization of older drivers' crash experience in comparison with drivers in other age groups. The analysis of crash consequences examines the severity of crashes and personal injuries for older drivers and how it varies as a function of driver age and other crash characteristics such as the extent of vehicle damage. In these analyses, severe injuries account for both fatalities and serious injuries, as defined in the American National Standards Institute (ANSI) D16 Manual on Classification of Motor Vehicle Accidents..

Magnitude of Older Drivers Crash Experience

A broad overview of the significance of traffic crashes as a form of death for the older population can be obtained by examining the data in Figure 1A which presents the frequency distribution for leading causes of death by age for 1983. As is apparent, deaths due to motor vehicle crashes are not as significant a problem for the older drivers. As a cause, motor vehicle deaths comprise less than 0.5 percent of total deaths for persons over the age of 60. In comparison, deaths

FIGURE 1A



SOURCE: NATIONAL CENTER FOR HEALTH STATISTICS due to heart disease represent more than 40 percent of all deaths for the same age group.

A more accurate perspective of the significance of motor vehicle crashes for the older drivers can be obtained by examining their involvement experience in comparison to other drivers. Estimates of their crash involvements can be obtained either by the use of a data file based on probability sampling such as the National Accident Sampling System (NASS), or by using actual crash data from a limited number of States and extrapolating the results to the nation. The general results shown in Figure 1 represent two sets of national estimates of the number of drivers involved in crashes for specified age groups. The NASS results are obtained by properly weighting the counts found in each of the sampling units, while the State estimates represent the extrapolation of the counts found in the five States. The extrapolation factor used was the ratio of the number of licensed drivers, for each age group, available for the nation and for the five States combined. The similarity between the two sets of results provide some assurance that the two sources of data are quite compatible. For this reason, it is quite plausible to assume that the results found in these States provide an acceptable approximation of the national values.

The first set of results, presented in Figure 2, are based on the total number of crashes in which drivers of different ages were involved. All driver ages above eighty have been grouped together. Rather than showing the actual counts found in the 5 States, counts that have no meaning at the national level, the results are shown relative to a chosen reference point, the group of 40 year old drivers. It is clear, from this figure, that drivers in their late teens show the highest relative frequencies of crashes and that the ratio declines steeply and continuously as the age of the driver increases. In the five States used, there were more than 76,000 drivers, eighteen years of age, involved in police reported crashes in 1986. The same figure for eighty year old drivers was only 3,356 involvements, a ratio of more than 20 to 1.

FIGURE 1

CRASH INVOLVEMENT COMPARISON
(NASS VS. STATE FILES)

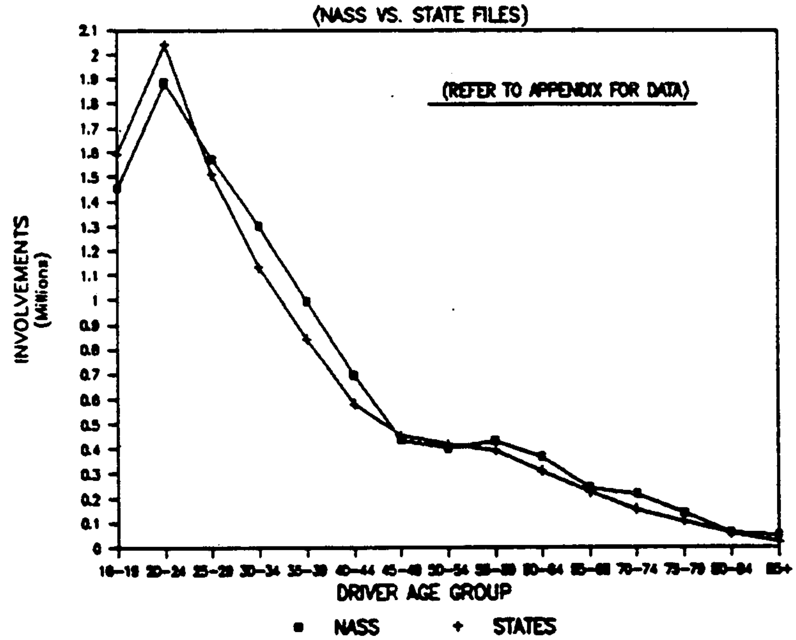


FIGURE 2

NUMBER OF DRIVERS INVOLVED IN CRASHES
(Relative to 40 Year Old Drivers)

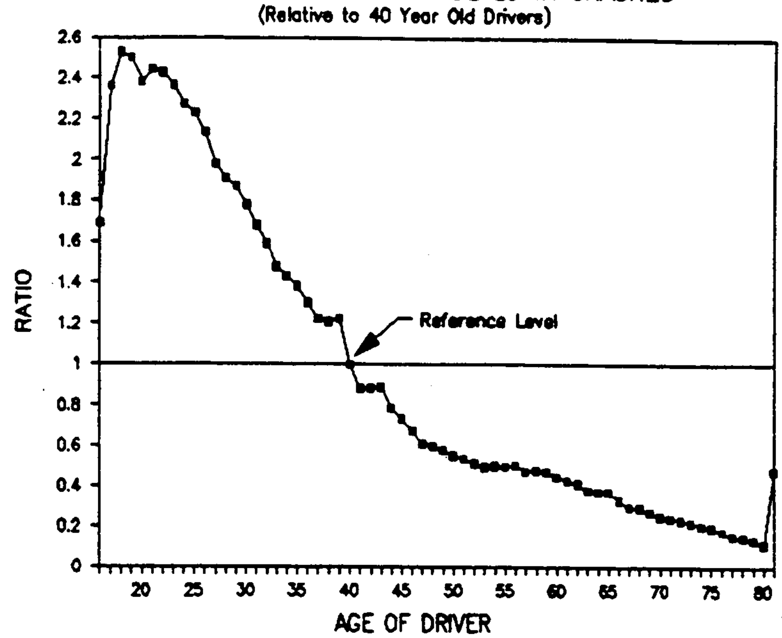
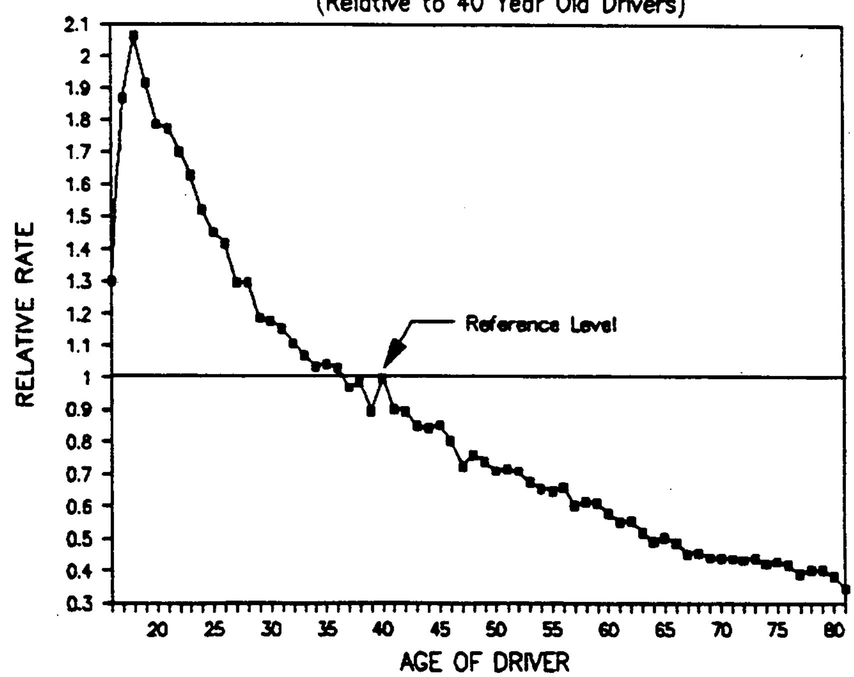


FIGURE 3

CRASH INVOLVEMENT RATE (per Population)
(Relative to 40 Year Old Drivers)



The results shown in Figure 2 can be misleading because they do not take into account the fact that there are more eighteen year old people in the population than eighty year olds. By associating crash involvements with population figures, it is possible to compute an involvement rate which allows a better comparison between drivers of different ages. The involvement rates here are based on State involvement counts and national population counts and thus provide only a relative measure. Again, as in Figure 2, all results are shown relative to a chosen reference group, the 40 year old drivers, (Figure 3).

As expected, the use of population figures diminishes the difference between the very young and old drivers. Specifically, the results show that, although the patterns in figures 2 and 3 are quite similar, the ratios of the values in the two charts are quite different. While the ratio for eighteen and eighty year old drivers is about 20 to 1 in Figure 2, the same ratio has been reduced to 5 to 1 in Figure 3, a significant adjustment.

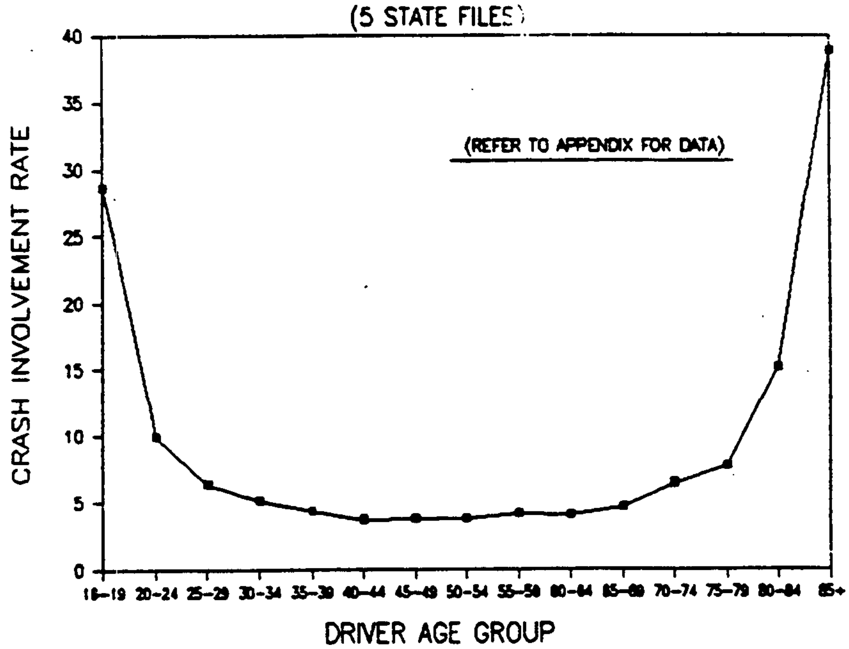
Although the adjustment of crash involvements by population figures provides a better measure of risk for different driver ages, these measures are only useful in assessing the safety problem associated with a specific segment of the population. In order to assess the safety performance of different age groups of drivers, it is necessary to take into account how many drivers are licensed in each age group and the average number of miles travelled by the drivers in each age group. The estimate of total annual travel for each age group was obtained by multiplying the reported number of licensed drivers in each group by the respective estimate of average annual travel. The estimates of average annual travel were provided by the National Personal Transportation Survey conducted in 1983, while driver licensing figures were provided by the Federal Highway Administration. The rates, shown in Figure 4, represent the ratio of the number of reported crash involvements to total travel for each age group. These rates differ considerably from the rates in Figure 2. The reason for this difference is that while, in general, a similar proportion of people hold driver licenses in each age group, the amount of annual travel differs considerably among these age groups. For example teenage drivers travel an estimated average of 5,000 miles/year, while the average travel for ages 40 to 44 is 13,000 miles, and for drivers over 85 the estimate is 1,000 miles per year.

Figure 4 still shows a high rate of about 30 involvements per 1,000,000 miles of travel for the youngest age

FIGURE 4

CRASH INVOLVEMENTS per MILLION V.M. of TRAVEL

(5 STATE FILES)



group, a fairly steady low rate for most age groups, and a rapidly increasing rate for drivers in their eighties.

The most significant finding in this chart is that risk of crash involvement does not increase appreciably until the age of approximately 70, and then rapidly increases after age 80.

Taken collectively, these data indicate that:

- Motor vehicle crashes are not a major cause of death for older persons.
- The rate of motor vehicle crash involvements per unit population is highest for 18 year olds and declines steadily with increasing age.
- The rate of involvement on a mileage exposure basis increases after the age of 70, and more so beyond age 80.

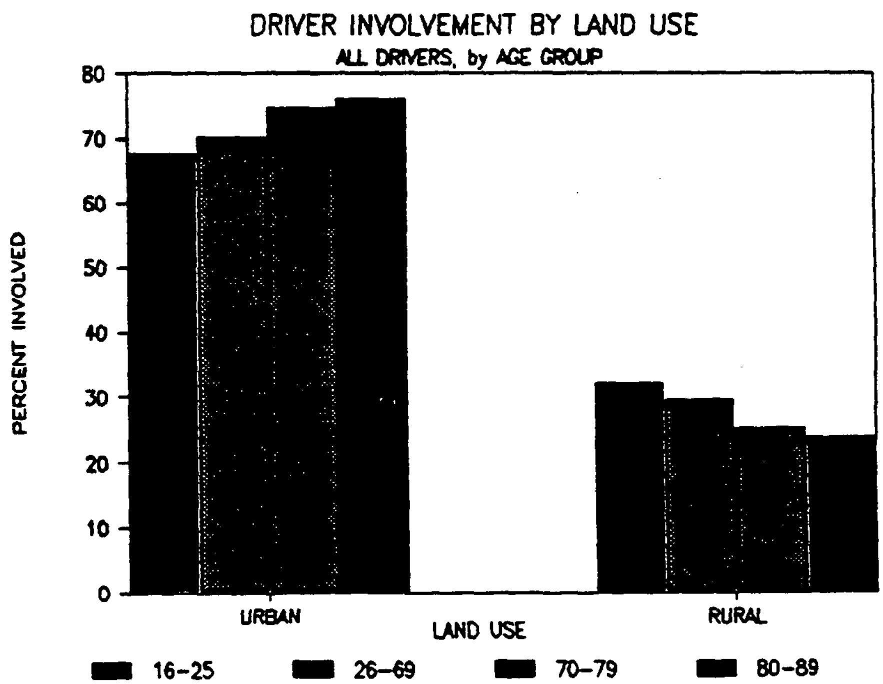
Crash Characteristics of Older Drivers

Some insight into the reasons underlying differences in crash involvement rates as a function of age can be obtained by examining the general characteristics of older drivers' crashes, using State files. While such analyses do not control for differences in exposure, the degree to which crash characteristics vary as a function of age can be helpful in understanding how age contributes to crash involvement. A true measure of involvement risk as a function of age must, however, take into account differences in driving conditions for different aged drivers. Such data would provide the information needed to ascertain whether observed differences in involvement rates and crash characteristics are a function of age or a function of differences in exposure.

Besides identifying differences in crash risk as a function of driver age, it is interesting to focus on differences in crash characteristics among drivers of different ages for several reasons.

First, it is well known that the risk associated with driving differs depending on driving conditions. Daylight driving is less risky than nighttime driving. Location (rural - urban) or (intersection - non intersection), weather conditions (wet, dry or snow), day of week (weekday - weekend) also affect the risk of involvement. A true measure of risk would take into account the amount of driving done under each condition by individual groups of drivers. The results would most likely show that some of the differences, by age, found

FIGURE 5



in Figure 4 are reduced but other differences are increased.

A second reason for looking at crash characteristics is to identify under what conditions certain groups of drivers are experiencing crashes as an indication of the need to undertake specific remedial actions.

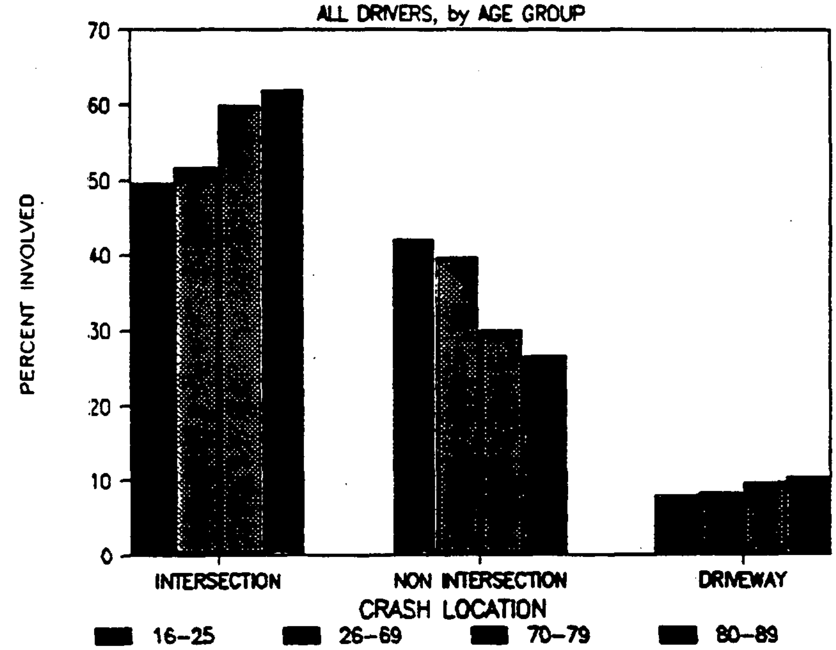
Figure 5 indicates that, although there is a greater proportion of urban crashes for all ages, this proportion increases with the age of the driver. However, this trend may only indicate that older people are more likely to live in cities and towns rather than the country.

Older drivers also experience a greater proportion of intersection crashes (Figure 6). This higher proportion is partially due to a shift of older drivers towards more urban travel, as indicated by the data in Figure 5, but may also reflect greater difficulties older drivers experience in driving through intersections. Without exposure data, it is impossible to determine which factor(s) is influencing their crash experience.

FIGURE 6

DRIVER INVOLVEMENT BY LOCATION

ALL DRIVERS, by AGE GROUP



Another significant change associated with age is the increase in the proportion of crashes during daylight hours for older drivers. The distribution of crash involvements by time of day and age of driver are shown in Figure 7. Possible explanations for these results include a sizeable increase in the proportion of daylight driving for older drivers, better safety performance at nighttime by older drivers, or a combination of the two. Since it is generally accepted that the overall safety performance of older drivers is somewhat lower than average, and that older drivers have greater difficulty driving at night because of increased sensitivity to glare, it is logical to conclude that older drivers tend to drive more and more during daylight hours, thus reducing their nighttime travel to a minimum.

A factor apparently associated with driver age is their proportion of single to multiple vehicle crash involvements. It is evident from Figure 8 that older drivers experience a much lower proportion of single vehicle crashes than young drivers. Since single vehicle crashes are more frequent during nighttime hours and on rural roads, the results may only reflect the propensity for older drivers to travel during the day-

FIGURE 7

DRIVER INVOLVEMENT BY LIGHT CONDITIONS

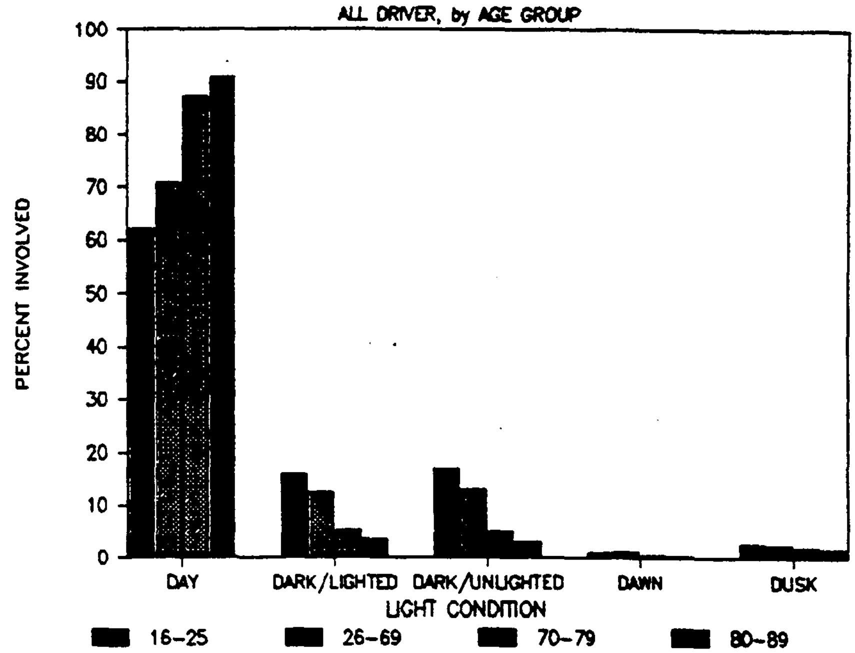
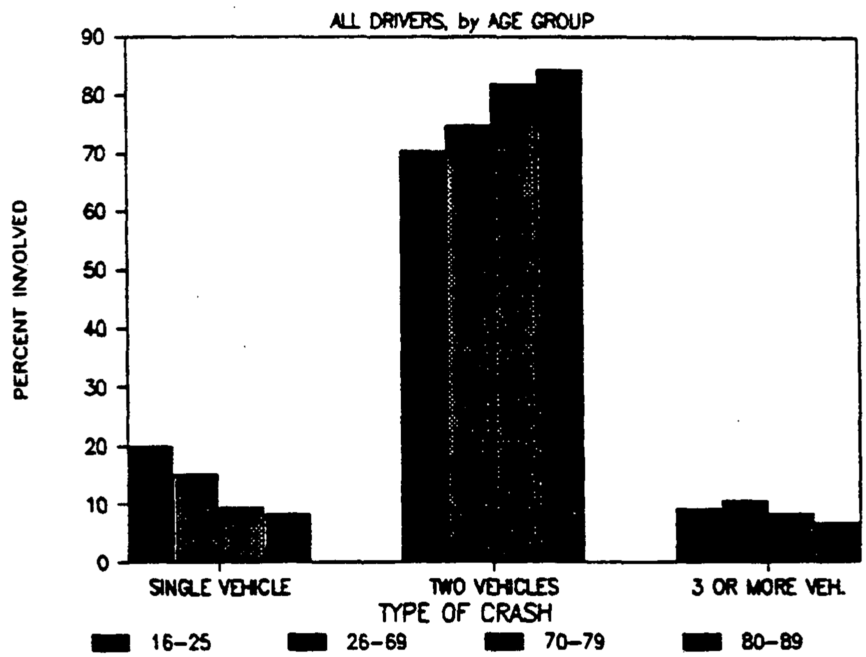


FIGURE 8

DRIVER INVOLVEMENT BY CRASH TYPE



time and in urban areas. As with previous findings, however, it is impossible to fully assess the situation without adequate exposure measurements.

Figure 9 presents the distribution of reported driving violations for drivers involved in crashes. This chart shows that drivers in their eighties have a significantly higher proportion of traffic violations, when compared to other drivers. The proportion of these drivers having a 'Right of Way' or a traffic signal violation is three times greater than for all other ages combined. They are also half as likely to escape a crash without being cited for some violation. There are two possible reasons for these results. Older drivers may be less attentive and thus more likely to commit a traffic violation, and police may be more likely to cite older drivers who become involved in a crash.

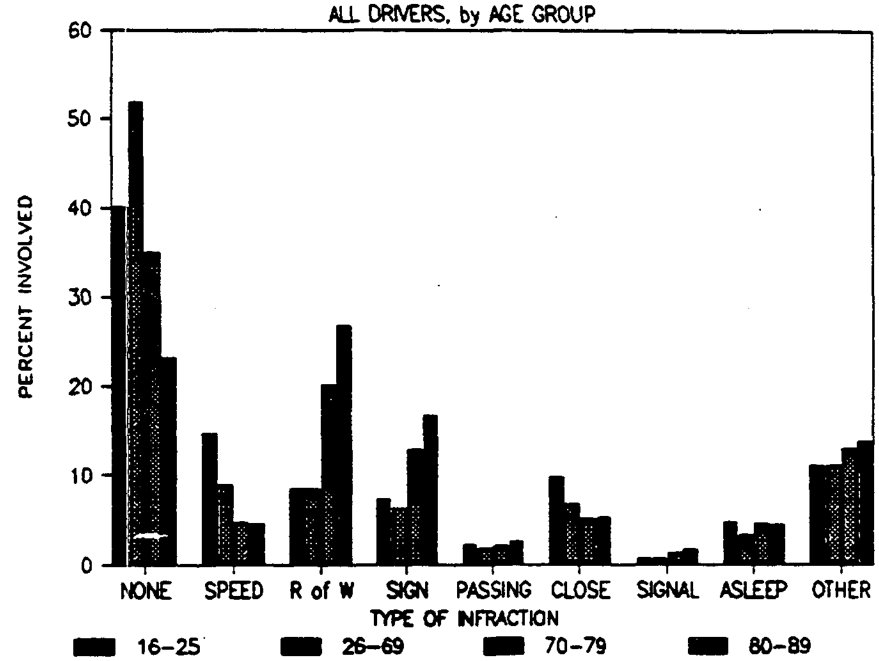
In conclusion, there is substantial evidence to suggest that, in general, driving habits and crash experience differ as a function of driver age, and that the increasing risk found for older drivers may be an effect of the aging process.

As has been stated, an accurate understanding of the extent to which specific circumstances contribute to the crash involvement experience of older drivers cannot be obtained without a better understanding of the general driving characteristics of all drivers. Data on driver age and crash involvement has shown that the risk of being involved in a crash, based on the amount of driving, increases significantly for drivers in their late seventies. However, the effect of this higher risk is counteracted by a larger reduction in overall travel. There are indications that the reduction in travel by older drivers is especially large during those hours and in those areas of higher risk. Overall, the two effects, higher risk and lower exposure, result in making the class of older drivers the group who experiences the lowest total number of crash involvements, based on the number of licensed drivers. At the same time, if risk is based on the amount of actual travel, the drivers in the oldest age group have a much higher likelihood of being involved in a crash than the average driver, and higher than teenagers. The increases in the proportion of crash involvements found for older drivers under certain conditions are quite significant, but they also reflect significant changes in driving expo-

FIGURE 9

TYPE OF INFRACTIONS in CRASHES

ALL DRIVERS, by AGE GROUP



sure. Any effort at quantifying the effects of driver age on crash risk cannot be successful without being able to account for the changes in exposure. All results shown in this section are quite similar for both male and female drivers.

Injury Consequences

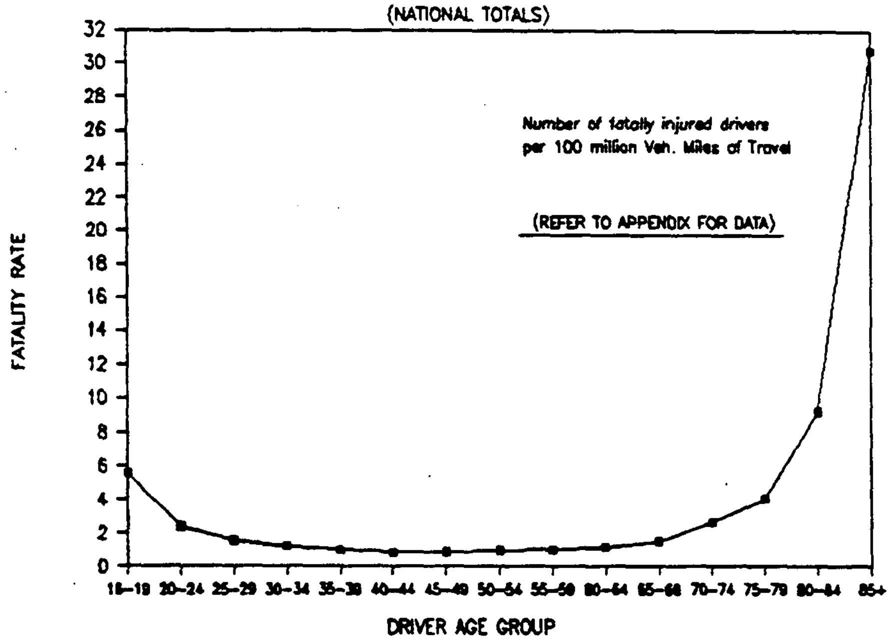
The consequences of motor vehicle crashes are traditionally assessed by relating the number of fatal and serious injuries reported for an identified group of people to their estimated total annual travel. The ratio of the two counts for each group determines the driver fatality rate. The chart presented here is similar to the one presented in Figure 4, the only difference being that in this case the numerator of this ratio is the number of driver fatalities rather than their number of crash involvements. The average fatality rate for all drivers combined is 1.52 fatalities per 100 million vehicle miles of travel. This rate is lower than the well publicized total fatality rate of about 2.4 since only driver fatalities are taken into account. The distribution of the driver fatality rate by driver age groups, shown in Figure 10, provides a clear indication that this rate is not uniform across all ages. The rate for teen age drivers is about 5.6, reaches the lowest value of .85 for drivers in their forties, and rises sharply for drivers over 75 years of age. The rate is above 9 for drivers 80 to 84 and jumps to over 30 for drivers 85 and over.

Figure 11 includes the involvement, the severe injury, and the fatality rate charts. By definition, the term severe injuries, as used in this report, includes police reported 'A' level injuries and fatalities. There are a few items of interest in this chart. All three rate curves have a similar "U" shaped distribution. The involvement and severe injury rate curves are quite similar in shape while the fatality rate curve deviates slightly from the other two, showing a relatively higher fatality rate for older drivers, and a slightly lower one for young drivers.

FIGURE 10

DRIVER FATALITY RATE

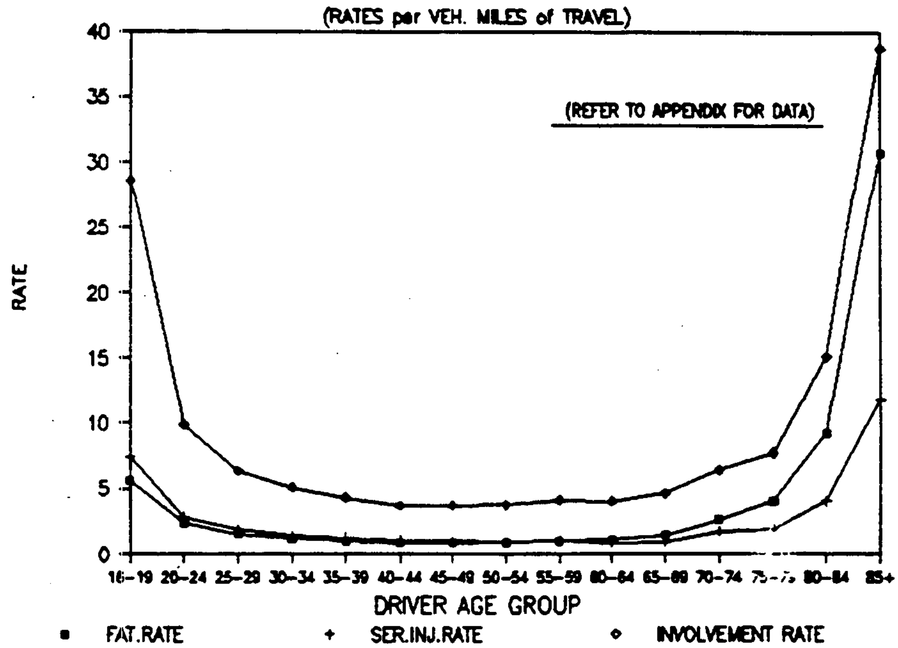
(NATIONAL TOTALS)



In interpreting these rates, it is necessary to point out that there are some basic differences between the three rates shown. While the crash involvement rate provides a direct measure of risk of a crash on a per mile driven basis, the other two rates represent the product of two or more risk values without providing any indication as to the value of each component. For example, the injury rate, based on vehicle miles of travel, is measuring the product of two individual risks i.e., the risk of being involved in a crash, and the risk of suffering an injury once involved in a crash. For the fatality rate, the values on the chart represent a product of three individual risks, i.e. the risk of involvement, the risk of injury once involved, and the risk of an injury being fatal. Driver age affects each of these three risks, but not in a consistent manner.

FIGURE 11

INVOLVEMENT, INJURY, and FATALITY RATES



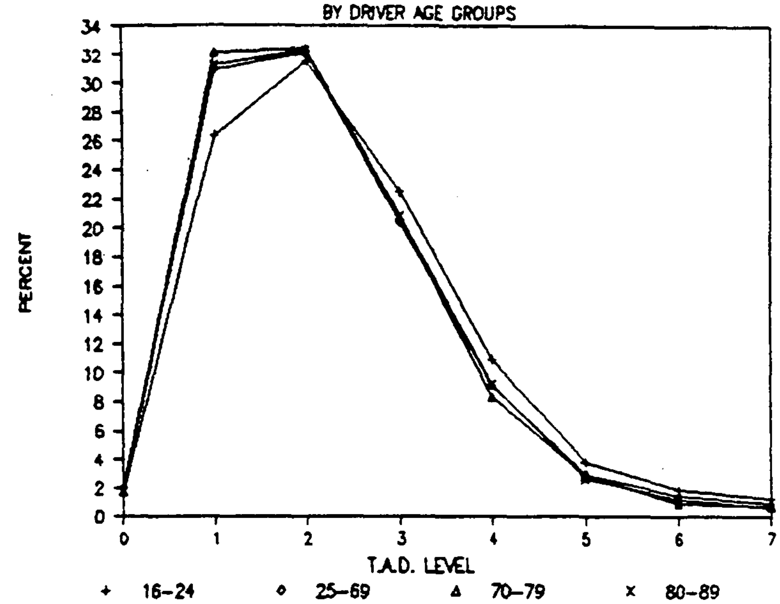
In this report, the consequences of a crash as a function of the age of the driver are measured in a way that separates the effect of each individual risk. To better understand the relationship between driver age and crash consequences, severe injury rates are obtained conditional to the occurrence of a crash, while fatality rates are computed conditionally to both the occurrence of a crash and the occurrence of a severe injury. This modification is necessary in order to separate the effect of driver age on the likelihood of being involved in a crash, from that governing the likelihood of suffering a severe injury, and from that governing the survival from a severe injury. The fatality rates shown in Figures 10 and 11 show only the outcome of all effects combined.

However, differences in the prevailing severity of injuries as a function of driver age obtained in this analysis could be a result of differences in the severity of crashes involving drivers of different ages. For example, higher fatal and serious injury rates for older drivers could be a result of their tendency to be involved in more severe crashes, rather than a lower tolerance for injury because of increased frailty. To control for this possibility, it is necessary to determine if differences exist in the severity of the crashes, in terms of impact forces, as a function of driver age. The accident files from Texas, one of the five States used in this analysis, contain a classification of the severity of the damage sustained by vehicles based on standardized vehicle deformation measurements. These measurements comply with the vehicle damage scale as defined in the Traffic Accident Data (TAD) project and are referred to in this report as TAD levels. Scale values range from zero to seven, zero indicating the lowest damage and seven the largest. The data from

FIGURE 12

DISTRIBUTION OF INVOLVEMENTS BY T.A.D. LEVEL

BY DRIVER AGE GROUPS



Texas, presented in Figure 12, show a surprising similarity in the distribution of crashes by severity for the four selected age groups of drivers.

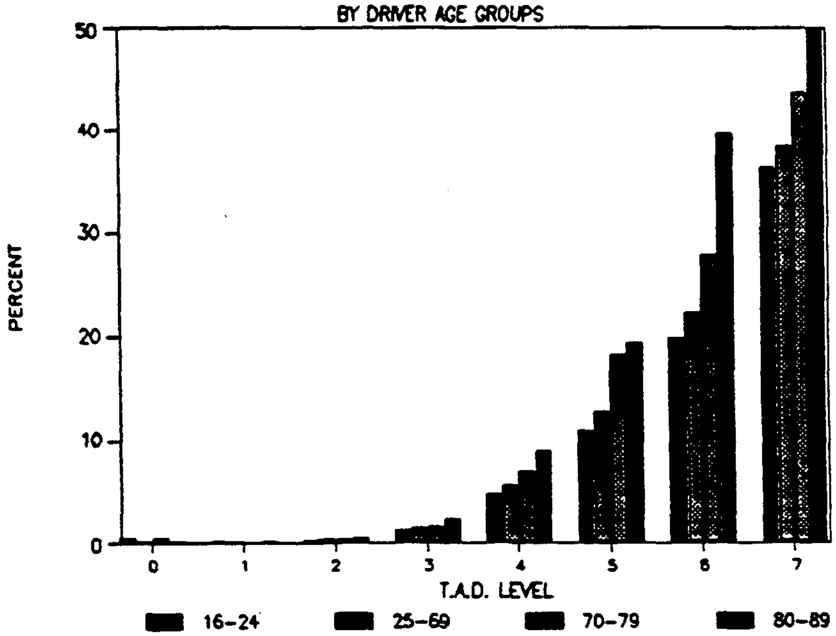
These data suggest that differences in the probability of sustaining a fatal or serious injury are a function of age, since there are no substantial differences in crash severity distribution by driver age. Of course, the validity of this conclusion depends on the validity of the adopted measure of severity, and on the assumption that the results found in Texas apply to the entire nation.

One way to further anlyze the TAD level classification and assess what effect the age of the driver has on the consequences of the crash is to determine what

FIGURE 13

PERCENT OF FATAL & SERIOUS INJURIES

BY DRIVER AGE GROUPS



percent of drivers, of different age groups, suffers a severe or fatal injury in crashes of different severity. Figure 13 displays such a distribution, using data from the Texas accident file, and shows clearly that the percent of injured drivers increases appreciably with higher TAD levels, and that, for each TAD level, the percent of serious injuries also increases with the age of the driver. The figure shows that, in crashes of TAD level 7, about 52 percent of the drivers in the oldest group suffer a severe or fatal injury. The same proportion is about 37 percent for the youngest drivers.

Since crash severity is not a contributing factor in this difference between the two groups, it is very likely that the higher proportion found among the older is attributable to the physiological effects of aging.

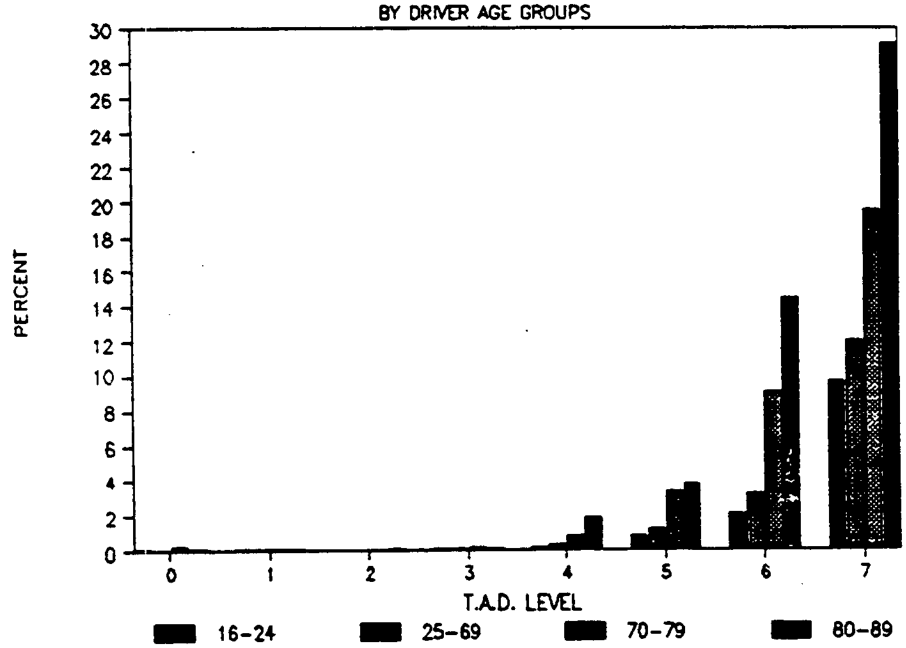
The differences in susceptibility to injury among drivers of different ages, found in the previous figure, are magnified when only fatally injured drivers are considered. Figure 14 shows that in severe crashes the older driver has a much higher probability of being fatally injured. Over 25 percent of the older drivers involved in the most severe crashes did not survive the crash, as compared to less than 10 percent for the youngest group. This discrepancy is even more pronounced in TAD level 6 crashes. The results provide substantial evidence that older drivers have a considerably lower likelihood of surviving high severity crashes.

It is evident, from figures 13 and 14 that TAD levels 0 through 3 show a very small percent of severe injuries and almost no fatal injuries. At the same time, no driver age effect is discernible in these low severity

FIGURE 14

PERCENT OF FATAL INJURIES

BY DRIVER AGE GROUPS



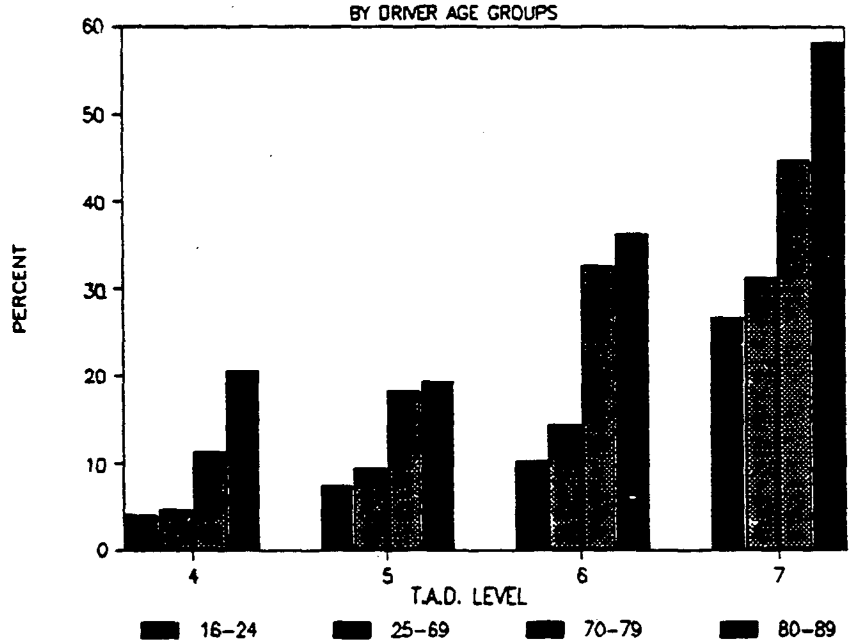
level crashes. For the sake of simplicity, the study will proceed to disregard these low level crashes from the analysis on the basis that no driver age effect is present and measurable at this level.

Figure 15 displays driver fatalities, as a proportion of severe injuries, for the more severe crashes and for the selected age groups of drivers. It is evident that these proportions increase with both the severity of the crash and the age of the driver. For TAD level 6, for example, about 10 percent of the severe injuries result in fatalities for the young drivers while it reaches 40 percent for the oldest group. In the most serious crashes, about 50 percent of severely injured older drivers do not survive the crash.

FIGURE 15

FATALITIES AS A PERCENT OF SERIOUS INJURIES

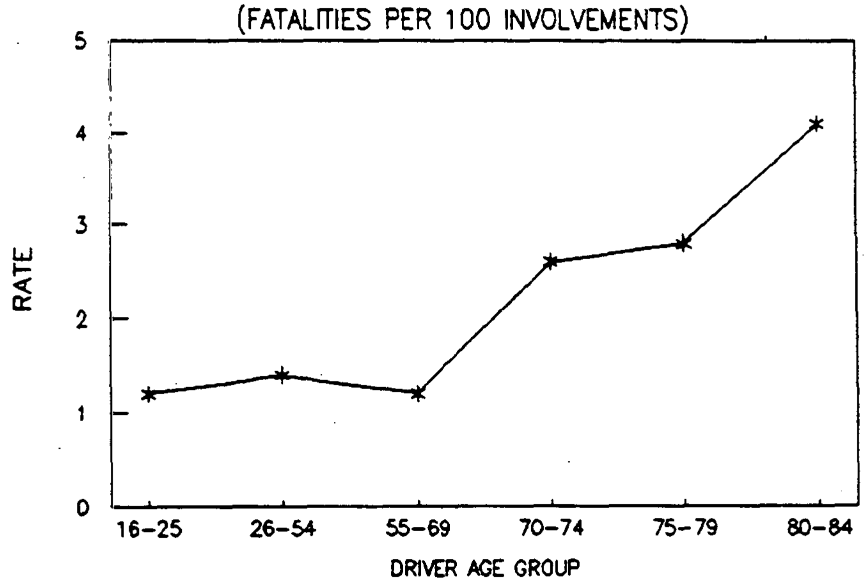
BY DRIVER AGE GROUPS



Figures 16 and 17 show the extent of the age effect on driver injury severity by plotting the ratios of 1) driver fatalities to crash involvements, 2) severe injuries to involvements, and 3) fatalities to severe injuries. In order to obtain a more significant measure of the age effect, only crashes with a TAD level classification greater than 3 have been used in the analysis. From Figure 16 it is apparent that the rate of 1.2 driver fatalities per 100 crash involvements is essentially constant for drivers under 70 years of age but for older drivers the ratio rises rapidly to reach a value of 4 for drivers over 80 years of age. This relationship between age and fatality rate is consistent with the findings of other researchers (e.g. Evans, Partyka)

FIGURE 16

DRIVER FATALITY RATE (TAD LEVEL >3 CRASHES)
(FATALITIES PER 100 INVOLVEMENTS)



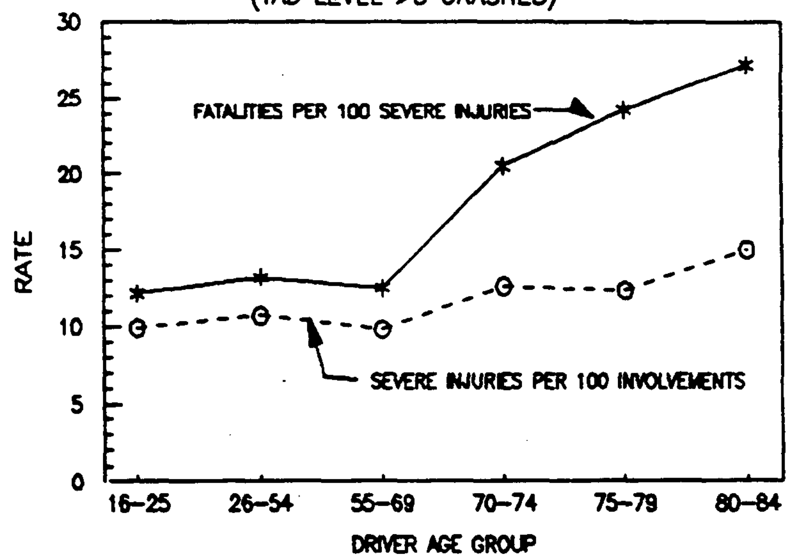
On the other hand, the ratio of severe injuries to involvements averages to 10 per 100 crash involvements for drivers under 70 years of age, and rises gradually to 15 for the 80 to 84 age group. The ratio of driver fatalities to severe injuries, also shown in Figure 17, remains fairly constant, with a value of about 12 fatalities per 100 severe injuries, for ages up to 70 years old. From that point on the ratio increases steadily and reaches a value of close to 30 for the oldest group.

There are a number of conclusions that can be drawn from these analyses. First, all drivers, regardless of age, experience crashes that are of almost equal severity, based on vehicle deformation measurements. Second, the severity of injury is at about the same level for drivers under 70 years of age, and rises slightly for older drivers. Finally, the study provides strong evidence that the age of the driver has a more pronounced effect on the number of severe injuries that result in fatalities. The data show small differences for drivers under 70 years of age, but a sharp rise for older groups, reaching a value 2.5 times larger in the oldest group.

FIGURE 17

DRIVER FATALITY AND INJURY RATES

(TAD LEVEL >3 CRASHES)



Summary of Findings

•On an absolute basis, motor vehicle crashes are not a significant cause of death for older persons, compared to other causes.

•The frequency of crashes is highest for drivers in their late teens and declines continuously as the age increases. Drivers 18 years of age experience approximately 23 times as many crashes than 80 year old drivers.

•When the crash frequencies are adjusted for population totals, we find a similarity in the overall age pattern, but the actual differences among the age groups are much smaller. For example, the ratio between the values for the 18 year old and the 80 year old drivers is only 5.4 as compared to the value of 23 stated above.

•The involvement rate based on vehicle miles of travel (VMT) follows a general 'U' shaped pattern. Young drivers, 16 to 19 years old, experience about 30 involvements per 1,000,000 VMT, drivers 35 to 65 years of age are involved in about 4 crashes for the same amount of travel, while drivers over 85 have the highest rate of close to 40 crashes per 1,000,000 VMT.

•On the basis of their crash experience, older drivers are more likely to:

1) drive in urban areas;
2) be involved in intersection crashes;
3) do almost all their driving during daytime hours;
4) be involved in fewer single vehicle crashes;
5) commit a much higher proportion of "Right of Way" and "Traffic Signal" violations; and,
6) be charged with any type of traffic violation.

•There is little difference among drivers of all ages in the severity of the crashes they experience.

•The number of drivers who experience a fatal or serious injury increases with both the severity of the crash and the age of the driver. When limited to fatal injuries, this increase becomes more pronounced.

•The driver fatality rate, per 100,000,000 VMT, is about 5.6 for teenage drivers, declines to a value of 0.85 for drivers in their forties, and rises sharply after the age of 75 to reach a value of about 31 for drivers 85 and above.

•The risk of suffering a severe injury, once involved in a crash, does not vary appreciably for drivers under 70 years of age, but rises gradually for older age groups.

•The number of severe injuries that result in fatalities remains almost constant, about 12 fatalities per 100 severe injuries, for drivers under 70, but increases significantly for older drivers reaching a value of 30 for the oldest group, a 2.5 fold increase.

APPENDIX

(OLDER DRIVERS Report)

NATIONAL ESTIMATES (1986)							
DRIVER AGE	ANNUAL VMT /DRV.	LICENCED DRIVERS (THOUSANDS)	VEH. MILES OF TRAVEL	CRASH INVOLVEMENTS (STATE FILES)	CRASH INVOLVEMENTS (NASS)	FATAL AND SERIOUS INJURIES	DRIVER FATALITIES
16-19	4,985	11,167	55,667	1,592,212	1,454,007	41,083	3,104
20-24	10,339	19,948	206,242	2,041,630	1,884,127	57,496	4,913
25-29	11,810	20,198	238,538	1,512,413	1,574,579	44,439	3,698
30-34	12,126	18,391	223,009	1,130,950	1,301,538	31,399	2,633
35-39	12,662	15,449	195,615	841,655	993,405	24,547	1,918
40-44	13,015	12,157	158,223	581,071	695,646	16,860	1,340
45-49	11,805	10,358	122,276	455,630	436,868	11,809	1,049
50-54	10,936	10,207	111,624	418,956	399,847	9,940	1,014
55-59	9,443	10,126	95,620	391,312	429,549	9,158	940
60-64	8,568	9,011	77,206	308,596	368,105	6,772	853
65-69	6,804	7,144	48,608	225,507	243,312	4,485	710
70-74	4,750	5,000	23,750	151,806	217,236	4,156	625
75-79	4,821	2,842	13,701	105,327	139,725	2,662	554
80-84	2,615	1,404	3,671	55,531	60,301	1,476	338
85+	1,053	553	582	22,583	48,565	688	179

NATIONAL ESTIMATE (1986)			
DRIVER AGE	CRASH INV. RATE, INV. / MILLION VEH. MILES OF TRAVEL	FATAL + SERIOUS INJURIES RATE, (F + S) / 10 MILLION VEH. MILES OF TRAVEL	FATALITY RATE, FAT.'S / 100 MILLION VEH. MILES OF TRAVEL
16-19	28.6	7.4	5.6
20-24	9.9	2.8	2.4
25-29	6.3	1.9	1.6
30-34	5.1	1.4	1.2
35-39	4.3	1.3	1.0
40-44	3.7	1.1	0.9
45-49	3.7	1.0	0.9
50-54	3.8	0.9	0.9
55-59	4.1	1.0	1.0
60-64	4.0	0.9	1.1
65-69	4.6	0.9	1.5
70-74	6.4	1.8	2.6
75-79	7.7	1.9	4.0
80-84	15.1	4.0	9.2
85+	38.8	11.8	30.7
ALL DRIVERS	6.3	1.7	1.5

U.S. Department
of Transportation

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