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FACTBOOK ON
U.S. PEDESTRIAN ACCIDENTS

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This factbook is dedicated to Wendy Barhydt, an HSRI employee whose daughter is one of the fatal "statistics" discussed herein, in the hope that these data will be helpful to those seeking to improve pedestrian safety in the United States.

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<p>16. Abstract</p> <p>Three sets of accident data files have been analyzed to obtain a greater understanding of the personal, situational, and vehicle-related factors involved in pedestrian accidents. These include all fatal pedestrian accidents contained in the Fatal Accident Reporting System (FARS) for 1975-79, all pedestrian accidents in Michigan, 1976-79, and all pedestrian accidents in Washington state, 1974-78.</p> <p>Some of the main findings are:</p> <ol style="list-style-type: none"> 1. Young children are disproportionately involved in all pedestrian accidents and in pedestrian fatalities, but they are less likely to die when involved than are adults. Those over age 65 are most likely to die given a pedestrian accident. 2. Child pedestrian accidents are concentrated in the late afternoon and early evening hours, as are those involving senior citizens, but young and middle-aged adults are more likely to be involved in the late evening and early morning hours. 3. Almost two-thirds of the fatal accidents take place after dark compared to about three-eighths of the Michigan and Washington non-fatal accidents. 4. Drinking by both drivers and pedestrians is an important factor in many adult pedestrian accidents especially late at night. 5. Most pedestrian accidents take place on local roads away from intersections, but accidents on major high-speed roads are more likely to involve a fatality. 6. Heavier vehicle types seem to be disproportionately involved in fatal pedestrian accidents. 			
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1. INTRODUCTION

This factbook has been put together to provide some general statistical information about traffic accidents involving pedestrians in the United States. In recent years about 2000 children under 18 years of age and 5500 adults have been killed every year from being struck by a motor vehicle while walking, playing, working, etc. on or adjacent to roadways, and, of course, many thousands more have been seriously injured. This pedestrian death and injury toll is naturally a concern of the United States National Highway Traffic Safety Administration (NHTSA), and that agency is currently considering possible standards for future vehicle performance which would make the impacts between pedestrians and motor vehicles less hazardous to the pedestrians. Specifically, the first notice of proposed rulemaking in this area was published in the Federal Register on January 22, 1981. It proposes a requirement for use of soft bumper materials which would not generate a force of more than 100g at 20 mph in a collision with a pedestrian's leg.

This general factbook represents the result of an initial phase of a larger project sponsored by the Motor Vehicle Manufacturers Association to study the relationship of environmental and vehicle design factors to the frequency of particular types of pedestrian injuries. This project will go on to analyze data from the recent NHTSA-sponsored Pedestrian Injury Causation Study and from the New York state pedestrian accident file, which contain detailed information on types of injuries sustained in pedestrian accidents.

The factbook begins with an historical review of trends in pedestrian accident rates in the United States, and it also provides a comparison of U.S. pedestrian death rates with those of many other countries. It continues with some descriptive statistics derived from the Fatal Accident Reporting System (FARS) data for 1975-1979 to provide some general information on the "Who, When, Where, Why, and How" of pedestrian accidents. Specific tables and graphs include relationships among age, sex, alcohol involvement, month, time of day, light condition, weather condition, road type, speed limit, location of pedestrian along the roadway, police-reported "contributing factors," and vehicle type and size data. As a complement to the fatal accident information, selected comparisons are provided for all types of pedestrian accidents reported in two states (Michigan and Washington) to provide a comparison of non-fatal and fatal accidents.

These data are intended to provide an understanding of the setting within which fatal and injury pedestrian accidents take place in the United States as background for a more detailed analysis of environmental and vehicle factors relating to particular types of pedestrian injuries.

This factbook is organized in the following five sections: Historical and International Comparisons; Personal Characteristics of Killed and Injured Pedestrians; Situational Characteristics of

Pedestrian Accidents; Characteristics of Vehicles Involved in Pedestrian Accidents; and Summary of Main Findings. Each section consists of a brief interpretive text plus a set of relevant tables and graphs.

NOTE ON DATA SOURCES: Except for the historical and international comparisons all data reported here are taken from the Fatal Accident Reporting System (FARS) files provided by NHTSA or from the Michigan or Washington state motor vehicle accident files which are maintained by HSRI. The FARS data are for the years 1975 through 1979, but the data for 1979 were incomplete at the time of the analysis. The analyzed Washington data files include all police-reported accidents for the years 1974 through 1978, and the analyzed Michigan data files include all police-reported accidents for the years 1976 through 1979.

2. HISTORICAL AND INTERNATIONAL COMPARISONS

Table 1 and Figures 1 and 2 provide historical trend data on fatal pedestrian accidents in the United States since 1933, based on National Safety Council statistics.¹ These show that both absolutely and relatively pedestrian fatalities have declined substantially since the 1930s. From a peak of over 15,000 pedestrians killed in 1937 the annual pedestrian toll dropped considerably during World War II, rose slightly after the war, declined somewhat more through the 1950s, rose again during the 1960s and early 1970s, fell 17 percent in 1974 in conjunction with the energy crisis and the national 55 mph. speed limit, and has risen slightly along with other motor vehicle accident deaths since then. As a percentage of all motor vehicle deaths, pedestrian deaths have declined from over 40 percent in 1933 to about 18 percent throughout the past two decades.

Even more striking are the reductions in relation to total population, registered motor vehicles, and estimated vehicle miles traveled. Pedestrian death rates in relation to the number of vehicles and to the number of miles driven have declined to only about one-tenth of their values in the mid-1930s. Undoubtedly, such factors as improved traffic controls, extension of separate pedestrian walkways, and the development of freeways have played important roles in these great reductions in pedestrian death rates along with such programs as traffic safety education and improved driver training. However, it should be noted that these rates have leveled off since the 1974 drop, and it is questionable whether further reductions can be expected without some substantial new efforts to improve pedestrian safety.

In Table 2, pedestrian fatality rates in the United States are compared with those of Canada, Japan, and a number of European countries. The United States clearly has the lowest rate of pedestrian deaths in relation to vehicle kilometers traveled, but several countries have lower rates in relation to total population. In general one finds a substantial inverse relationship between the extent of economic development of a country and its pedestrian death rate in terms of VKT.

¹ *For the five most recent years, the number of pedestrian fatalities taken from the NHTSA FARS files is also shown. NHTSA counts are consistently 10 percent to 15 percent lower, partly because NSC reports deaths occurring up to a year after the accident vs. a 30-day cut-off for NHTSA. There may be other differences in criteria for inclusion in these counts, as well. For examining the trend, the NSC counts are probably the most informative.

TABLE 1
U.S. Pedestrian Deaths and Death Rates
1933-1979*

YEAR	TOTAL MOTOR VEHICLE DEATHS	PEDESTRIAN DEATHS	PEDESTRIAN DEATHS AS % OF TOTAL	RATES		
				PER 10,000 M.V.	PER 100,000,000 VM	PER 100,000 POPULATION
1933	31,363	12,840	40.9	5.31	--**	10.22
1934	36,101	14,480	40.1	5.73	--**	11.46
1935	36,369	14,350	39.4	5.40	--**	11.37
1936	38,089	15,250	40.0	5.35	6.05	11.90
1937	39,643	15,500	39.1	5.16	5.74	12.03
1938	32,582	12,850	39.4	4.31	4.74	9.90
1939	32,386	12,400	38.3	4.00	4.34	9.47
1940	34,501	12,700	36.8	3.91	4.20	9.58
1941	39,969	13,550	33.9	3.88	4.06	10.13
1942	28,309	10,650	37.6	3.23	3.97	7.96
1943	28,823	9,900	34.3	3.20	4.75	7.33
1944	24,282	9,900	40.8	3.25	4.65	7.39
1945	28,076	11,000	39.2	3.54	4.40	8.24
1946	33,411	11,600	34.7	3.37	3.40	8.24
1947	32,697	10,450	32.0	2.76	2.82	7.25
1948	32,259	9,950	30.8	2.42	2.50	6.78
1949	31,701	8,800	27.8	1.97	2.07	5.89
1950	34,763	9,000	25.9	1.83	1.96	5.92
1951	36,996	9,150	24.7	1.76	1.86	5.94
1952	37,794	8,900	23.5	1.67	1.73	5.69
1953	37,955	8,750	23.0	1.56	1.61	5.50
1954	35,586	8,000	22.5	1.37	1.42	4.94
1955	38,426	8,200	21.3	1.31	1.35	4.97
1956	39,628	7,900	19.9	1.21	1.25	4.70
1957	38,702	7,850	20.3	1.17	1.21	4.58
1958	36,981	7,650	20.7	1.12	1.15	4.39
1959	37,910	7,850	20.7	1.10	1.12	4.43
1960	38,137	7,850	20.6	1.06	1.09	4.36
1961	38,071	7,650	20.1	1.01	1.04	4.18
1962	40,804	7,900	19.4	1.00	1.03	4.25
1963	43,564	8,200	18.8	0.99	1.02	4.35
1964	47,700	9,000	18.9	1.04	1.06	4.71
1965	49,163	8,900	18.1	0.98	1.00	4.60
1966	53,041	9,400	17.7	1.00	1.03	4.80
1967	52,924	9,400	17.8	0.97	0.97	4.76
1968	54,862	9,900	18.0	0.98	0.97	4.96
1969	55,791	10,100	18.1	0.96	0.95	5.01
1970	54,633	9,900	18.1	0.91	0.89	4.86
1971	54,381	9,900	18.2	0.88	0.84	4.80
1972	56,278	10,300	18.3	0.87	0.81	4.95
1973	55,511	10,200	18.3	0.81	0.77	4.86
1974	46,402	8,500	18.3	0.65	0.66	4.02
1975	45,853	8,400	18.3	0.63	0.63	3.94
(1975)	(45,021)	(7,748)	(17.2)			
1976	47,038	8,600	18.3	0.60	0.61	4.00
(1976)	(46,020)	(7,666)	(16.7)			
1977	49,510	9,100	18.4	0.61	0.62	4.21
(1977)	(48,375)	(7,943)	(16.4)			
1978	51,500	9,300	18.1	0.60	0.61	4.27
(1978)	(50,863)	(8,005)	(15.7)			
1979	51,900	9,400	18.1	0.59	0.62	4.28
(1979)	(51,623)	(8,324)	(16.1)			

NOTE: DATA IN PARENTHESES ARE FROM FARS DATA AS OF MAY, 1980.

*BASED ON DATA IN NATIONAL SAFETY COUNCIL ACCIDENT FACTS, 1980 EDITION.

**ANNUAL ESTIMATES NOT AVAILABLE.

TABLE 2
Some International Comparisons of Pedestrian Fatality Rates, Various Years 1972-1977

	Year of Data	Pedestrian Fatalities	All Traffic Fatalities	Pedestrian % of Total Fatalities	Pedestrian Fatalities per 1,000,000,000 VKT	Pedestrian Fatalities per 100,000 Population
United States	1976	8,600	47,038	18.3	3.8	4.0
Canada	1976	835	5,260	15.9	4.9	3.6
Netherlands	1977	384	2,583	14.9	5.7	2.8
Japan	1977	2,961	8,945	33.1	8.6	2.6
Norway	1977	147	442	33.3	8.7	3.6
United Kingdom	1976	2,335	6,570	35.5	9.3	4.2
Italy	1976	2,148	8,927	24.1	10.0	3.8
Denmark	1972	283	1,116	25.4	10.5	5.6
Finland	1975	264	910	29.0	12.1	5.6
West Germany	1977	3,748	14,978	25.0	12.4	6.1
France	1974	2,690	13,327	20.2	13.3	5.1
Austria	1977	447	1,867	23.9	15.1	5.9
Spain	1977	1,295	4,843	26.7	20.8	3.6
Hungary	1977	705	1,803	39.1	33.6	6.6
Greece	1972	340	1,181	28.8	52.3	3.7
Yugoslavia	1974	1,394	4,161	33.5	73.9	6.4
Poland	1974	1,760	3,936	44.7	79.3	5.1

SOURCE: The fatalities data for all of the European countries come from the United Nation's Economic Commission for Europe annual Statistics of Road Traffic Accidents in Europe 19---. The vehicle kilometers travelled estimates are also taken from this series or from the International Road Federation's World Road Statistics 1970-1974. The Japanese data are from the International Association of Traffic and Safety Sciences annual Statistics '78 Road Traffic Accidents in Japan. The U.S. fatalities figures are from the National Safety Council's Accident Facts, 1980 Edition. The Canadian fatality figures are from Transport Canada's Road Safety Annual Report 1978. Except for Japan, the population figures used were the United Nation's mid-1977 estimates published in Statistics of Road Traffic Accidents in Europe 1977.

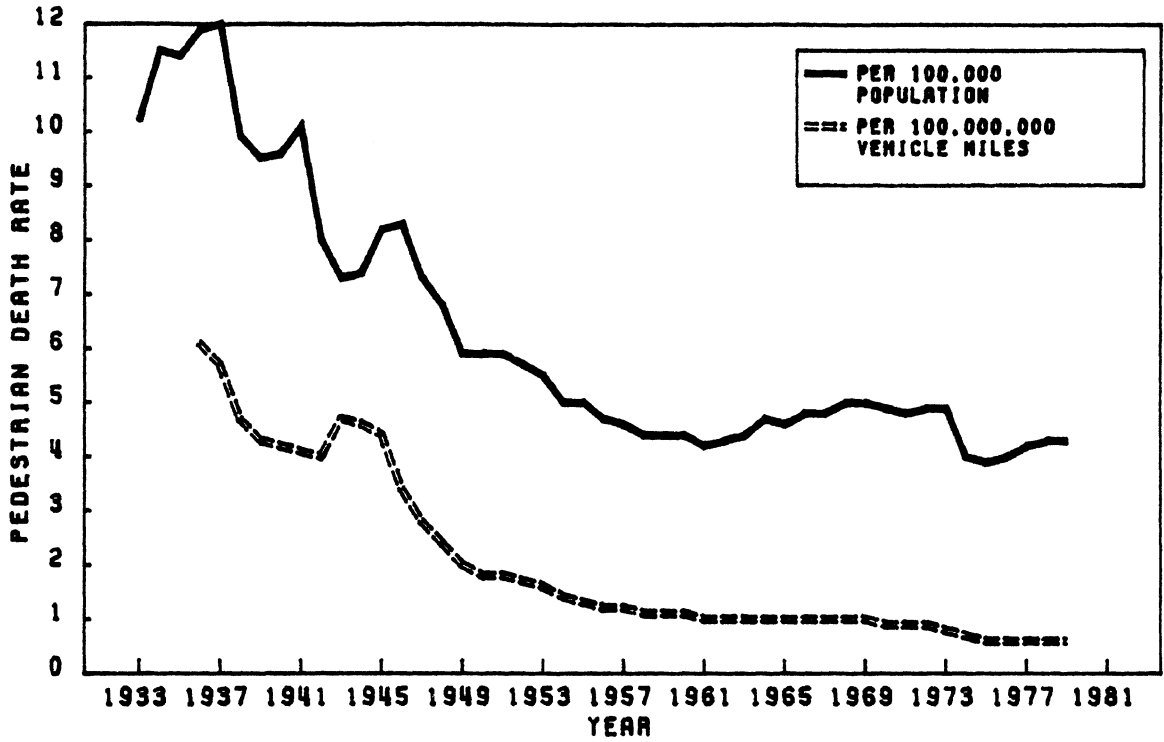


FIGURE 1
U.S. Annual Pedestrian Fatalities, 1933-1979
National Safety Council Data

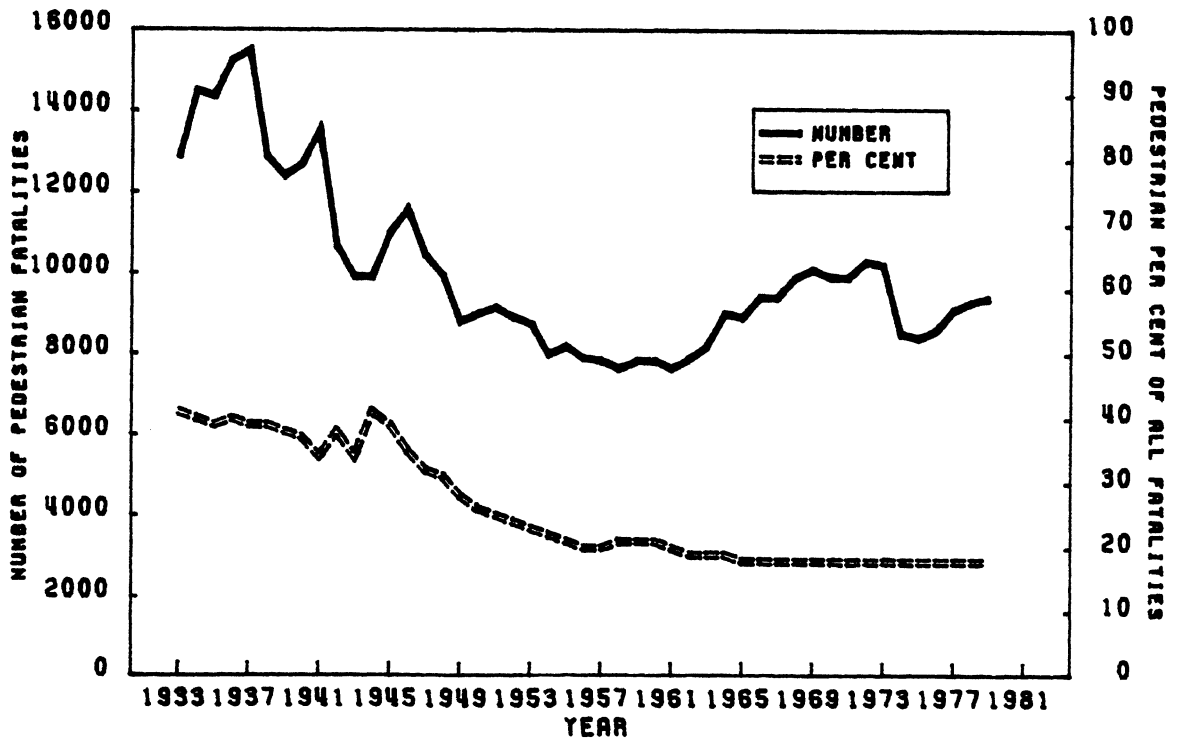


FIGURE 2
U.S. Annual Pedestrian Death Rates, 1933-1979
National Safety Council Data

3. PERSONAL CHARACTERISTICS OF KILLED AND INJURED PEDESTRIANS: AGE, SEX, AND DRINKING

Tables 3 and 4 and Figure 3 present data on the age distribution of persons involved in U.S. pedestrian accidents. The FARS, Michigan, and Washington data all agree on the peaking of pedestrian accident involvement among children in the 5-8 age group. However, the fatalities data show a second peaking at about age 19 which is not present in the data on non-fatal accidents. While only 21.5 percent of the pedestrian fatalities were under 15 years old, 43.6 percent of the pedestrians involved in non-fatal accidents in Michigan were under 15 and the comparable figure for Washington was 38.2 percent. At the other end of the scale, 22.1 percent of the fatalities were over 64 years old, while only 5.9 percent of the persons involved in non-fatal pedestrian accidents in Michigan were over 64 and the comparable figure in Washington was 12.2 percent.

That older people are much more likely to die when involved in a pedestrian accident is shown dramatically in Table 5 and Figure 4. While in Michigan only 3 percent of 5-14 year olds die when involved in a pedestrian accident, this percentage increases to almost 5 percent for 15-24 year olds and is almost 20 percent for those over 74. Table 6 shows that pedestrian death rates in relation to the total population in an age group are very much higher for senior citizens than for other age groups. The 1-4 year old group has the next highest rate, followed by the 55-64 year olds and the 5-14 year olds. The expected high rate among 5-8 year olds is masked in this table because of their inclusion in the 5-14 year old group which was necessary because that was the grouping in which the population data were published. It should be noted that while deaths from pedestrian accidents make up a very small fraction of all senior citizen deaths, such accidents account for about one-tenth of all deaths in the 5-14 year old group (and undoubtedly a larger fraction of the 5-8 year old group).

Table 6, along with Table 7 and Figures 5 and 6, also demonstrates clearly that at every age level males are more likely to be involved in pedestrian accidents than females. This is particularly true for the middle years, 25-44, where less than one-quarter of the pedestrian fatalities are female, but even among senior citizens the pedestrian death rate per 1,000,000 population is almost three times as high for males as for females. These differences are least among children under 15 where about three-eighths of the fatalities are female.

Tables 7 and 8 and Figures 7-9 present data on the role of drinking in pedestrian accidents in relation to the age and sex of the pedestrian. It should be cautioned that these data do not necessarily indicate a causative role for alcohol. They merely reflect the proportions of cases in which a police officer judged that a person had been drinking prior to the accident. Undoubtedly there are great differences among police officers in how this judgment is made, and there are also large amounts of missing data on this variable. In the Michigan files no judgment on the pedestrian's drinking was recorded in 77.6 percent of the cases, and this judgement is missing in 64.2 percent of the Washington cases. For the FARS data the missing rate is about 15

percent. So the drinking percentages given are probably quite conservative since they are based on the total sample whether or not a drinking judgment was recorded.

As would be expected, Table 7 and Figures 7-8 show almost no drinking involvement for children under 15. However, almost one third of pedestrian fatalities in the 15-24 year old group and almost two-fifths of pedestrian fatalities in the 25-44 year old groups were judged to have been drinking, and these percentages remain quite high through the 65-74 year old group (18.8 percent). In each group the female drinking involvement proportion is less than the male proportion, but almost one third of the female pedestrian fatalities in the 25-44 year old group were judged to have been drinking.

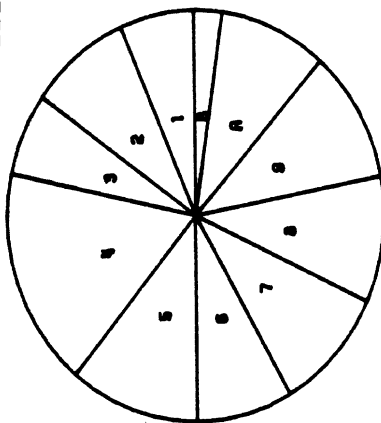
Table 8 and Figure 9 tend to agree with these age and sex patterns of drinking involvement in Michigan and Washington non-fatal pedestrian accidents. However, the drinking percentages are much lower in these non-fatal accidents, and there is more peaking of drinking involvement in the 35-65 year old groups. Also in both data sets the female drinking involvement proportions are generally less than half the male proportions (less than one third in Washington).

Finally, Table 9 and Figure 10 present data on the overall drinking involvement of both drivers and pedestrians in pedestrian accidents. In the FARS data, about one-seventh of the drivers involved in fatal pedestrian accidents were judged to have been drinking compared to almost one quarter of the pedestrians. For all Michigan pedestrian accidents, the driver figure is 7.7 percent and for Washington non-fatal pedestrian accidents it is 7.6 percent--somewhat higher than the drinking percentages of the involved pedestrians. Of course, as shown earlier, the Michigan and Washington non-fatal accident cases involve much larger proportions of children than the FARS fatal accident cases.

TABLE 3
U.S. Pedestrian Fatalities Per Year by Age Group Based on the Fatal Accident Reporting System (FARS)
1975-1979

Age Group	1975	1976	1977	1978	1979*	Total	Average Per Year Per Age
0-4	557	522	442	465	376	2362	94.5
5-8	710	715	643	548	524	3240	162.0
9-14	577	518	491	497	360	2443	81.4
15-24	1186	1233	1344	1401	1321	6485	129.7
25-34	699	756	870	950	892	4167	83.3
35-44	627	590	614	671	585	3087	61.7
45-54	758	788	736	776	603	3661	73.2
55-64	748	738	840	802	606	3734	74.7
65-74	850	791	842	814	612	3909	78.2
75-84	769	723	771	670	522	3455	69.1
85-97	173	197	214	175	155	914	14.1
Missing	94	95	136	136	159	620	
Total Ped.	7748	7666	7943	8005	6715	38,077	77.7
All Fatal. Ped. %	45,021 17.2	46,020 16.7	48,375 16.4	50,863 15.7	43,674 16.1	233,953 16.3	

*1979 data are incomplete.



1 AGES 0-4
2 AGES 5-8
3 AGES 9-14
4 AGES 15-24
5 AGES 25-34
6 AGES 35-44
7 AGES 45-54
8 AGES 55-64
9 AGES 65-74
10 AGES 75-97

TABLE 4
Age Group of Fatal and Non-fatal Pedestrian Accident Victims

Age Group	1975-79 U.S. Fatal			1976-79 Mich. Non-fatal			1974-78 Wash. Non-fatal		
	N	%	Average Per Year Per Age	N	%	Average Per Year Per Age	N	%	Average Per Year Per Age
0-4	2362	6.3	94.5	1661	7.1	83.1	602	7.5	24.1
5-8	3240	8.7	162.0	4124	17.7	257.8	1207	15.1	60.4
9-14	2443	6.5	81.4	4385	18.8	182.7	1276	15.6	42.5
15-24	6485	17.3	129.7	5691	24.4	142.3	1693	21.2	33.9
25-34	4167	11.1	83.3	2653	11.4	66.3	836	10.5	16.7
35-44	3087	8.2	61.7	1267	5.4	31.7	442	5.5	8.8
45-54	3661	9.8	73.2	1172	5.0	29.3	466	5.8	9.3
55-64	3734	10.0	74.7	1028	4.4	25.7	501	6.3	10.0
65-74	3909	10.4	78.2	767	3.3	19.2	492	6.2	9.8
75-98	4369	11.7	38.0	600	2.6	6.3	479	6.0	4.0
Total	37,457	100.0	77.7	23,348	100.0	59.0	7994	100.0	16.1
Missing	620	-	-	763	-	-	726	-	-

TABLE 5
Age Group and Severity of Pedestrian Injury in 1976-1979
Michigan and 1974-1978 Washington Pedestrian Accidents

Age Group		N	Pedestrian Injury Severity				
			Fatal %	Disabling %	Non- % disabling	Possible %	None %
0-4	Mich.	1731	4.0	31.5	40.4	21.7	2.3
	Wash.	641	6.1	27.1	45.9	20.9	-
5-8	Mich.	4250	3.0	28.6	37.5	27.4	3.5
	Wash.	1244	3.0	35.5	42.8	18.6	-
9-14	Mich.	4519	3.0	31.0	33.5	29.0	3.5
	Wash.	1308	2.4	32.0	44.9	20.6	-
15-24	Mich.	5978	4.8	31.6	30.4	30.1	3.0
	Wash.	1778	4.8	33.9	37.3	24.1	-
25-34	Mich.	2807	5.5	34.1	27.6	30.4	2.4
	Wash.	881	5.1	33.6	35.2	26.1	-
35-44	Mich.	1358	6.7	33.9	28.3	28.4	2.7
	Wash.	479	7.7	38.0	33.4	20.9	-
45-54	Mich.	1303	10.1	34.1	27.8	25.6	2.5
	Wash.	506	7.9	35.4	36.8	20.0	-
55-64	Mich.	1140	9.8	31.1	28.6	27.5	3.0
	Wash.	552	9.2	39.3	32.8	18.7	-
65-74	Mich.	878	12.6	35.0	27.9	23.3	1.1
	Wash.	553	11.0	36.3	32.2	20.4	-
75+	Mich.	743	19.2	33.9	25.0	19.8	2.0
	Wash.	567	15.5	40.9	28.6	15.0	-
Total	Mich.	24,707	5.5	31.7	32.0	27.9	2.9
Total	Wash.	8509	6.1	34.6	38.2	21.1	-
Missing	Mich.	727					
Missing	Wash.	726					

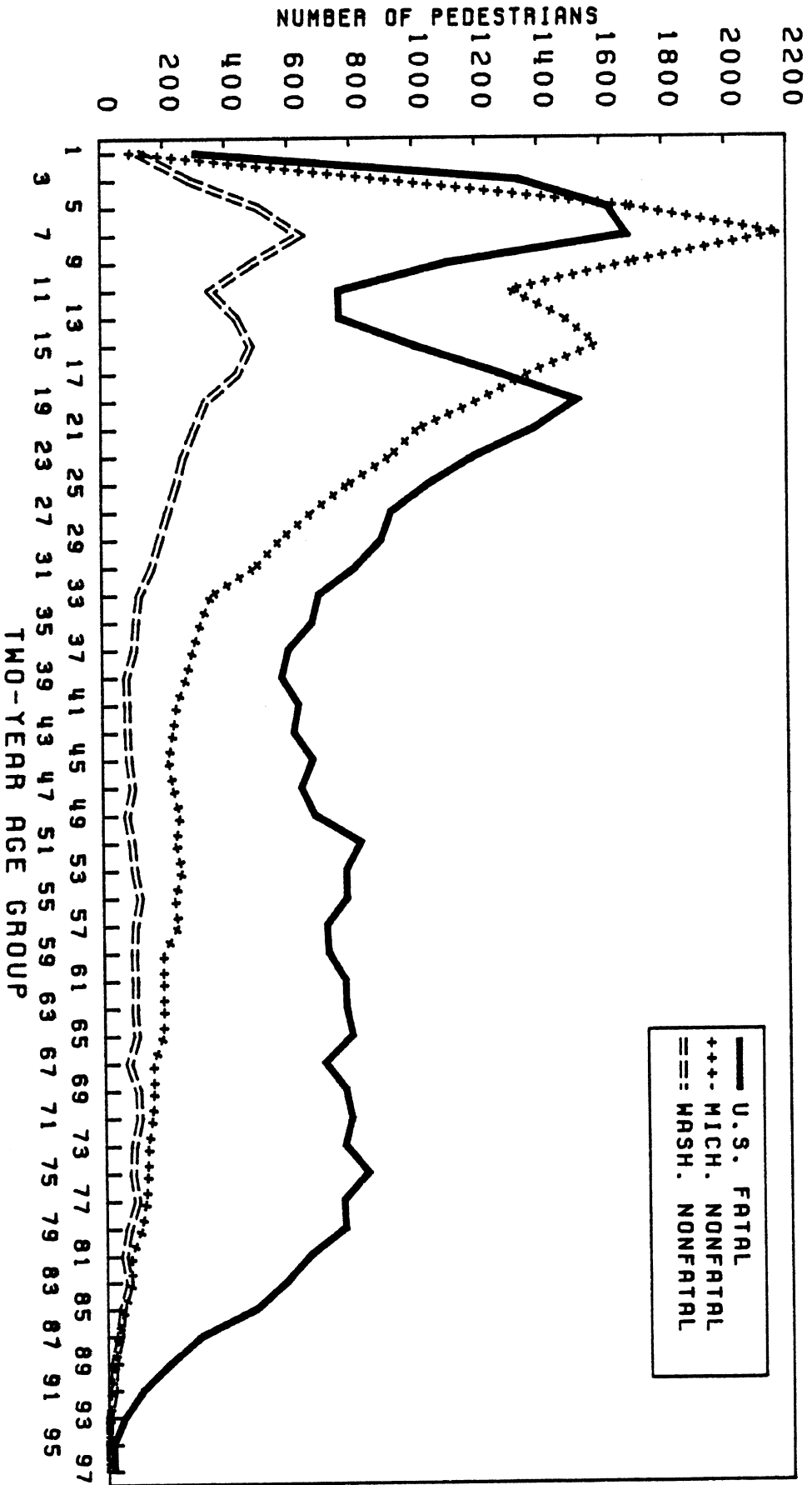
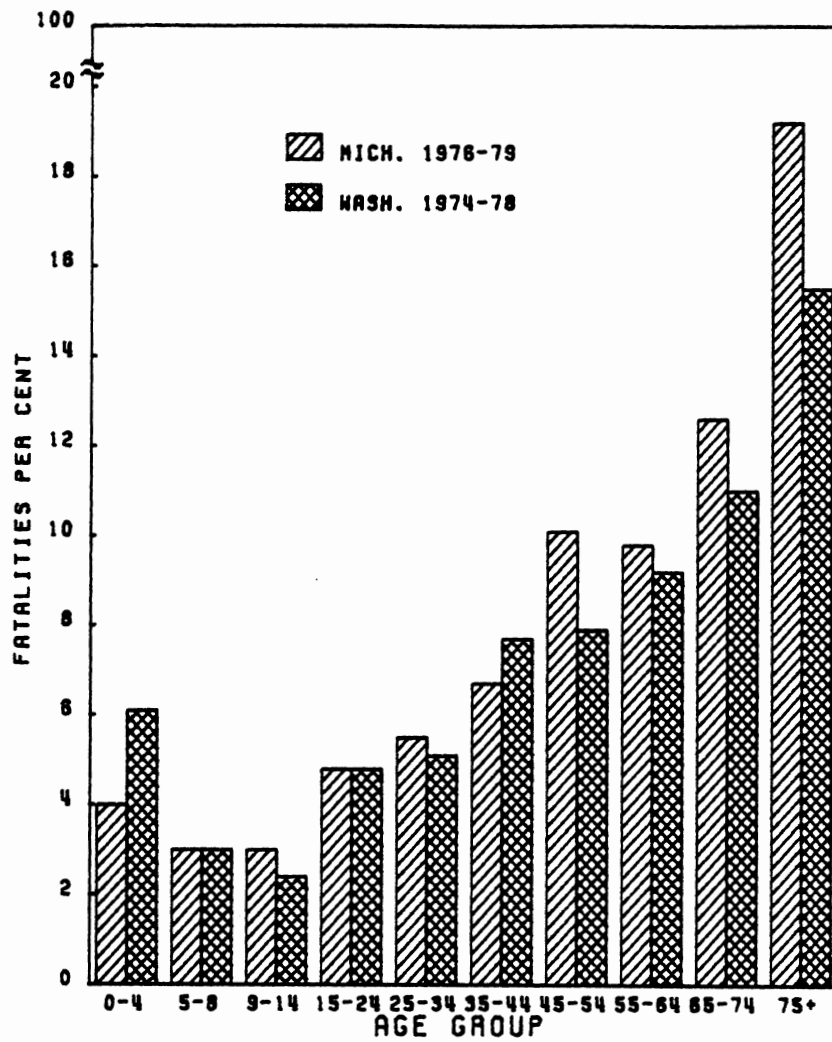
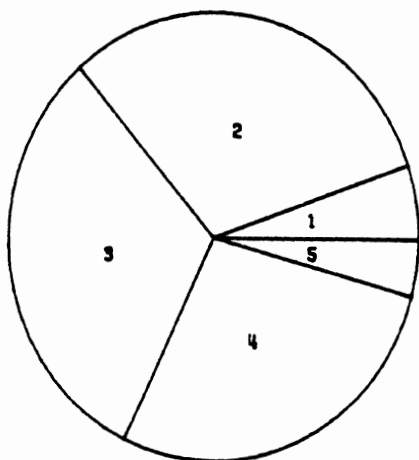


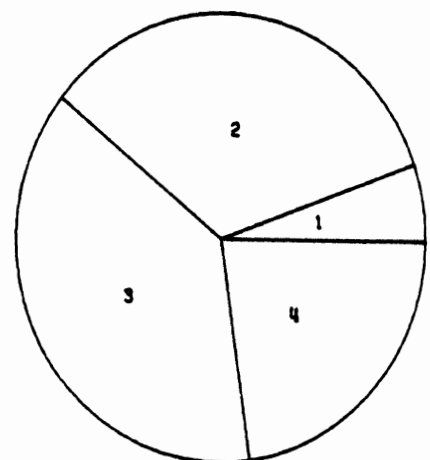
FIGURE 3
Pedestrian Fatalities and Non-fatalities by Two-year Age Groups



INJURY SEVERITY IN MICH. PEDESTRIAN ACCIDENTS



INJURY SEVERITY IN WASH. PEDESTRIAN ACCIDENTS



- 1 FATAL
- 2 DISABLING
- 3 NON-DISABLING
- 4 POSSIBLE
- 5 NONE

FIGURE 4
Fatalities Percent of All Michigan and Washington Pedestrian Involvements, by Age Group

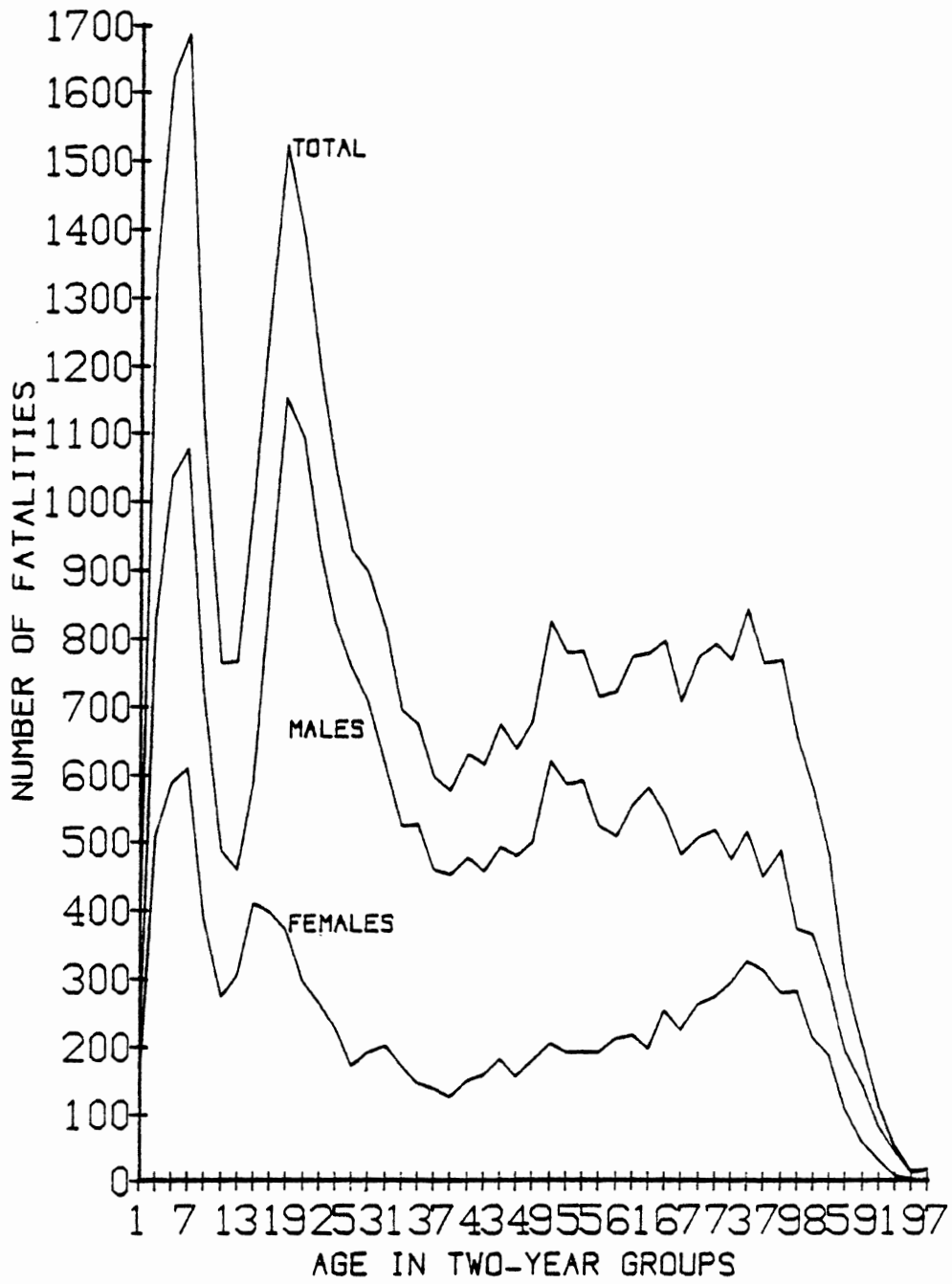


FIGURE 5
 U.S. Pedestrian Fatalities by Age and by Age and Sex, 1975-79

TABLE 6
U.S. Pedestrian Fatalities and Total Deaths by Age and Sex, 1976

Ages	Pedestrian Traffic Deaths	Ped. Deaths Per 1,000,000 1976 Population	Total Deaths	Pedestrian % of Deaths
Under 1: Male	6	4	27,320	0.02
Female	6	4	20,945	0.03
Subtotal	12	4	48,265	0.02
1-4: Male	322	51	4,915	6.6
Female	188	31	3,691	5.1
Subtotal	510	41	8,606	5.9
5-14: Male	776	41	8,068	9.6
Female	457	25	4,833	9.5
Subtotal	1233	33	12,901	9.6
15-24: Male	911	45	34,253	2.7
Female	322	16	11,828	2.7
Subtotal	1233	30	46,081	2.7
25-34: Male	579	36	30,162	1.9
Female	177	11	13,267	1.3
Subtotal	756	24	43,429	1.7
35-44: Male	448	40	37,160	1.2
Female	142	12	21,309	0.7
Subtotal	590	26	58,469	1.0
45-54: Male	587	51	95,324	0.6
Female	201	16	54,712	0.4
Subtotal	788	33	150,036	0.5
55-64: Male	534	56	189,695	0.3
Female	204	19	106,365	0.19
Subtotal	738	37	296,060	0.25
65-74: Male	509	83	267,466	0.19
Female	282	35	176,461	0.16
Subtotal	791	56	443,927	0.18
75+: Male	572	179	375,312	0.15
Female	348	63	443,879	0.08
Subtotal	920	105	801,191	0.11
Total Males	5312	51	1,051,983	0.50
Total Females	2354	21	857,457	0.27
Grand Total	7666	36	1,909,440	0.40

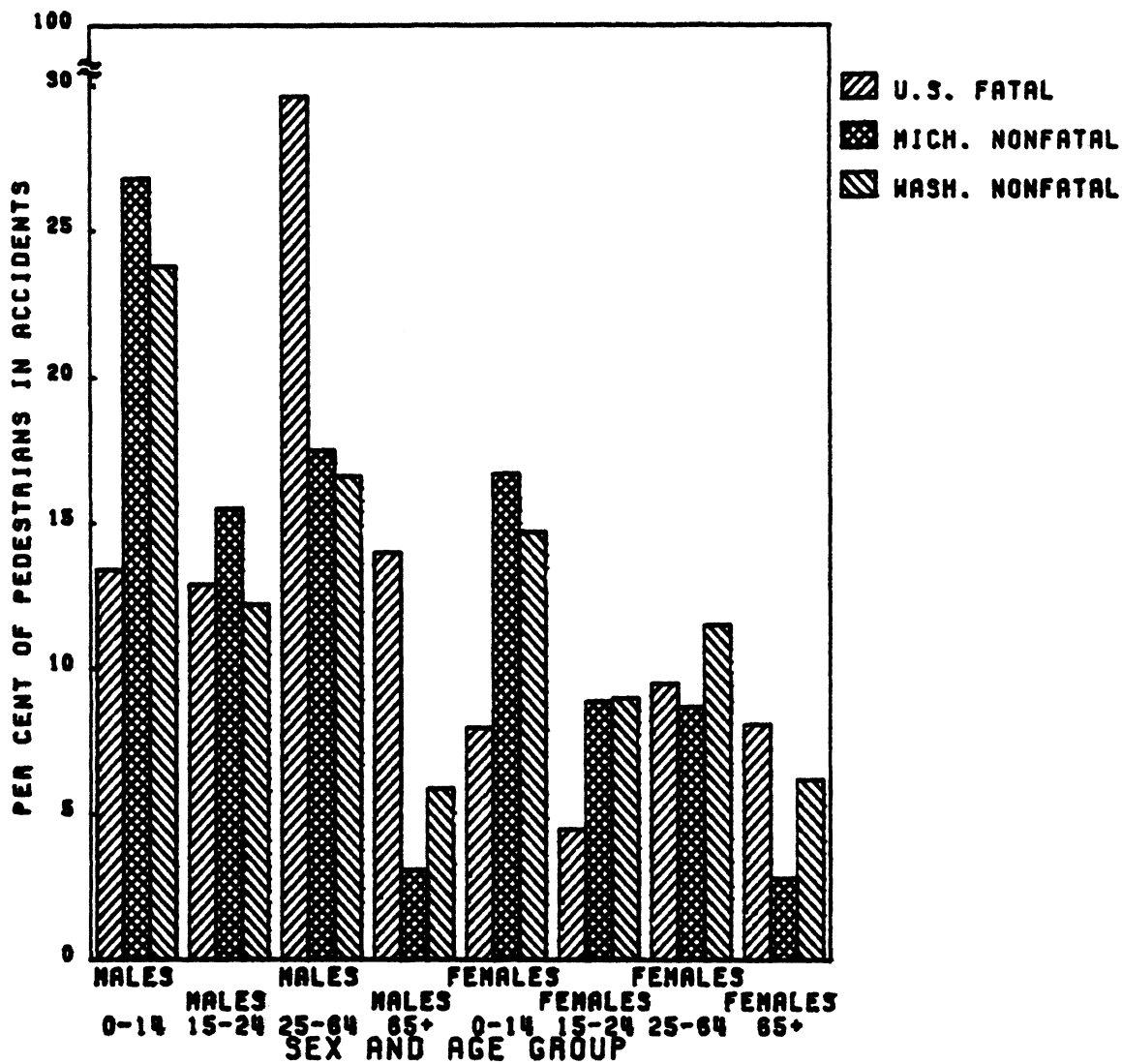
TABLE 7
 U.S. Pedestrian Fatalities by Age Group and Sex, 1975-1979 and by
 Age Group and Drinking Involvement by Sex, 1977-1979*

Age	Sex			Drinking Involvement-Pedestrian						
	Male	Female	Total	Males		Females		Total		
				No,DK	Yes	No,DK	Yes	No,DK	Yes	
0-4	N	1464	898	2362	776	1	504	2	1280	3
	%	62.0	38.0	6.3	99.9	0.1	99.6	0.4	99.8	0.2
5-8	N	2057	1183	3240	1164	2	648	1	1812	3
	%	63.5	36.5	8.7	99.8	0.2	99.8	0.2	99.8	0.2
9-14	N	1516	927	2443	823	15	503	7	1326	22
	%	62.1	37.9	6.5	98.2	1.8	98.6	1.4	98.4	1.6
15-24	N	4815	1670	6485	1976	1033	811	246	2787	1279
	%	74.2	25.8	17.3	65.7	34.3	76.7	23.3	68.5	31.5
25-34	N	3249	918	4167	1241	886	399	186	1640	1072
	%	78.0	22.0	11.1	58.3	41.7	68.2	31.8	60.5	39.5
35-44	N	2365	721	3086	866	569	291	143	1158	712
	%	76.6	23.4	8.2	60.3	39.7	67.1	32.9	61.9	38.1
45-54	N	2734	927	3661	938	639	400	138	1338	777
	%	74.7	25.3	9.8	59.5	40.5	74.3	25.7	63.3	36.7
55-64	N	2725	1008	3733	1051	591	513	92	1565	683
	%	73.0	27.0	10.0	64.0	36.0	84.8	15.2	69.6	30.4
65-74	N	2532	1377	3909	1105	368	736	59	1841	427
	%	64.8	35.2	10.4	75.0	25.0	92.6	7.4	81.2	18.8
75+	N	2715	1654	4369	1425	138	913	31	2338	169
	%	62.1	37.9	11.7	91.2	8.8	96.7	3.3	93.3	6.7
Total	N	26,172	11,283	37,455	11,365	4242	5718	905	17,085	5147
	%	69.9	30.1	100.0	72.8	27.2	86.3	13.7	76.8	23.2

Missing Data Cases = 622

Missing Data Cases = 431

*Drinking involvement is not available for 1975 and 1976 data. These data are mostly based on police judgements as to whether the driver or pedestrian had been drinking or using drugs prior to the accident. The percentages are based on the total cases, although there are many cases in which no judgement about drinking was recorded.



U.S. FATAL

MALES 0-14, 13.4%
 MALES 15-24, 12.9%
 MALES 25-64, 29.6%
 MALES 65+, 14.0%
 FEMALES 0-14, 8.0%
 FEMALES 15-24, 4.5%
 FEMALES 25-64, 9.5%
 FEMALES 65+, 8.1%

MICH. NONFATAL

MALES 0-14, 26.8%
 MALES 15-24, 15.5%
 MALES 25-64, 17.5%
 MALES 65+, 3.1%
 FEMALES 0-14, 16.7%
 FEMALES 15-24, 8.9%
 FEMALES 25-64, 8.7%
 FEMALES 65+, 2.8%

WASH. NONFATAL

MALES 0-14, 23.8%
 MALES 15-24, 12.2%
 MALES 25-64, 16.6%
 MALES 65+, 5.9%
 FEMALES 0-14, 14.7%
 FEMALES 15-24, 9.0%
 FEMALES 25-64, 11.5%
 FEMALES 65+, 6.2%

FIGURE 6
 Distribution of Pedestrian Fatalities and Non-fatalities by Sex and Four Age Groups

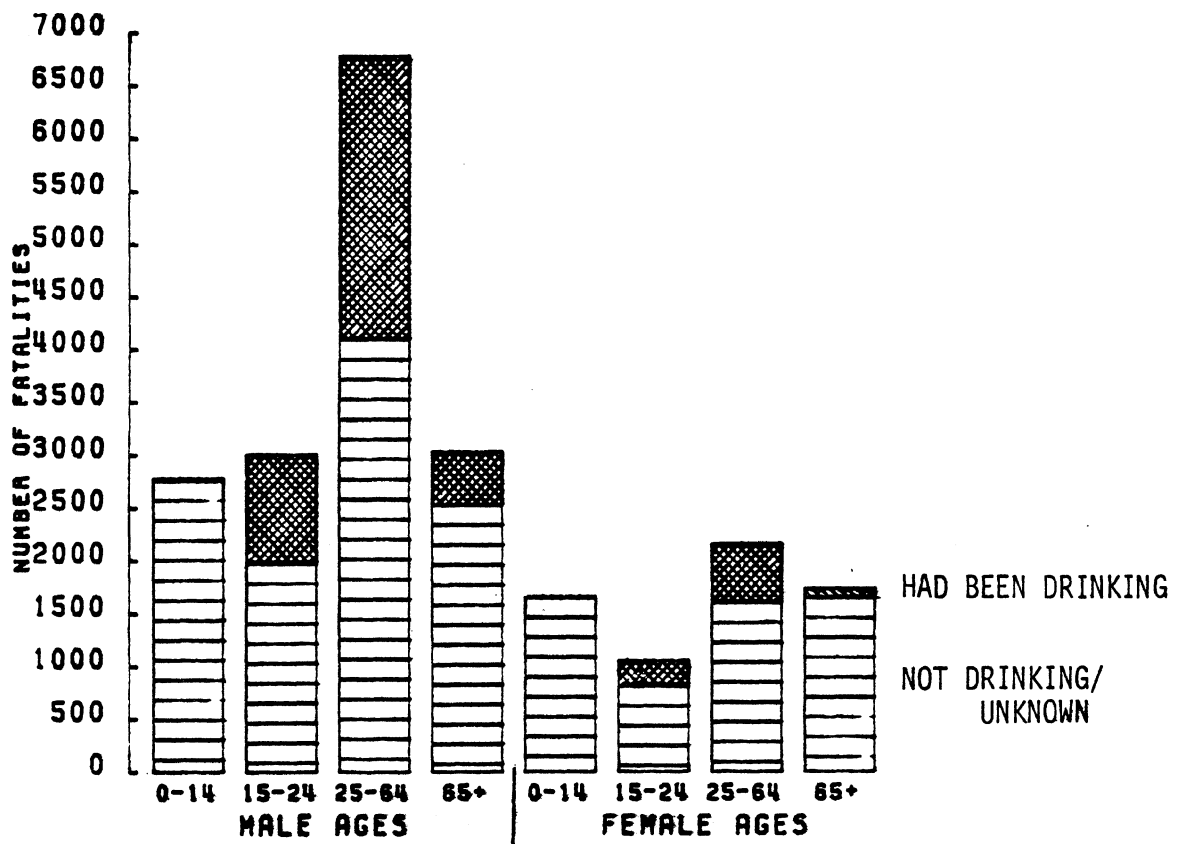


FIGURE 7
U.S. Pedestrian Fatalities and Drinking by Eight Age/Sex Groups

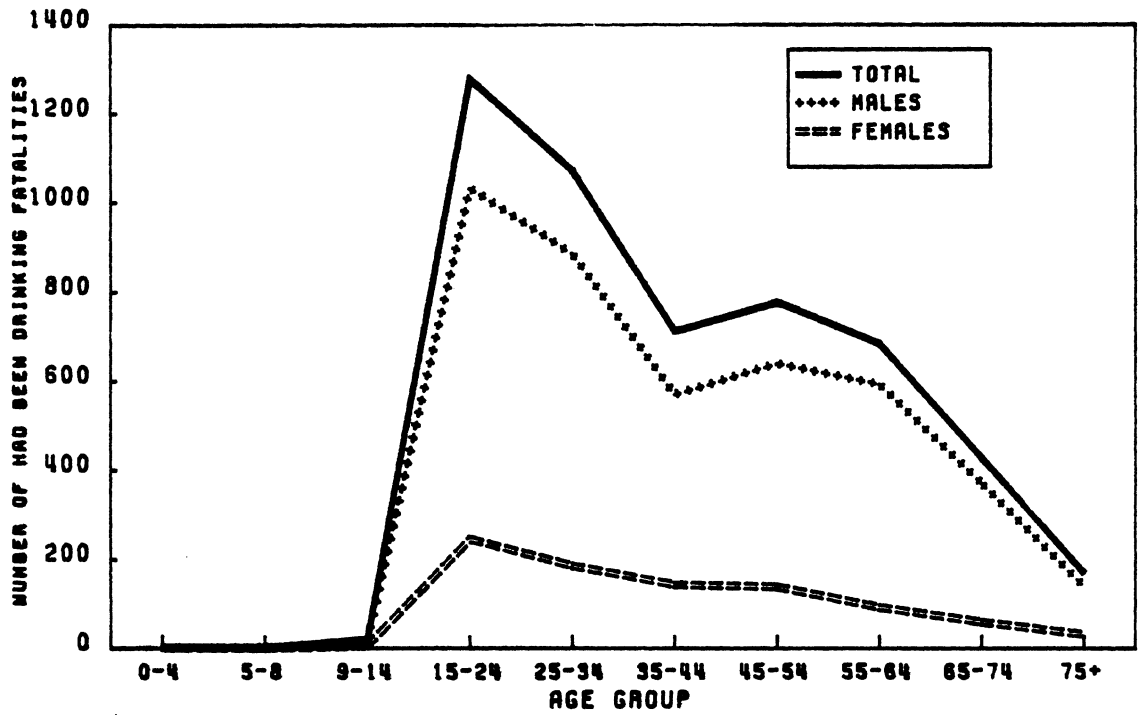


FIGURE 8
Pedestrian Drinking in U.S. Fatal Pedestrian Accidents by Age Group and Sex, 1977-79

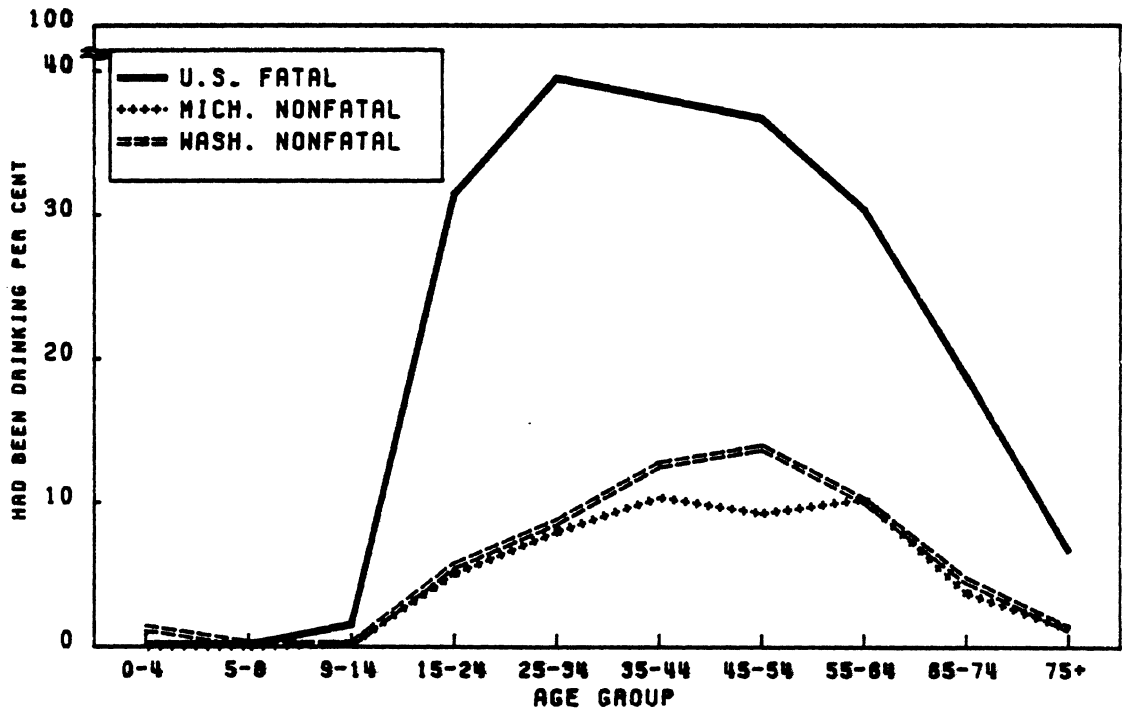


FIGURE 9
Pedestrian Drinking in Fatal and Non-fatal Accidents by Age Group

TABLE 8
 Drinking by Fatal and Non-fatal Pedestrian Accident Victims by Age Group and Sex

Age Group	1977-79 U.S. Fatal			1976-79 Mich. Non-fatal			1974-78 Wash. Non-fatal		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	777 0.1	506 0.4	1283 0.2	1034 0	631 0	1665 0	377 1.6	223 0.9	602 1.3
5-8	1166 0.2	649 0.2	1815 0.2	2681 0	1454 0	4135 0	791 0.1	416 0.2	1207 0.2
9-14	838 1.8	510 1.4	1348 1.6	2563 0.3	1831 0.1	4394 0.2	737 0.4	538 0.0	1276 0.2
15-24	3009 34.3	1057 23.3	4066 31.5	3620 6.2	2085 3.1	5705 5.1	973 7.5	719 3.3	1693 5.7
25-34	2127 41.7	585 31.8	2712 39.5	1862 9.0	792 5.8	2654 8.0	502 12.2	334 3.6	836 8.7
35-44	1435 39.7	434 32.9	1870 38.1	851 12.3	421 6.4	1272 10.4	263 17.1	179 6.1	442 12.7
45-54	1577 40.5	538 25.7	2115 36.7	751 12.1	423 4.3	1174 9.3	273 20.9	193 4.1	466 13.9
55-64	1642 36.0	605 15.2	2248 30.4	620 12.1	408 2.5	1028 10.3	287 14.6	214 4.2	501 10.2
65-74	1473 25.0	795 7.4	2268 18.8	388 5.9	381 1.6	769 3.8	253 8.3	239 0.8	492 4.7
75+	1563 8.8	944 3.3	2507 6.7	328 2.4	272 0.0	600 1.3	221 2.7	258 0.0	479 1.3
Total	15,607	6623	22,232	14,698	8698	23,396	4677	3313	7994
Total	27.2	13.7	23.2	4.8	2.0	3.7	6.7	2.1	4.8
Missing			431			715			726

*Had Been Drinking marked "yes" on the police accident report.

TABLE 9
 Drinking Involvement of Drivers and Pedestrians in Fatal and Non-fatal Pedestrian Accidents by Year

	U.S. Fatal		Mich. Fatal		Non-fatal		Wash. Non-fatal	
	Driver	Pedestrian	Driver	Pedestrian	Driver	Pedestrian	Driver	Pedestrian
1974	Total N	-	-	-	-	-	1622	1622
	Drkg %	-	-	-	-	-	6.3	4.4
1975	Total N	-	-	-	-	-	1751	1751
	Drkg %	-	-	-	-	-	8.8	5.3
1976	Total N	-	-	5398	6583	1741	1741	1741
	Drkg %	-	-	7.5	5.7	8.0	6.1	6.1
1977	Total N	6896	7943	5015	6279	1704	1704	1704
	Drkg %	14.0	21.7	7.2	5.1	7.4	3.7	3.7
1978	Total N	6888	8005	5146	6475	1902	1902	1902
	Drkg %	14.3	24.1	8.1	4.8	7.3	4.8	4.8
1979	Total N	5601	6715	4813	6097	-	-	-
	Drkg %	15.5	23.8	8.1	5.0	-	-	-
Total	N	19,385	22,663	20,372	25,434	8720	8720	8720
Total	Drkg %	14.5	23.2	7.7	5.1	7.6	4.9	4.9

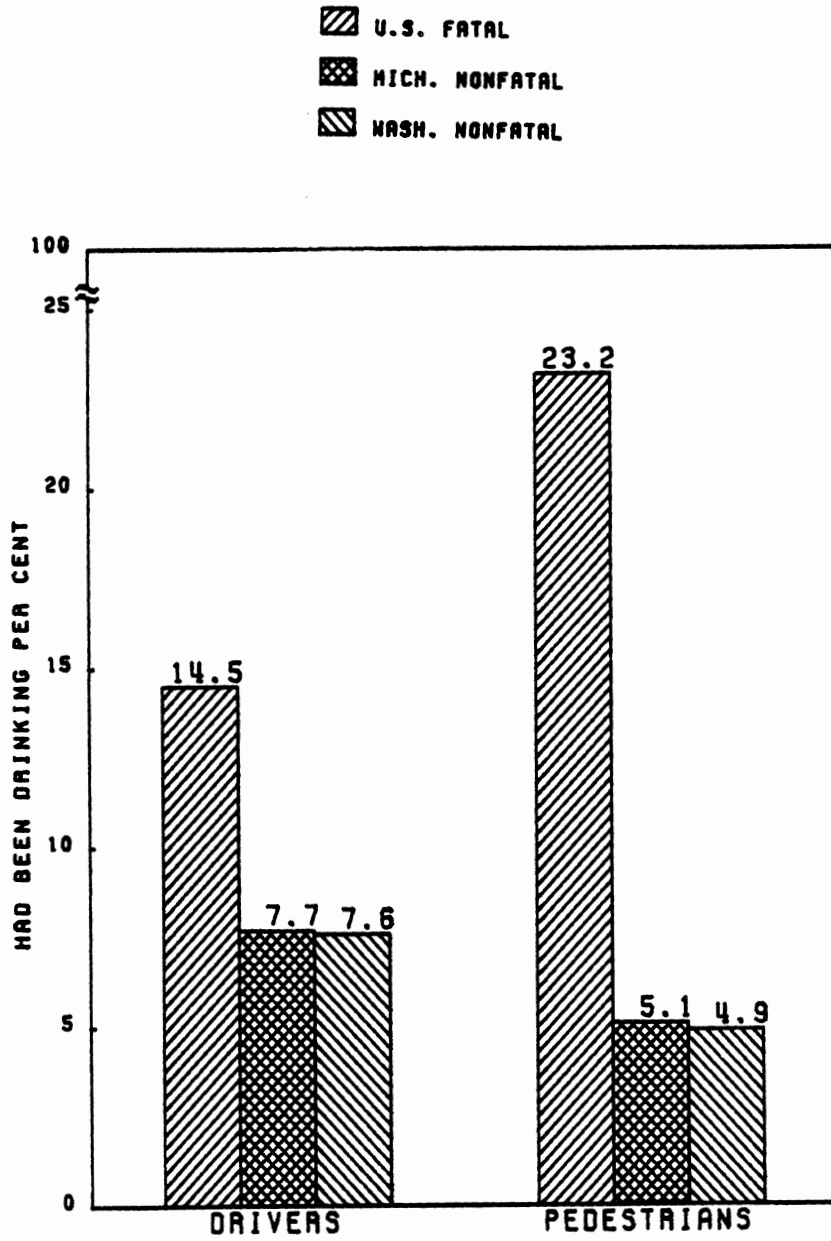


FIGURE 10
Drinking Involvement of Drivers and Pedestrians
in Pedestrian Accidents

4. SITUATIONAL CHARACTERISTICS OF PEDESTRIAN ACCIDENTS: TIME, LIGHT, WEATHER, LOCATION, CONTRIBUTING FACTORS

Table 10 and Figure 11 show the distribution of pedestrian fatalities by month and age group. For young children the peak months are May through August, and 15-24 year olds are also more likely to be killed in the summer. But older people are much more likely to be killed in the fall and winter months, and October stands out clearly in Figure 11 as the most dangerous month of the year.

Time of Day

In regard to the time of day, Table 11 and Figure 12 show the extent to which pedestrian fatalities are an evening phenomenon. The peak fatality period is 7-8 pm., and 44.4 percent of the fatalities are between 6 and 12 pm. The late afternoon and early morning hours are also relatively dangerous periods, and almost three-quarters of the fatalities occur in the 12 hours from 3 pm. to 3 am. There is a rather remarkable difference in the fatality proportion between mornings and afternoons with more than twice as many fatalities taking place in the afternoon. Figure 12 also shows that bicyclist fatalities tend to occur somewhat earlier in the day than pedestrian fatalities, primarily in the 3-8 pm. period.

Table 12 and Figure 13 show that the time distribution is somewhat different for non-fatal pedestrian accidents. In both Michigan and Washington non-fatal accidents the peak hour is 3-4 pm., and about half the accidents take place between 2 pm. and 8 pm. While nearly one-third of the fatal accidents take place between 9 pm. and 3 am., only about one-sixth of the non-fatal accidents take place then.

Naturally there are considerable differences in the time of day distributions for different age groups. The interaction between age and time of day for the three different accident files is shown graphically in Figures 14, 15, and 16. Figure 14 clearly shows the time of day differences between the two largest groups of pedestrian fatalities. Young children aged 2-9 are concentrated in the 2-8 pm. period, while youth aged 16-23 are concentrated in the 9 pm. to 3 am. period. Fatalities among middle-aged pedestrians also tend to be heavy in the late night period, while for senior citizens the early evening and the late afternoon are the heaviest periods which account for almost half of their pedestrian fatalities. The much heavier concentration of children in non-fatal pedestrian accidents is apparent in Figures 15 and 16 which tend to highlight just one group, children 2-16 in the 2-8 time period. The tendency for youth accidents to increase in the late night hours is also apparent, but it is not nearly as evident as in the fatalities graph.

Looking at the interrelationship between drinking and hour of day, Table 12 and Figure 17 show 1-3 am. to be the hours in which pedestrian accident victims are most likely to have been drinking, and that, not surprisingly, almost all of the drinking-involved accidents take place during the nighttime hours. Table 13 and Figure 18 demonstrate similar findings for drivers in pedestrian accidents. Table 14 shows the

interrelationship of time of day, age, and drinking for all Michigan pedestrian accidents for both drivers and pedestrians. For both groups the 12-3 am. period is the one when drinking is heaviest. In this period, over two-fifths of the drivers and one-fifth of the pedestrians were judged to have been drinking, but differences among adult age groups were not very great.

Light and Weather Conditions

Tables 15-17 and Figures 19-20 present data on light condition at the time of pedestrian accidents in relation to the pedestrian's age. As would be expected from the previous data on time of day, there are substantial differences in light condition for fatal and non-fatal accidents. While only 36 percent of the fatal pedestrian accidents took place in daylight, 65 percent of the Michigan and 63 percent of the Washington non-fatal accidents took place in daylight. And there is a strong relationship with age in both types of data. While 80.5 percent of the fatalities among 5-8 year olds took place in daylight, only 14.5 percent of the fatalities among 15-24 year olds took place in daylight. Similarly in Michigan 89.7 percent of the non-fatal accidents involving 5-8 year olds took place in daylight, while only 41.2 percent involving 25-34 year olds took place in daylight. Again these data demonstrate the much greater likelihood of a fatality in a pedestrian accident which takes place after dark.

Tables 18 and 19 provide information on weather conditions at the time of the accident in relation to the age of the killed pedestrian. Most fatal accidents took place during clear weather, and this was especially true for accidents involving children. The data show a slight tendency for older persons to be more involved in fatal accidents during rainy weather.

Locational Data

Tables 20-22 and Figures 21-22 provide information on the types of areas and roads where pedestrian fatal and non-fatal accidents occur. Again, there seem to be substantial differences in the two types of accidents. About three-eighths of the fatal accidents take place in rural areas compared to one quarter of the Michigan non-fatal accidents and less than one-eighth of the Washington non-fatal accidents. Also fatal accidents are much more likely to take place on limited access highways and major roads than non-fatal accidents. Less than half of the fatal accidents were on local roads while more than three quarters of the non-fatal accidents were on local roads. In relation to age, the middle-age groups were more likely to be killed in rural areas and on limited access and other major roads than were either the children or the senior citizens.

Tables 23-26 and Figure 23 present data on the location of pedestrian accidents in relation to intersections and the roadway. Table 23 shows that the great majority of pedestrian fatalities take place on the roadway not at intersections. Only 18.9 percent take place at intersections, and most of these involve a pedestrian not in a crosswalk. There is a fairly strong relationship with age with persons

under 45 much less likely to be involved in accidents at intersections than persons 45 and over. Again, Table 24 demonstrates substantial differences between fatal and non-fatal accidents with 27 percent of Michigan and 42.3 percent of Washington non-fatal accidents taking place at intersections. Table 25 shows that there is little difference between single vehicle and multi-vehicle fatal pedestrian accidents in regard to taking place at an intersection. Table 26 shows the same general relationship between age and intersection accidents for non-fatal as well as fatal accidents.

Table 27 and 28 and Figure 24 look at the speed limit of the road on which pedestrian accidents occur. Table 27 shows that almost one third of the fatal pedestrian accidents occur on high-speed roads, and these proportions are particularly high for the 15-44 age groups. Table 28 shows a strong relationship between speed limit and injury severity in all Washington pedestrian accidents. While only 3.4 percent of the pedestrians involved in accidents on roads with a speed limit of 25 mph or less were killed, 23.1 percent of the pedestrians involved in accidents on roads with a speed limit of 55 mph were killed. Michigan data files do not contain a speed limit variable.

Contributing Factors in the Accident

Table 29 offers some interesting data on the first contributing factor in fatal pedestrian accidents, although this variable is missing for about one-third of the FARS cases. The leading factor with 41.7 percent is "improper crossing" which is particularly a factor for persons over 24. The second main factor is "darting or running in the road" with 28.7 percent and this factor applies disproportionately to the 0-14 age groups. The third factor is "not visible" at 12.1 percent which also applies disproportionately to the child pedestrian fatalities. The fourth factor is "playing or working in the road" at 11.9 percent. It is particularly high among the 15-44 year old groups.

TABLE 10
U.S. Pedestrian Fatalities by Age Group and Month, 1975-1979

Age		Jan.- Feb.	Mar.- April	May- June	July- Aug.	Sept.- Oct.	Nov.- Dec.	Total
0-4	N %	173 7.3	417 17.7	566 24.0	595 25.2	428 18.1	183 7.7	2362 6.3
5-8	N %	398 12.3	628 19.4	695 21.5	588 18.1	560 17.3	371 11.5	3240 8.6
9-14	N %	372 15.2	432 17.7	403 16.5	396 16.2	446 18.3	394 16.1	2443 6.5
15-24	N %	896 13.8	931 14.4	1052 16.2	1323 20.4	1249 19.3	1034 15.9	6485 17.3
25-34	N %	599 14.4	643 15.4	616 14.8	791 19.0	800 19.2	718 17.2	4167 11.1
35-44	N %	477 15.5	487 15.8	438 14.2	550 17.8	593 19.2	542 17.6	3087 8.2
45-54	N %	610 16.7	590 16.1	530 14.5	558 15.2	650 17.8	723 19.7	3661 9.8
55-64	N %	683 18.3	591 15.8	494 13.2	541 14.5	656 17.6	769 20.6	3734 10.0
65-74	N %	695 17.8	617 15.8	509 13.0	513 13.1	714 18.3	861 22.0	3909 10.4
75+	N %	778 17.8	682 15.6	506 11.6	600 13.7	818 18.7	985 22.5	4369 11.7
Total	N %	5681 15.2	6018 16.1	5809 15.5	6455 17.2	6914 18.5	6580 17.6	37,457 100.0

Missing Date Cases = 620

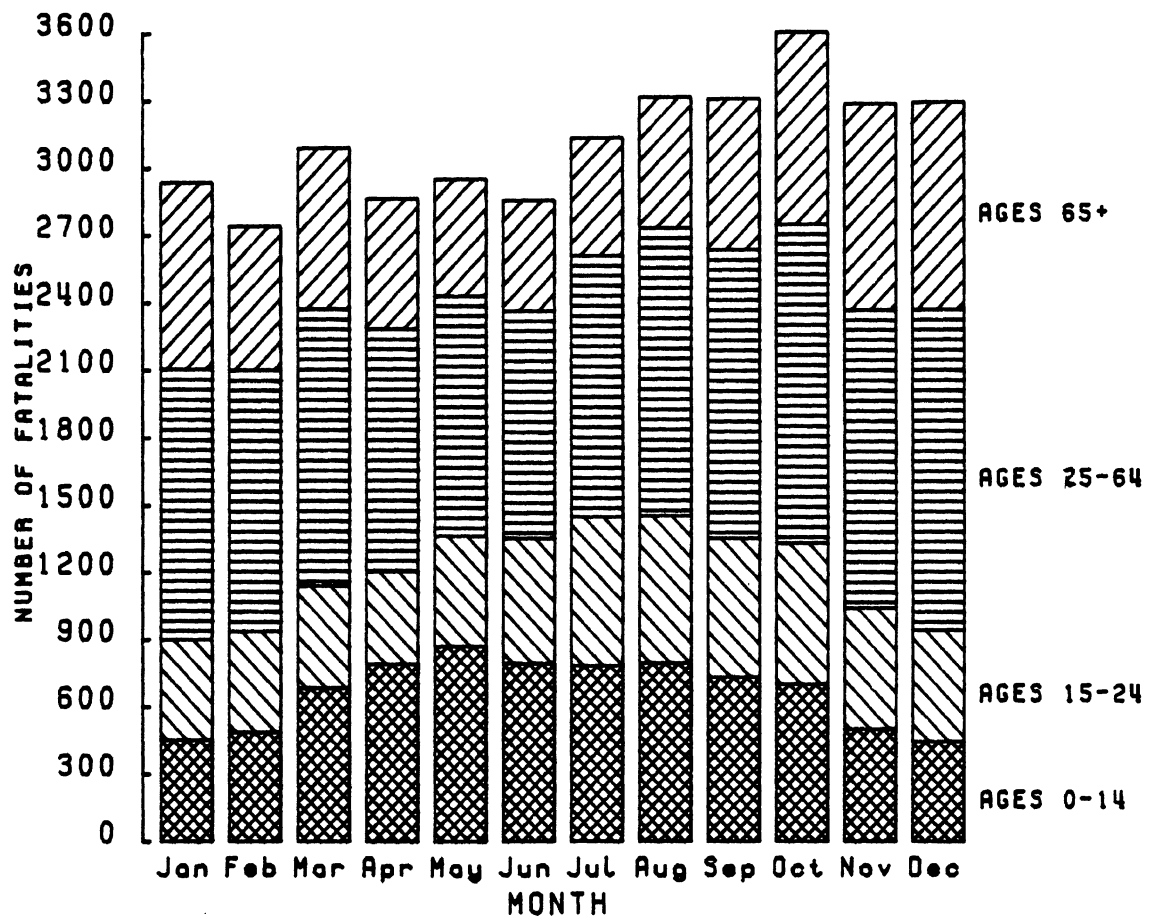
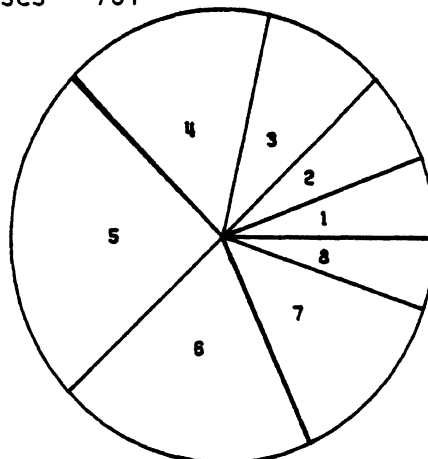


FIGURE 11
U.S. Pedestrian Fatalities by Age Group and Month, 1975-79

TABLE 11
U.S. Pedestrian Fatalities by Age Group and Time of Day, 1975-1979

Age		6-9 am.	9-12 am.	12-3 pm.	3-6 pm.	6-9 pm.	9-12 pm.	12-3 am.	3-6 am.	Total
0-4	N %	47 2.0	270 11.5	440 18.7	746 31.7	710 30.1	127 5.4	8 0.3	9 0.4	2357 6.3
5-8	N %	245 7.6	242 7.5	594 18.4	1280 39.5	725 22.4	144 4.4	2 0.1	5 0.2	3237 8.7
9-14	N %	203 8.3	132 5.4	292 12.0	746 30.6	682 28.0	328 13.5	41 1.7	14 0.6	2438 6.5
15-24	N %	235 3.6	117 1.8	242 3.8	420 6.5	1101 17.1	1863 28.9	1783 27.6	692 10.7	6453 17.3
25-34	N %	174 4.2	124 3.0	171 4.1	275 6.6	718 17.3	1098 26.5	1145 27.6	437 10.6	4142 11.1
35-44	N %	154 5.0	109 3.5	139 4.5	226 7.3	688 22.4	881 28.7	644 20.9	234 7.6	3075 8.2
45-54	N %	216 5.9	160 4.4	201 5.5	327 9.0	991 27.2	1019 27.9	554 15.2	181 5.0	3649 9.8
55-64	N %	253 6.8	217 5.8	274 7.4	432 11.6	1180 31.7	872 23.4	346 9.3	147 4.0	3721 10.0
65-74	N %	246 6.3	402 10.3	437 11.2	621 15.9	1235 31.7	640 16.4	207 5.3	108 2.8	3896 10.4
75+	N %	385 8.8	654 15.0	676 15.5	879 20.2	1152 26.4	413 9.5	115 2.6	85 1.9	4359 11.7
Total	N %	2158 5.8	2427 6.5	3466 9.3	5952 15.9	9182 24.6	7385 19.8	4845 13.0	1912 5.1	37,327 100.0

Missing Data Cases = 751



- 1 6-9AM
- 2 9-12AM
- 3 12-3PM
- 4 3-6PM
- 5 6-9PM
- 6 9-12PM
- 7 12-3AM
- 8 3-6AM

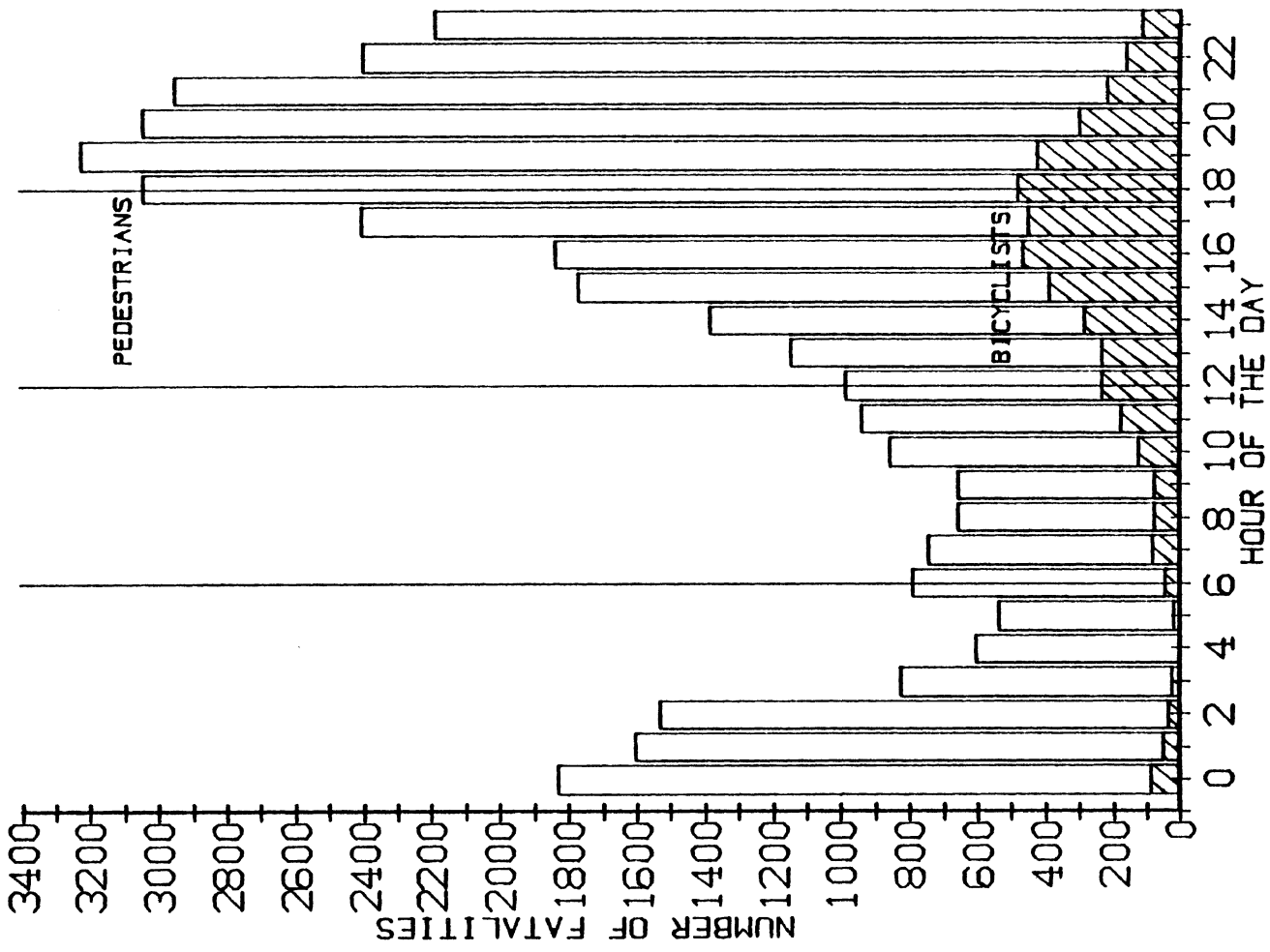
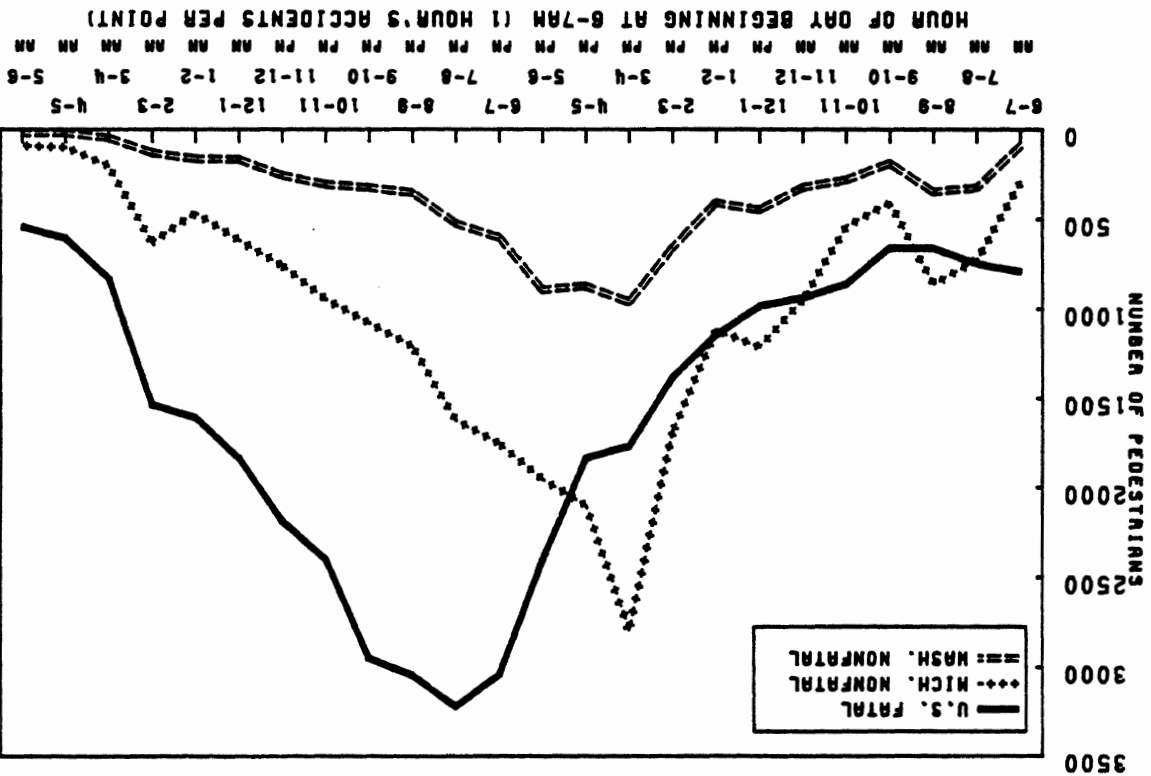
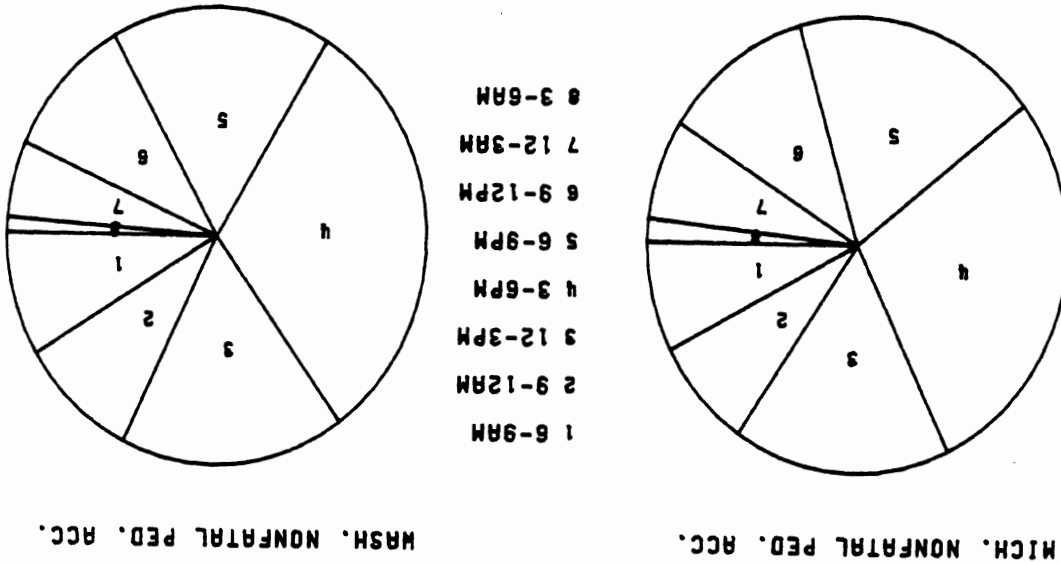


FIGURE 12
U.S. Pedestrian and Bicyclist Fatalities by Time of Day, 1975-79

TABLE 12
Hour of Day When Fatal and Non-fatal Pedestrian Accident Victims Were Hit and Percent Who Had Been Drinking

Hour	1975-79 U.S. Fatal			1976-1979 Mich. Non-fatal			1974-78 Wash. Non-fatal		
	N	Col.%	HBD%	N	Col.%	HBD%	N	Col.%	HBD%
6-7 am.	790	2.1	6.3	289	1.2	2.1	92	1.1	2.2
7-8 am.	745	2.0	2.3	726	3.0	0.6	325	3.7	1.2
8-9 am.	658	1.7	2.6	859	3.6	0.3	348	4.0	1.1
9-10 am.	657	1.7	2.3	404	1.7	1.5	187	2.1	1.1
10-11 am.	860	2.3	2.1	537	2.2	2.6	282	3.2	1.1
11-12 am.	938	2.5	3.4	945	3.9	1.2	323	3.7	0.6
12-1 pm.	984	2.6	1.7	1210	5.0	1.2	447	5.1	1.8
1-2 pm.	1145	3.0	2.9	1117	4.6	1.5	406	4.7	1.2
2-3 pm.	1382	3.6	2.2	1682	7.0	1.1	657	7.5	1.5
3-4 pm.	1768	4.7	1.8	2789	11.6	1.2	961	11.0	1.0
4-5 pm.	1836	4.8	2.3	2098	8.7	1.0	871	10.0	2.3
5-6 pm.	2402	6.3	6.7	1950	8.1	2.1	895	10.3	2.9
6-7 pm.	3042	8.0	10.0	1750	7.3	2.6	601	6.9	5.3
7-8 pm.	3220	8.5	12.2	1618	6.7	3.9	523	6.0	6.1
8-9 pm.	3043	8.0	16.3	1206	5.0	5.6	353	4.0	9.3
9-10 pm.	2948	7.7	17.2	1076	4.5	6.8	324	3.7	12.3
10-11 pm.	2398	6.3	23.6	943	3.9	8.8	307	3.5	16.3
11-12 pm.	2186	5.8	23.1	757	3.1	11.0	257	2.9	17.1
12-1 am.	1831	4.8	29.2	615	2.6	12.4	169	1.9	14.2
1-2 am.	1606	4.2	31.4	465	1.9	15.1	166	1.9	19.9
2-3 am.	1533	4.0	29.7	627	2.6	17.2	133	1.5	20.3
3-4 am.	828	2.2	27.4	204	0.8	11.8	49	0.6	20.4
4-5 am.	603	1.6	27.5	101	0.4	9.9	20	0.2	20.0
5-6 am.	540	1.4	20.6	92	0.4	3.3	24	0.3	4.2
Total	37,943	100.0	13.8	24,060	100.0	3.7	8720	100.0	4.9
Missing	134			51			0		

FIGURE 13
Hour of Day for Fatal and Non-Fatal Pedestrian Accidents



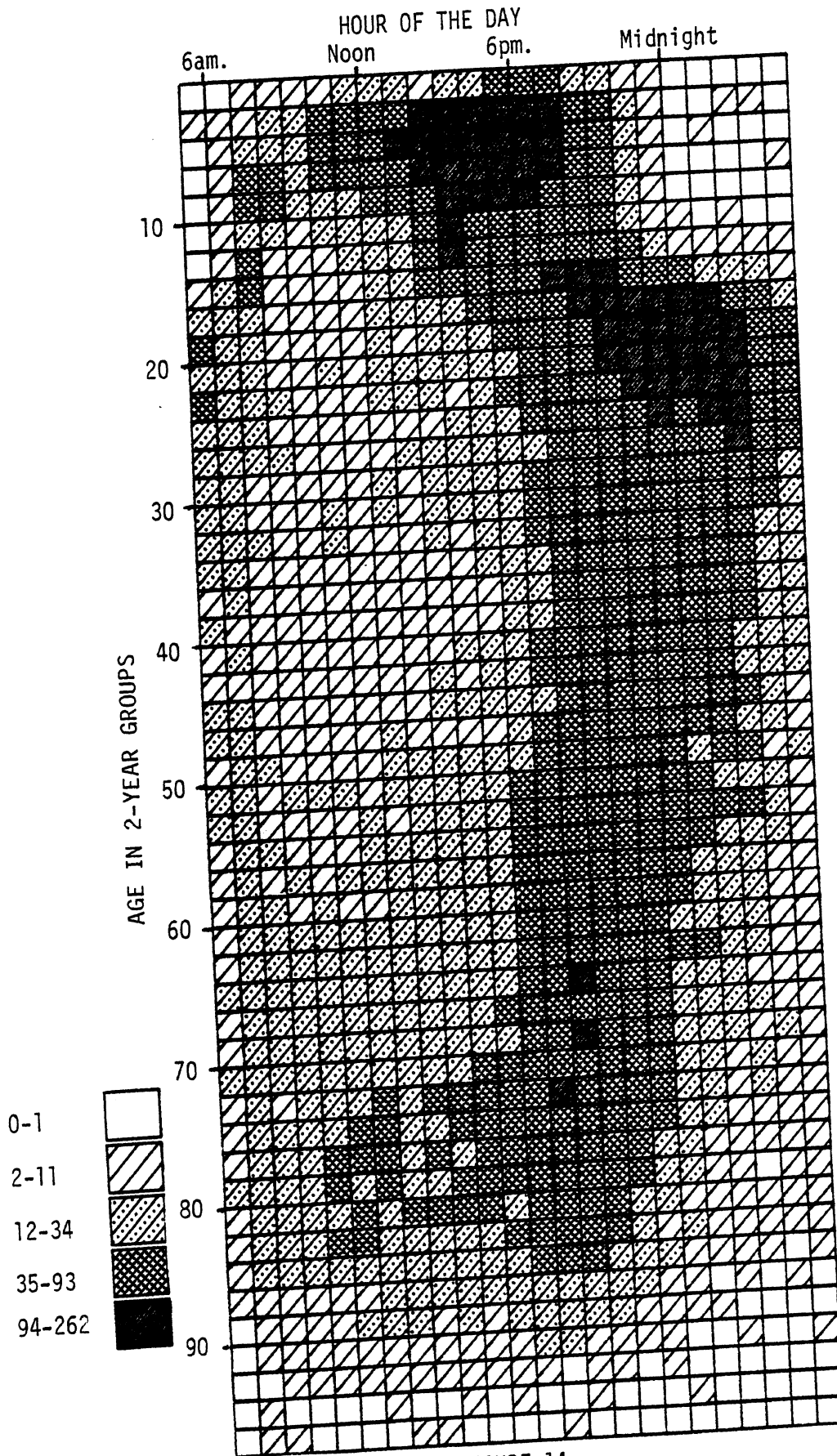


FIGURE 14
 U.S. Fatal Pedestrian Accidents by Hour of Day and Two-Year Age Groups, 1975-79

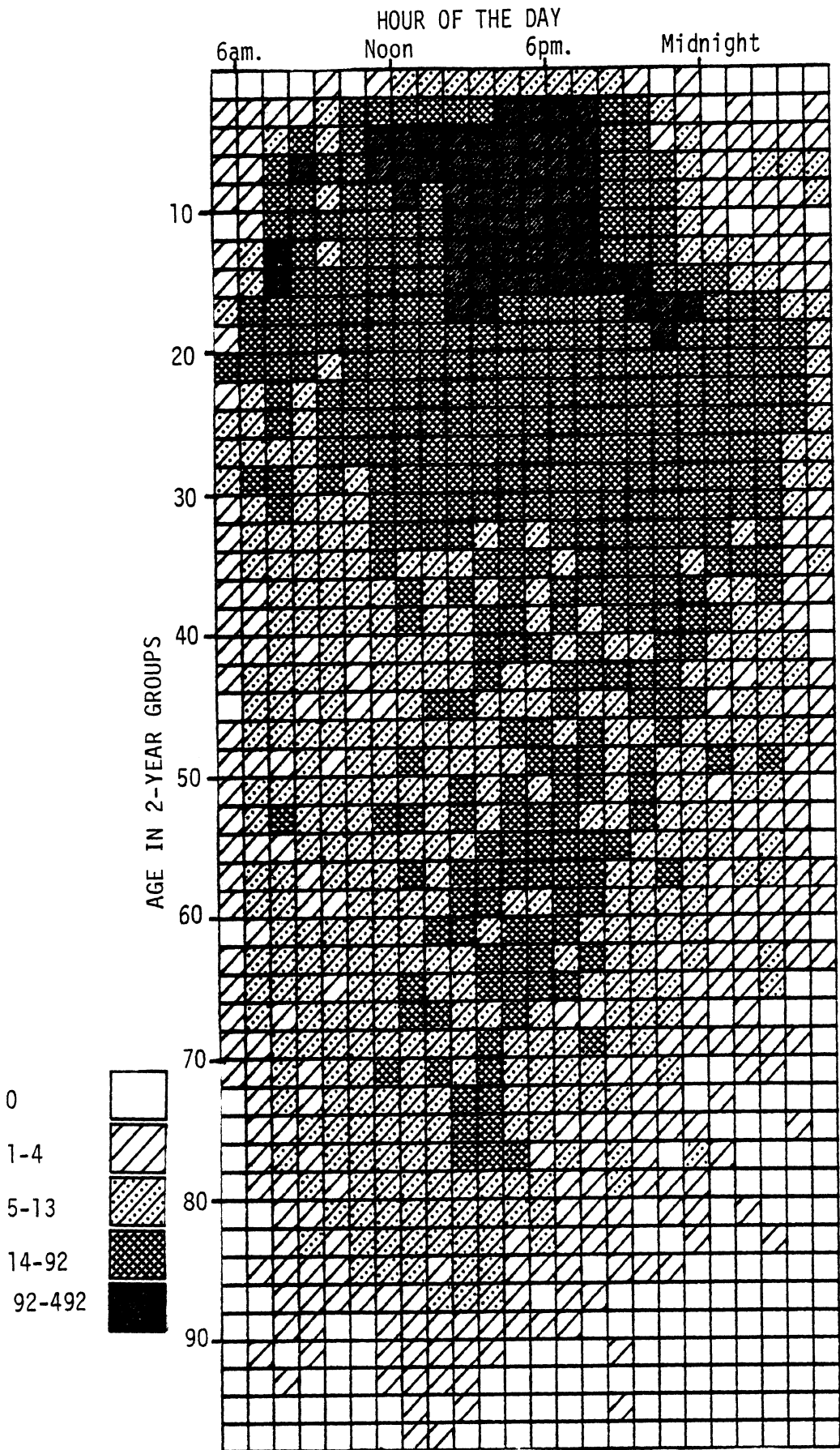


FIGURE 15
Michigan Non-fatal Pedestrian Accidents by Hour of Day and
Two-Year Age Group, 1976-1979

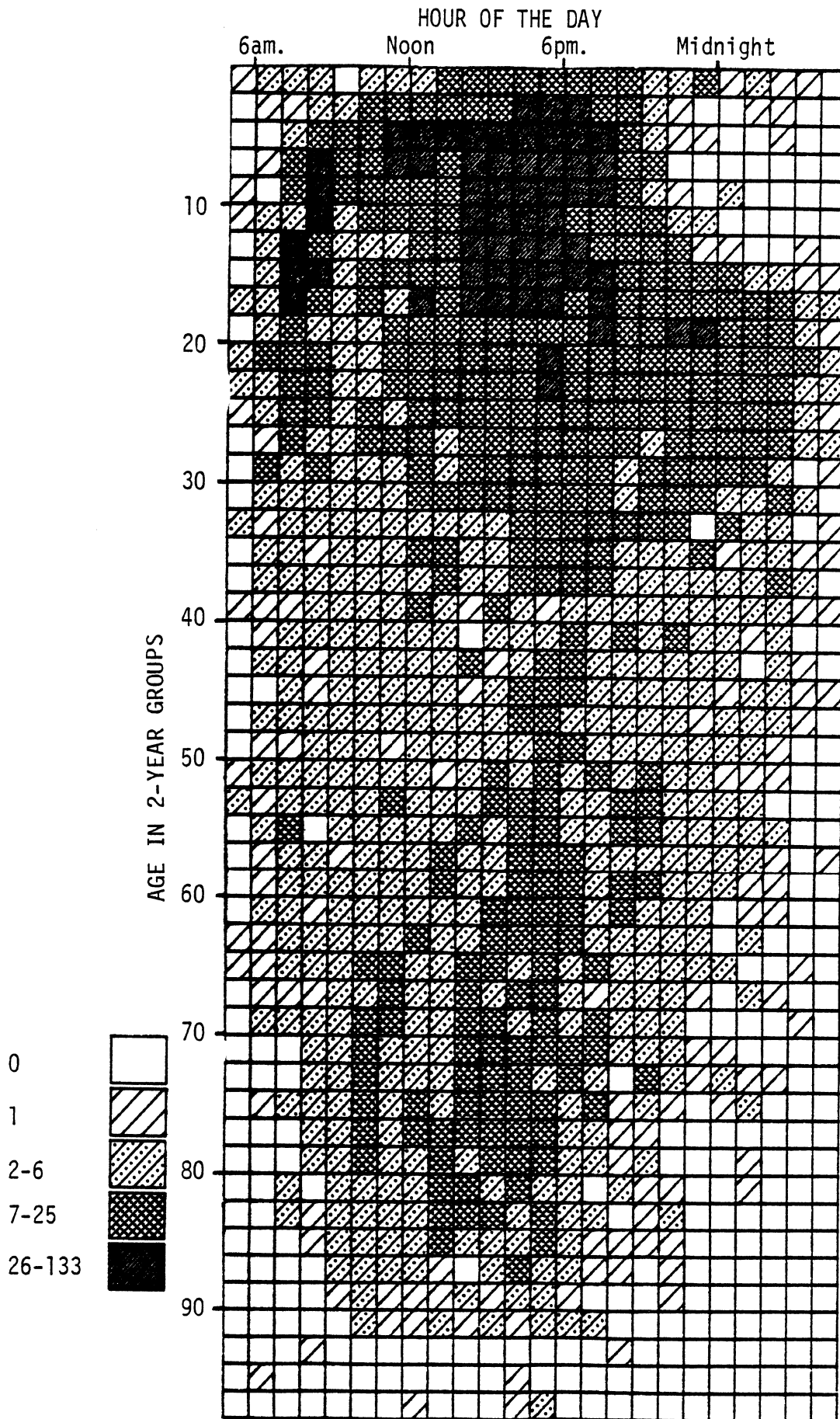


FIGURE 16
 Washington Non-fatal Pedestrian Accidents by Hour of Day and Two-Year Age Groups, 1974-78

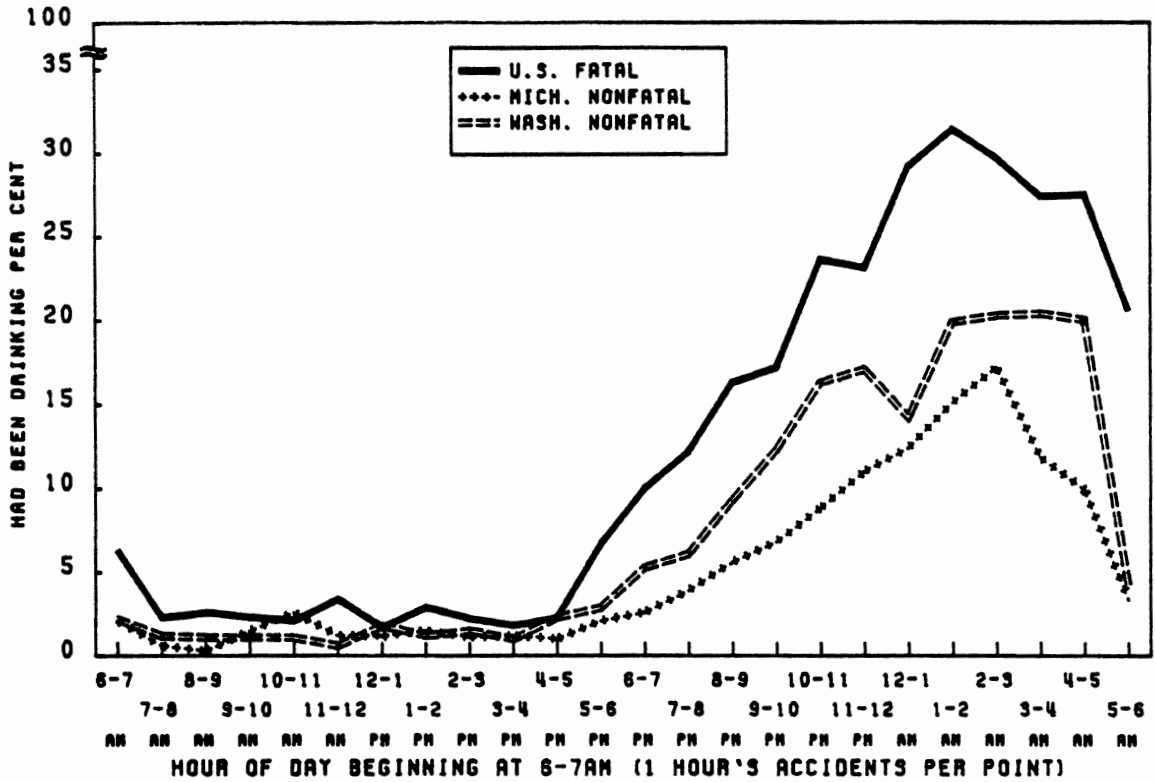


FIGURE 17
Pedestrian Drinking Percent by Hour of Day in Fatal and Non-fatal Pedestrian Accidents

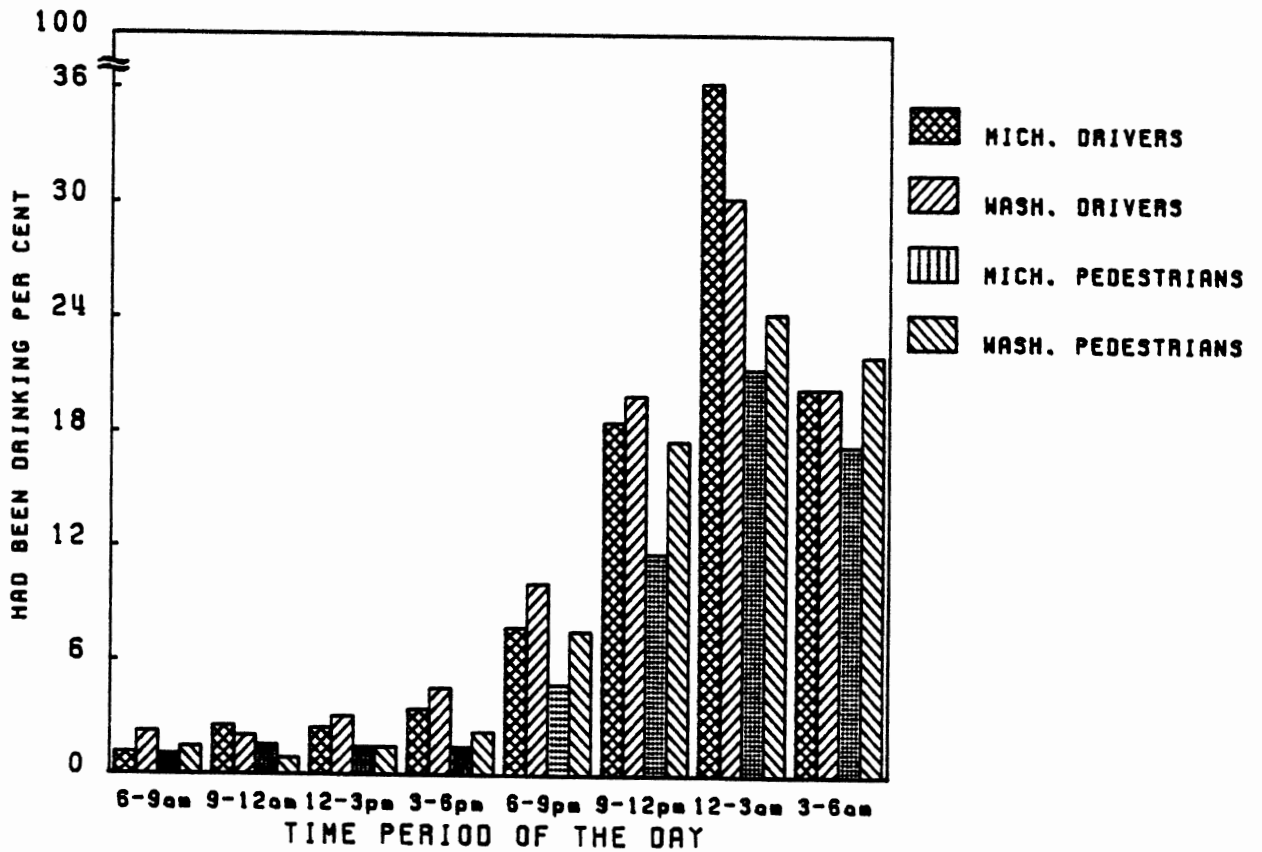
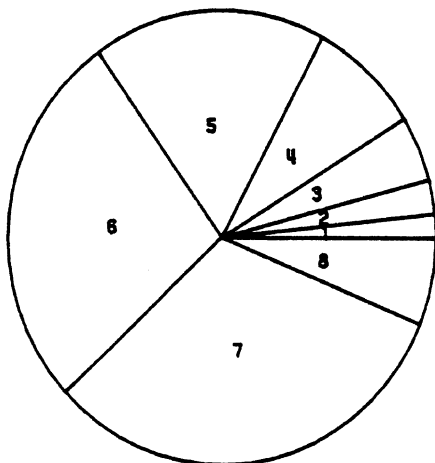


FIGURE 18
Drinking by Drivers and Pedestrians in Michigan and Washington Pedestrian Accidents, by Time of Day

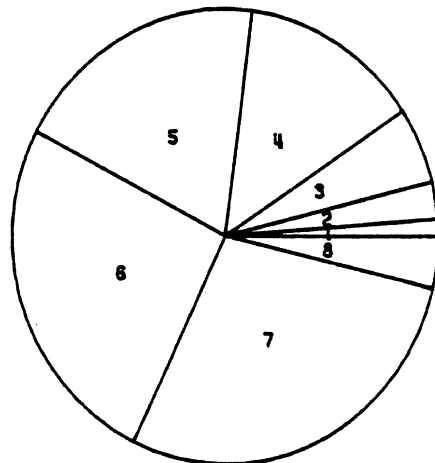
TABLE 13
 Drinking Involvement of Drivers and Pedestrians in All Michigan
 and Washington Pedestrian Accidents by Time of Day

Time Period	Michigan 1976-79		Washington 1974-78		
	Driver	Pedestrian	Driver	Pedestrian	
6-9 am.	Total N	1545	1964	800	800
	Drkg %	1.2	1.1	2.3	1.5
9-12 am.	Total N	1625	1962	821	821
	Drkg %	2.6	1.6	2.1	0.9
12-3 pm.	Total N	3489	4136	1566	1566
	Drkg %	2.5	1.5	3.1	1.5
3-6 pm.	Total N	6117	7100	2831	2831
	Drkg %	3.5	1.5	4.6	2.3
6-9 pm.	Total N	3916	4838	1600	1600
	Drkg %	7.8	4.8	10.1	7.6
9-12 pm.	Total N	2166	3024	971	971
	Drkg %	18.6	11.7	20.0	17.6
12-3 am.	Total N	1230	1945	534	534
	Drkg %	36.3	21.4	30.3	24.3
3-6 am.	Total N	284	465	113	113
	Drkg %	20.4	17.4	20.4	22.1
Total	N	20,372	25,434	9236	9236
	Drkg %	7.7	5.1	8.2	6.0

HIGH. DRIVER DRINKING
 PEDESTRIAN ACCIDENTS



HIGH. PEDESTRIAN DRINKING
 PEDESTRIAN ACCIDENTS



- 1 6-9AM
- 2 9-12AM
- 3 12-3PM
- 4 3-6PM
- 5 6-9PM
- 6 9-12PM
- 7 12-3AM
- 8 3-6AM

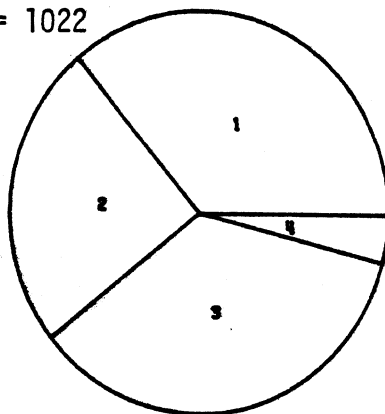
TABLE 14
 Drinking Involvement of Drivers and Pedestrians by Age Group and Period of the Day
 for All Michigan Pedestrian Accidents, 1976-1979, in Percent Judged to Have Been
 Drinking

Age Group	Time of Day										Total	
	12-3am.	3-6am.	6-9am.	9-12am.	12-3pm.	3-6pm.	6-9pm.	9-12pm.				
0-4	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
5-8	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.1	0.3	0	0	0	0	0.1
9-14	0	0	0	0	0	0	0	0	0	0	0	0
	4.4	4.3	0.2	0	0.1	0.2	0.1	0	0.8	0	0	0.2
15-24	45.3	25.5	0.6	2.0	1.3	2.6	6.4	16.6	16.6	6.4	16.6	8.0
	19.6	23.4	0.8	1.4	1.4	2.1	4.0	9.2	9.2	4.0	9.2	6.9
25-34	38.7	26.1	1.7	3.6	2.2	3.5	8.4	21.8	21.8	8.4	21.8	8.4
	21.9	16.5	6.0	4.6	4.0	3.3	7.1	16.5	16.5	7.1	16.5	10.5
35-44	42.2	22.5	0.9	5.0	3.5	3.9	12.8	30.7	30.7	12.8	30.7	10.2
	26.2	23.3	3.0	5.0	7.0	5.2	14.3	17.5	17.5	14.3	17.5	12.8
45-54	40.5	23.1	0.6	3.2	5.9	5.7	12.3	30.4	30.4	12.3	30.4	10.3
	30.8	18.4	2.6	3.5	6.8	6.9	18.5	21.1	21.1	18.5	21.1	13.9
55-64	28.6	0	3.2	2.7	4.6	5.9	7.9	13.9	13.9	7.9	13.9	6.8
	30.1	13.8	0	3.5	3.9	9.5	18.6	22.8	22.8	18.6	22.8	11.9
65-74	15.4	0	4.4	0.9	1.8	2.6	7.9	11.8	11.8	7.9	11.8	4.0
	33.3	10.0	0	1.4	0.5	6.1	10.3	17.1	17.1	10.3	17.1	5.8
75+	33.3	0	0.0	2.0	3.8	1.3	2.1	5.0	5.0	2.1	5.0	2.7
	11.1	0	0	0.7	1.0	2.2	6.7	12.5	12.5	6.7	12.5	2.6
Total	40.6	22.5	1.2	2.8	2.6	3.7	8.3	20.3	20.3	8.3	20.3	8.2
Total	21.5	17.9	1.2	1.7	1.5	1.6	4.8	11.8	11.8	4.8	11.8	5.2

TABLE 15
U.S. Pedestrian Fatalities by Age Group and Light Condition, 1975-1979

Age		Daylight	Dark	Dark but Lighted	Dawn or Dusk	Total
0-4	N %	1828 78.0	157 6.7	196 8.4	162 6.9	2343 6.3
5-8	N %	2587 80.5	215 6.7	228 7.1	182 5.7	3212 8.7
9-14	N %	1386 57.4	520 21.5	388 16.1	119 4.9	2413 6.5
15-24	N %	928 14.5	3573 55.9	1741 27.2	155 2.4	6397 17.3
25-34	N %	627 15.2	2225 53.9	1158 28.1	118 2.9	4128 11.1
35-44	N %	530 17.4	1503 49.4	921 30.3	88 2.9	3042 8.2
45-54	N %	739 20.4	1581 43.7	1180 32.6	120 3.3	3620 9.8
55-64	N %	961 26.0	1352 36.5	1233 33.3	154 4.2	3700 10.0
65-74	N %	1540 39.8	1089 28.1	1095 28.3	150 3.9	3874 10.5
75+	N %	2306 53.3	871 20.1	964 22.3	185 4.3	4326 11.7
Total	N %	13,432 36.2	13,086 35.3	9104 24.6	1433 3.9	37,055 100.0

Missing Data Cases = 1022



1 DAYLIGHT
2 DARK, LIGHTED
3 DARK, NOT LIGHTED
4 DAWN OR DUSK

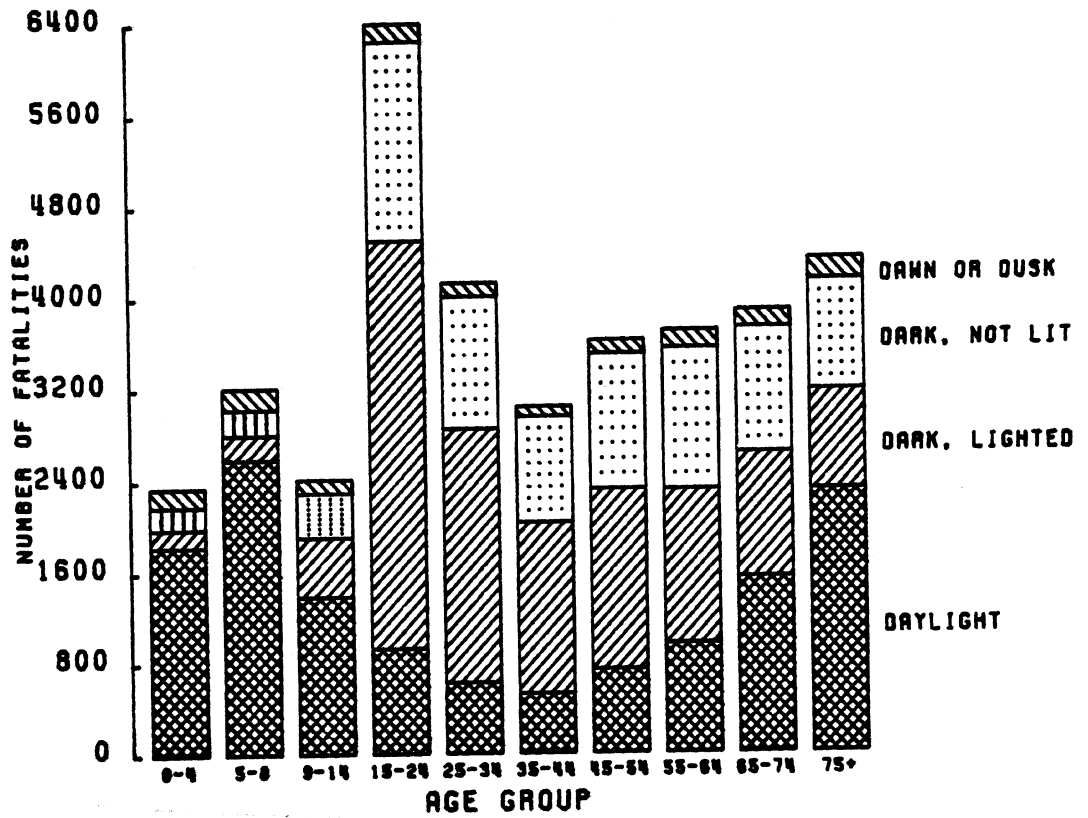


FIGURE 19
Light Condition for U.S. Fatalities, by Age Group, 1975-79

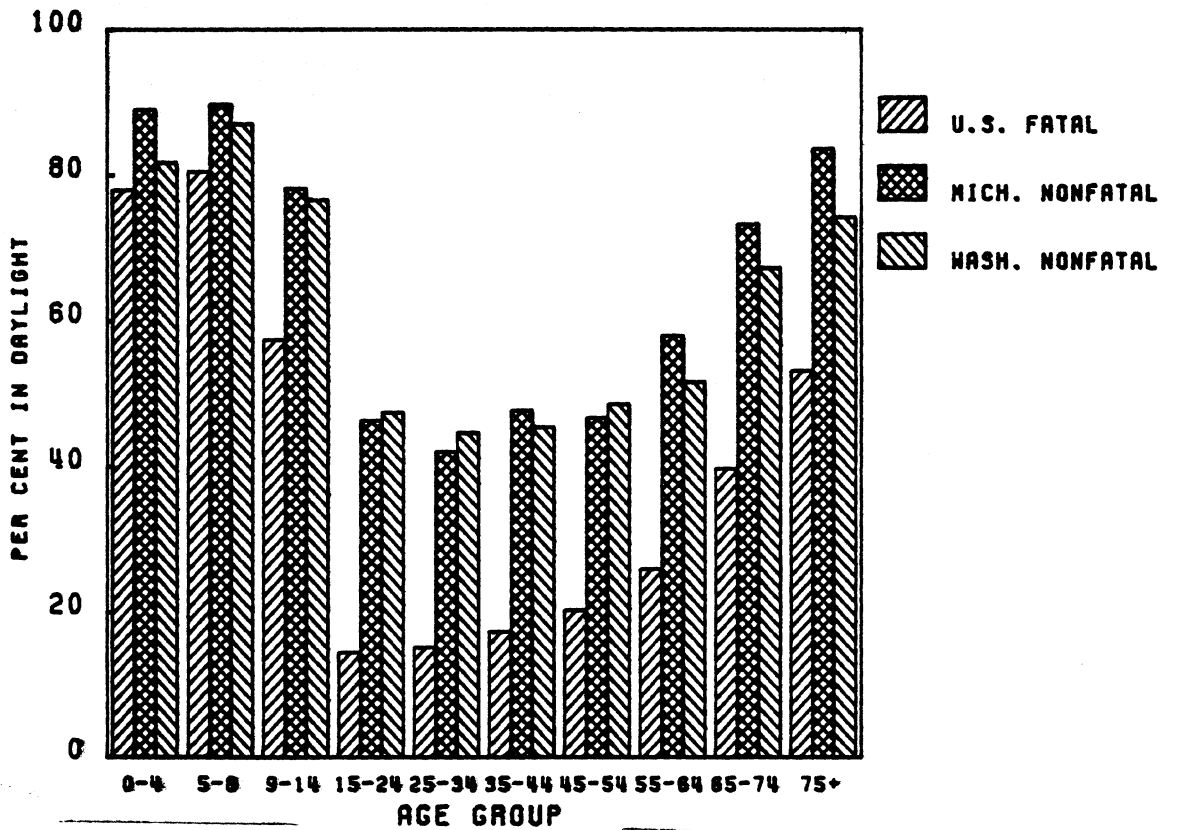


FIGURE 20
Daylight Percent of Pedestrian Fatalities and Non-fatalities, by Age Group

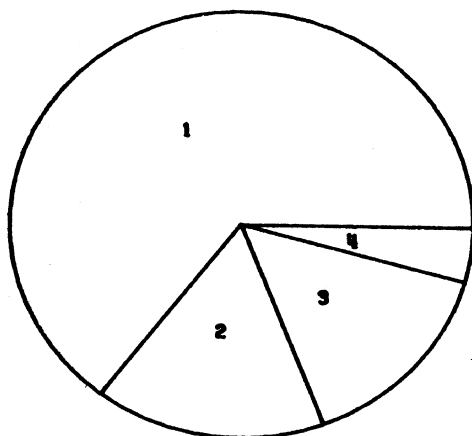
TABLE 16
Light Condition for Pedestrian Fatalities and Non-fatalities by Age Group

Age Group	1975-79 U.S. Fatal			1976-79 Mich. Non-fatal			1974-78 Wash. Non-fatal		
	N	Day %	Dark* %	N	Day %	Dark %	N	Day %	Dark %
0-4	2343	78.0	22.0	1662	89.0	11.0	602	81.7	18.3
5-8	3212	80.5	19.5	4123	89.7	10.3	1207	87.0	13.0
9-14	2413	57.4	42.6	4382	78.2	21.8	1276	76.6	23.4
15-24	6397	14.5	85.5	5691	46.4	53.6	1692	47.5	52.5
25-34	4128	15.2	84.8	2647	42.1	57.9	836	44.7	55.3
35-44	3042	17.4	82.6	1269	47.8	52.2	442	45.5	54.5
45-54	3620	20.4	79.6	1170	46.8	53.2	466	48.7	51.3
55-64	3700	26.0	74.0	1027	58.0	42.0	501	51.7	48.3
65-74	3874	39.8	60.2	765	73.3	26.7	492	67.3	32.7
75+	4326	53.3	46.7	501	83.6	16.4	479	74.3	25.7
Total	37,055	36.2	63.8	23,335	65.0	35.0	7993	63.4	36.6
Missing	1022	-	-	776	-	-	727	-	-

*"Dark" includes both lighted and unlighted darkness and also dawn and dusk.

NICH. PED. ACCIDENTS

WASH. PED. ACCIDENTS



1 DAYLIGHT
2 DARK, LIGHTED
3 DARK, NOT LIGHTED
4 DAWN OR DUSK

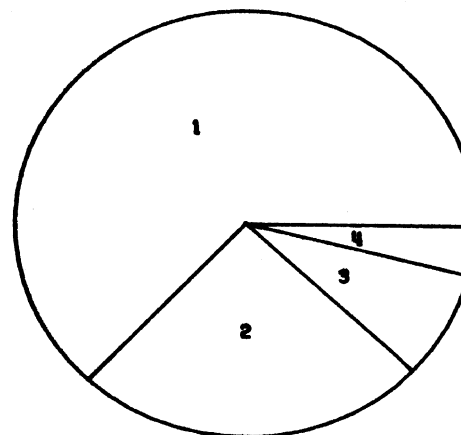
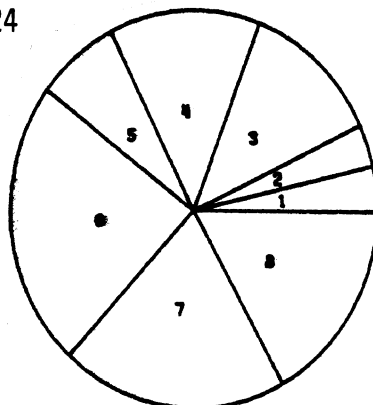


TABLE 17
 U.S. Pedestrian Fatalities by Age Group, Time, and Light Condition,
 1975-1979

Age		5-9am. Light	5-9am. Dark	9am.- 2pm. Light	2-5pm. Light	5-9pm. Light	5-9pm. Dark	9-12pm. Dark	12m- 5am. Dark	Total
0-4	N %	44 1.9	4 0.2	557 23.7	619 26.4	616 26.2	367 15.6	127 5.4	15 0.6	2349 6.3
5-8	N %	222 6.9	23 0.7	545 16.9	1186 36.8	650 20.2	447 13.9	144 4.5	6 0.2	3223 8.7
9-14	N %	166 6.9	39 1.6	279 11.5	666 27.5	289 11.9	604 24.9	328 13.5	51 2.1	2422 6.5
15-24	N %	126 2.0	267 4.2	256 4.0	334 5.2	211 3.3	1055 16.4	1863 29.0	2316 36.0	6428 17.3
25-34	N %	87 2.1	187 4.5	235 5.7	199 4.8	107 2.6	743 18.0	1098 26.5	1482 35.8	4138 11.1
35-44	N %	81 2.7	127 4.2	191 6.3	171 5.6	93 3.0	688 22.5	881 28.8	823 26.9	3055 8.2
45-54	N %	114 3.1	162 4.5	281 7.8	237 6.5	120 3.3	1020 28.1	1019 28.1	672 18.5	3625 9.8
55-64	N %	132 3.6	169 4.6	407 11.0	281 7.6	152 4.1	1245 33.6	872 23.6	443 12.0	3701 10.0
65-74	N %	169 4.4	120 3.1	677 17.5	496 12.8	223 5.8	1279 33.0	640 16.5	271 7.0	3875 10.4
75+	N %	251 5.8	169 3.9	1102 25.4	750 17.3	241 5.6	1252 28.9	413 9.5	159 3.7	4337 11.7
Total	N %	1392 3.7	1267 3.4	4530 12.2	4939 13.3	2702 7.3	8700 23.4	7385 19.9	6238 16.8	37,153 100.

Missing Data Cases = 924

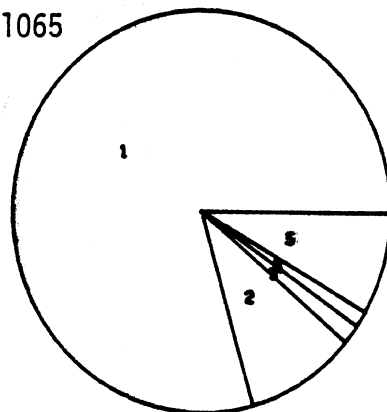


- 1 5-9AM. LIGHT
- 2 5-9AM. DARK
- 3 9AM-2PM. LIGHT
- 4 2-5PM. LIGHT
- 5 5-9PM. LIGHT
- 6 5-9PM. DARK
- 7 9-12PM. DARK
- 8 12-5AM. DARK

TABLE 18
U.S. Pedestrian Fatalities by Age Group and Weather Conditions,
1975-1979

Age		Clear	Rain	Sleet	Snow	Fog, Smoke, etc.	Cloudy	Total
0-4	N %	2114 90.6	60 2.6	0	9 0.4	2 0.1	148 6.3	2333 6.3
5-8	N %	2774 86.7	134 4.2	3 0.1	34 1.1	10 0.3	244 7.6	3199 8.6
9-14	N %	2011 83.2	160 6.6	2 0.1	42 1.7	12 0.5	189 7.8	2416 6.5
15-24	N %	5020 78.4	569 8.9	14 0.2	75 1.2	160 2.5	564 8.8	6402 17.3
25-34	N %	3175 77.0	421 10.2	6 0.1	66 1.6	82 2.0	373 9.0	4123 11.1
35-44	N %	2382 78.0	312 10.2	7 0.2	39 1.3	54 1.8	258 8.5	3052 8.2
45-54	N %	2793 77.3	394 10.9	4 0.1	60 1.7	50 1.4	312 8.6	3613 9.8
55-64	N %	2827 76.7	457 12.4	9 0.2	47 1.3	40 1.1	307 8.3	3687 10.0
65-74	N %	3042 78.7	429 11.1	6 0.2	55 1.4	35 0.9	300 7.8	3867 10.4
75+	N %	3326 77.0	529 12.2	6 0.1	78 1.8	37 0.9	344 8.0	4320 11.7
Total	N %	29,464 79.6	3465 9.4	57 0.2	505 1.4	482 1.3	3039 8.2	37,012 100.0

Missing Data Cases = 1065

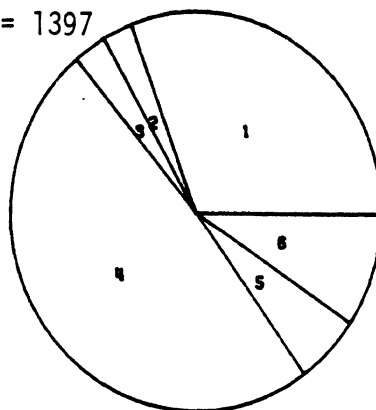


- 1 CLEAR
- 2 RAINY
- 3 SNOW OR SLEET
- 4 FOGGY ETC.
- 5 CLOUDY

TABLE 19
 U.S. Pedestrian Fatalities by Age Group, Weather, and Light Conditions
 1975-1979

Age		Clear Light	Cloudy Light	Rainy/Snowy Light	Clear Dark	Cloudy Dark	Rainy/Snowy Dark	Total
0-4	N %	1654 71.4	109 4.7	44 1.9	444 19.2	39 1.7	27 1.2	2317 6.3
5-8	N %	2231 70.2	196 6.2	132 4.2	524 16.5	48 1.5	49 1.5	3180 8.7
9-14	N %	1173 49.1	103 4.3	97 4.1	813 34.0	86 3.6	116 4.9	2388 6.5
15-24	N %	766 12.1	83 1.3	73 1.2	4199 66.3	478 7.6	730 11.5	6329 17.3
25-34	N %	524 12.8	33 0.8	64 1.6	2627 64.2	340 8.3	505 12.3	4093 11.2
35-44	N %	441 14.6	31 1.0	50 1.7	1911 63.4	225 7.5	356 11.8	3014 8.2
45-54	N %	601 16.8	54 1.5	72 2.0	2168 60.6	258 7.2	426 11.9	3579 9.8
55-64	N %	787 21.5	69 1.9	96 2.6	2015 55.1	238 6.5	451 12.3	3656 10.0
65-74	N %	1271 33.1	100 2.6	156 4.1	1748 45.5	200 5.2	364 9.5	3839 10.5
75+	N %	1859 43.4	158 3.7	263 6.1	1441 33.6	185 4.3	379 8.8	4285 11.7
Total	N %	11,307 30.8	936 2.6	1047 2.9	17,890 48.8	2097 5.7	3403 9.3	36,680 100.

Missing Data Cases = 1397



- 1 CLEAR, LIGHT
- 2 CLOUDY, LIGHT
- 3 RAINY ETC., LIGHT
- 4 CLEAR, DARK
- 5 CLOUDY, DARK
- 6 RAINY ETC., DARK

TABLE 20
 U.S. Pedestrian Fatalities by Age Group and Urbanicity,
 and by Age Group and Road Type, 1975-1979

Age	Urbanicity			Road Type					
	Urban	Rural	Total	Limited Access	Major Road	County Road	Local Road	Total	
0-4	N %	1546 66.0	796 34.0	2342 6.3	16 0.7	521 22.2	365 15.6	1442 61.5	2344 6.3
5-8	N %	1929 60.4	1266 39.6	3195 8.6	35 1.1	1020 31.7	509 15.8	1654 51.4	3218 8.7
9-14	N %	1359 56.4	1049 43.6	2408 6.5	74 3.1	1011 41.8	405 16.7	929 38.4	2419 6.5
15-24	N %	3316 51.6	3105 48.4	6421 17.3	911 14.2	3206 49.9	831 12.9	1476 23.0	6424 17.3
25-34	N %	2231 54.0	1902 46.0	4133 11.1	657 15.9	2072 50.2	395 9.6	1005 24.3	4129 11.1
35-44	N %	1763 57.5	1302 42.5	3065 8.3	402 13.1	1488 48.6	308 10.1	866 28.3	3064 8.2
45-54	N %	2323 64.0	1307 36.0	3630 9.8	353 9.7	1718 47.3	325 9.0	1233 34.0	3629 9.8
55-64	N %	2491 67.3	1212 32.7	3703 10.0	218 5.9	1798 48.6	351 9.5	1334 36.0	3701 10.0
65-74	N %	2755 71.2	1113 28.8	3868 10.4	172 4.4	1762 45.4	343 8.8	1606 41.4	3883 10.5
75+	N %	3232 74.5	1106 25.5	4338 11.7	108 2.5	1864 45.4	383 8.8	1981 45.7	4336 11.7
Total	N %	22,945 61.8	14,158 38.2	37,103 100.	2946 7.9	16,460 44.3	4215 11.3	13,526 36.4	37,147 100.

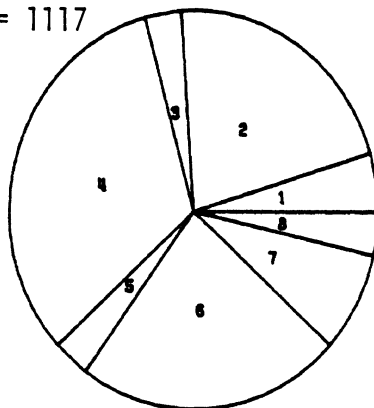
Missing Data Cases = 974

Missing Data Cases = 930

TABLE 21
U.S. Pedestrian Fatalities by Age Group and Urban/Rural Road Types,
1975-1979

Age		Urban Limited Access	Urban Major Road	Urban County Road	Urban Local Street	Rural Limited Access	Rural Major Road	Rural County Road	Rural Local Road	Total
0-4	N	9	196	67	1267	7	325	298	162	2331
	%	0.4	8.4	2.9	54.4	0.3	13.9	12.8	6.9	6.3
5-8	N	23	358	118	1422	12	662	391	199	3185
	%	0.7	11.2	3.7	44.6	0.4	20.8	12.3	6.2	8.6
9-14	N	54	425	87	783	20	586	316	127	2398
	%	2.3	17.7	3.6	32.7	0.8	24.4	13.2	5.3	6.5
15-24	N	548	1349	189	1224	362	1853	640	237	6402
	%	8.6	21.1	3.0	19.1	5.7	28.9	10.0	3.7	17.3
25-34	N	364	868	105	888	293	1203	289	109	4119
	%	8.8	21.1	2.5	21.6	7.1	29.2	7.0	2.6	11.1
35-44	N	242	647	83	784	160	839	225	75	3055
	%	7.9	21.2	2.7	25.7	5.2	27.5	7.4	2.5	8.3
45-54	N	195	883	111	1124	158	835	213	94	3613
	%	5.4	24.4	3.1	31.1	4.4	23.1	5.9	2.6	9.8
55-64	N	138	992	120	1228	79	805	231	91	3684
	%	3.7	26.9	3.3	33.3	2.1	21.9	6.3	2.5	10.0
65-74	N	106	1020	148	1472	65	741	195	109	3856
	%	2.7	26.5	3.8	38.2	1.7	19.2	5.1	2.8	10.4
75+	N	69	1154	154	1843	39	708	227	123	4317
	%	1.6	26.7	3.6	42.7	0.9	16.4	5.3	2.8	11.7
Total	N	1748	7892	1182	12,035	1195	8557	3025	1326	39,960
	%	4.7	21.4	3.2	32.6	3.2	23.2	8.2	3.6	100.0

Missing Data Cases = 1117



- 1 URBAN LIMITED ROAD
- 2 URBAN MAJOR ROAD
- 3 URBAN COUNTY ROAD
- 4 URBAN LOCAL ROAD
- 5 RURAL LIMITED ROAD
- 6 RURAL MAJOR ROAD
- 7 RURAL COUNTY ROAD
- 8 RURAL LOCAL ROAD

TABLE 22
Road Type and Urbanicity for Pedestrian Fatalities and Non-fatalities

	1977-79 U.S. Fatal		1976-79 Mich. Non-fatal		1974-78 Wash. Non-fatal		
	N	%	N	%	N	%	
Urban	Limited Access Other Major Local	1748 7892 13,217	4.7 21.4 35.8	321 3286 14,492	1.3 13.6 60.1	145 1121 6418	1.7 12.9 73.7
Rural	Limited Access Other Major Local	1195 8557 4351	3.2 23.2 11.8	178 1644 4190	0.7 6.8 17.4	65 346 612	0.7 4.0 7.0
Total	Limited Access Other Major Local	2946 16,460 17,741	7.9 44.3 47.8	499 4930 18,682	2.1 20.4 77.5	210 1467 7030	2.4 16.8 80.7
Total Urban		22,945	61.8	18,099	75.1	7695	88.2
Total Rural		14,158	38.2	6012	24.9	1025	11.8
Missing		974		0		13	

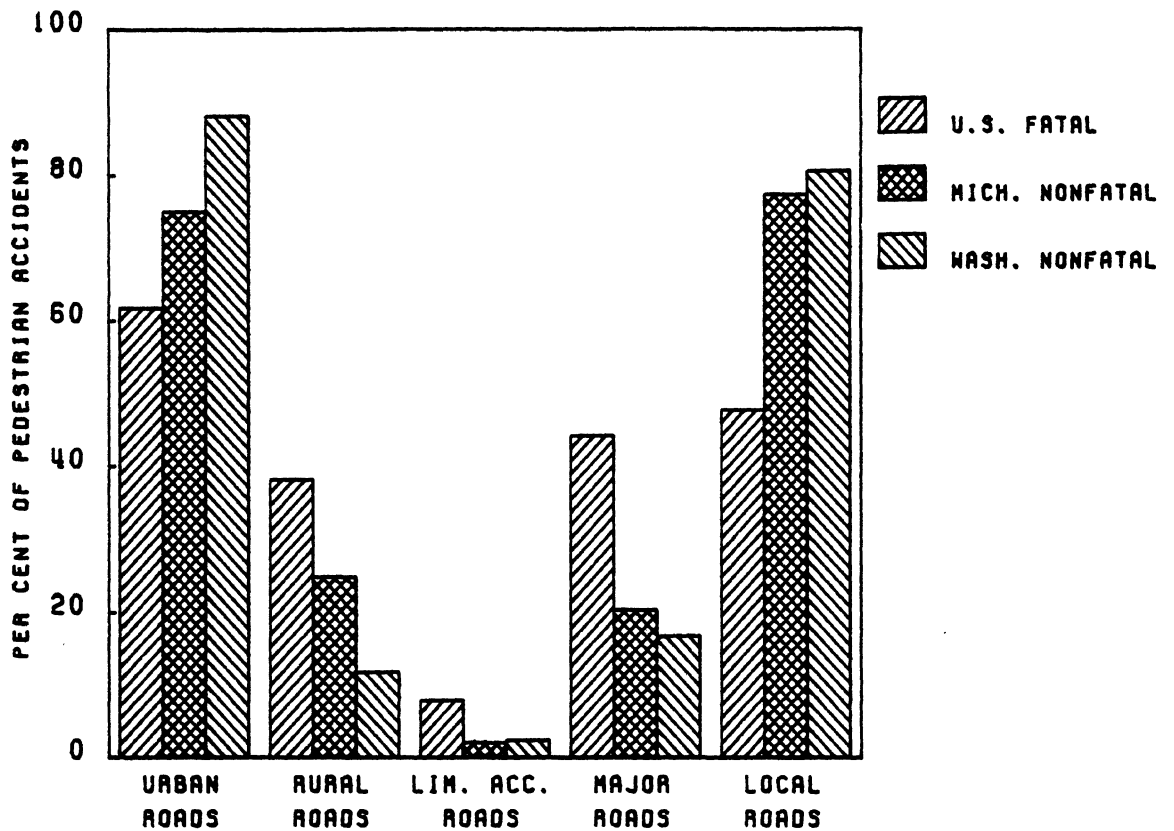


FIGURE 21
Type of Area and Road Type for Fatal and Non-fatal Pedestrian Accidents

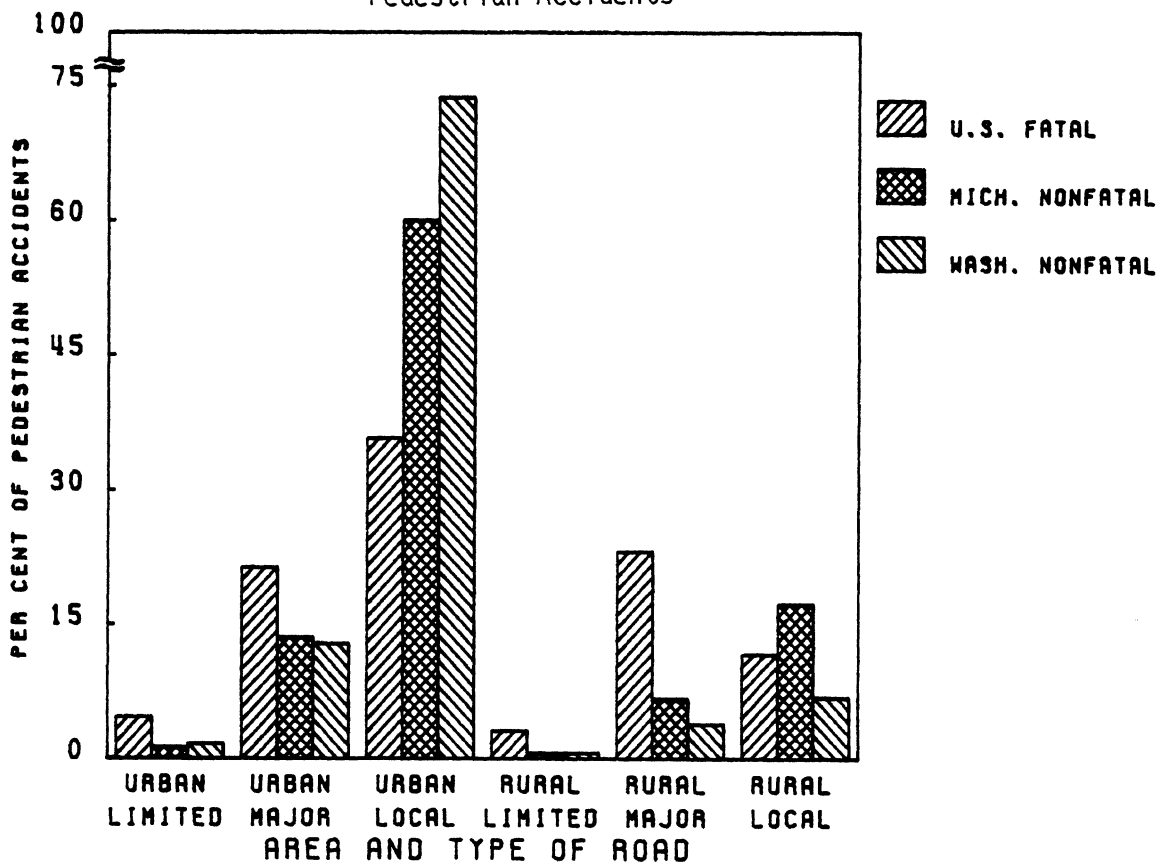
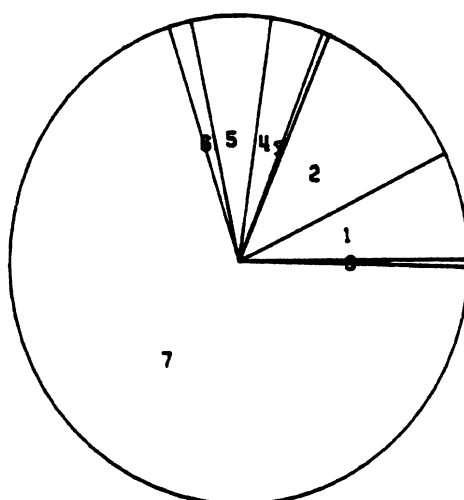


FIGURE 22
Urban/Rural Road Type for Fatal and Non-fatal Pedestrian Accidents

TABLE 23
U.S. Pedestrian Fatalities by Age Group and Roadway Location, 1975-79

Age	N %	Intersection			Non-intersection					Total
		Crosswalk, Sidewalk, Median, Island	On Roadway	Not Known Where	Crosswalk, Sidewalk, Median, Island	Road Shoulder Bike Path	Outside Traffic Way	On Roadway	Not Known Where	
0-4	N %	56 2.4	173 7.4	5 0.2	105 4.5	62 2.6	46 2.0	1886 80.4	12 0.5	2345 6.3
5-8	N %	128 4.0	378 11.7	15 0.5	109 3.4	76 2.4	47 2.0	2456 76.3	10 0.3	3219 8.7
9-14	N %	127 5.2	264 10.9	13 0.5	114 4.7	150 6.2	49 2.0	1707 70.2	9 0.4	2433 6.5
15-24	N %	181 2.8	442 6.9	21 0.3	142 2.2	685 10.7	100 1.6	4807 74.8	50 0.8	6428 17.3
25-34	N %	136 3.3	296 7.2	12 0.3	108 2.6	347 8.4	76 1.8	3121 75.7	29 0.7	4125 11.1
35-44	N %	158 5.2	246 8.0	12 0.4	109 3.6	219 7.2	59 1.9	2234 73.1	20 0.7	3057 8.2
45-54	N %	281 7.8	407 11.2	23 0.6	129 3.6	188 7.2	52 1.0	2527 69.7	17 0.5	3624 9.8
55-64	N %	344 9.3	509 13.7	20 0.5	176 4.7	149 4.0	53 1.4	2435 65.6	24 0.6	3710 10.0
65-74	N %	518 13.4	639 16.5	31 0.8	172 4.4	117 3.0	59 1.5	2326 60.0	17 0.4	3879 10.0
75+	N %	708 16.3	845 19.5	33 0.8	207 4.8	77 1.8	45 1.0	2406 55.5	15 0.3	4336 11.7
Total	N %	2637 7.1	4199 11.3	185 0.5	1371 3.7	2070 5.6	586 1.6	25,905 69.7	203 0.5	37,156 100.0

Missing Data Cases = 921



- 1 INTER., CROSSWALK
- 2 INTER., ON ROADWAY
- 3 INTER., N.K.WHERE
- 4 NON-I., CROSSWALK
- 5 NON-INT., SHOULDER
- 6 NON-I., OUTSIDE WAY
- 7 NON-INT., ON ROADWAY
- 8 NON-INT., N.K.WHERE

TABLE 24
Accident Location Relative to the Roadway for Pedestrian Fatalities and Non-fatalities

	1975-79 U.S. Fatal		1976-79 Mich. Non-fatal*		1974-78 Wash. Non-fatal		
	N	%	N	%	N	%	
Intersection	Crosswalk, Sidewalk	2637	7.1	-	-	2398	35.1
	On Roadway	4199	11.3	-	-	490	7.2
	Not Known	185	0.5	-	-	-	-
Non-Intersection	Crosswalk, Sidewalk	1371	3.7	-	-	282	4.1
	Shoulder, Bike Path	2070	5.6	-	-	414	6.1
	Outside Traffic-way	586	1.6	-	-	99	1.4
	On Roadway	25,905	69.7	-	-	3151	46.1
	Not Known	203	0.5	-	-	-	-
Total	Intersection	7021	18.9	6680	27.0	2888	42.3
Total	Non-intersection	30,135	81.1	17,431	73.0	3946	57.7
Total		37,156	100.0	24,111	100.0	6834	100.0
Missing		921	-	0	-	1886	-

*Michigan pedestrian accident data do not contain detailed roadway location information.

TABLE 25
 U.S. Pedestrian Fatalities by Age Group and Intersection or Not,
 and by Age Group and Intersection or Not by Number of Motor
 Vehicles Involved in the Accident, 1975-1979

Age		Inter- section	Non-inter- section	Total	Single Vehicle		Multi Vehicle	
					Inter- section	Non-inter- section	Inter- section	Non-inter- section
0-4	N %	234 10.0	2111 90.0	2345 6.3	175 9.9	1594 90.1	6 26.1	17 73.9
5-8	N %	521 16.2	2698 83.8	3219 8.7	390 15.8	2083 84.2	12 27.9	31 72.1
9-14	N %	404 16.6	2029 83.4	2433 6.5	285 15.8	1514 84.2	15 25.4	44 74.6
15-24	N %	644 10.0	5784 90.0	6428 17.3	475 9.8	4351 90.2	51 11.9	378 88.1
25-34	N %	444 10.8	3681 89.2	4125 11.1	336 10.6	2848 89.4	32 12.7	220 87.3
35-44	N %	416 13.6	2641 86.4	3057 8.2	304 13.4	1968 86.6	22 12.8	150 87.2
45-54	N %	711 19.6	2913 80.4	3624 9.8	502 18.6	2196 81.4	36 19.9	145 80.1
55-64	N %	873 23.5	2837 76.5	3710 10.0	660 23.6	2140 76.4	38 22.6	130 77.4
65-74	N %	1188 30.6	2691 69.4	3879 10.4	861 29.7	2036 70.3	47 33.8	92 66.2
75+	N %	1586 36.6	2750 63.4	4336 11.7	1187 36.0	2106 64.0	46 43.8	59 56.2
Total	N %	7021 18.9	30,135 81.1	37,156 100.	5175 18.5	22,836 81.5	305 19.4	1266 80.6

Missing Data Cases = 921

NOTE: 94.7% of the fatalities involve only one vehicle.

TABLE 26
Accident Location (Intersection or Not) for Pedestrian
Fatalities and Non-fatalities by Age Group

Age Group	1975-79 U.S. Fatal		1976-79 Mich. Non-fatal		1974-78 Wash. Non-fatal	
	N	Intersection %	N	Intersection %	N	Intersection %
0-4	2345	10.0	1665	13.3	414	22.0
5-8	3219	16.2	4135	23.4	942	29.4
9-14	2433	16.6	4394	29.7	1022	35.6
15-24	6428	10.0	5705	25.2	1340	36.5
25-34	4125	10.8	2654	27.5	675	42.1
35-44	3057	13.6	1272	31.8	339	38.3
45-54	3624	19.6	1174	33.0	355	55.8
55-64	3710	23.5	1028	38.0	406	56.9
65-74	3879	30.6	769	43.4	395	70.4
75+	4336	36.6	600	44.7	387	70.5
Total	37,156	18.9	23,396	27.6	6275	41.7
Missing	921	-	715	-	2445	-

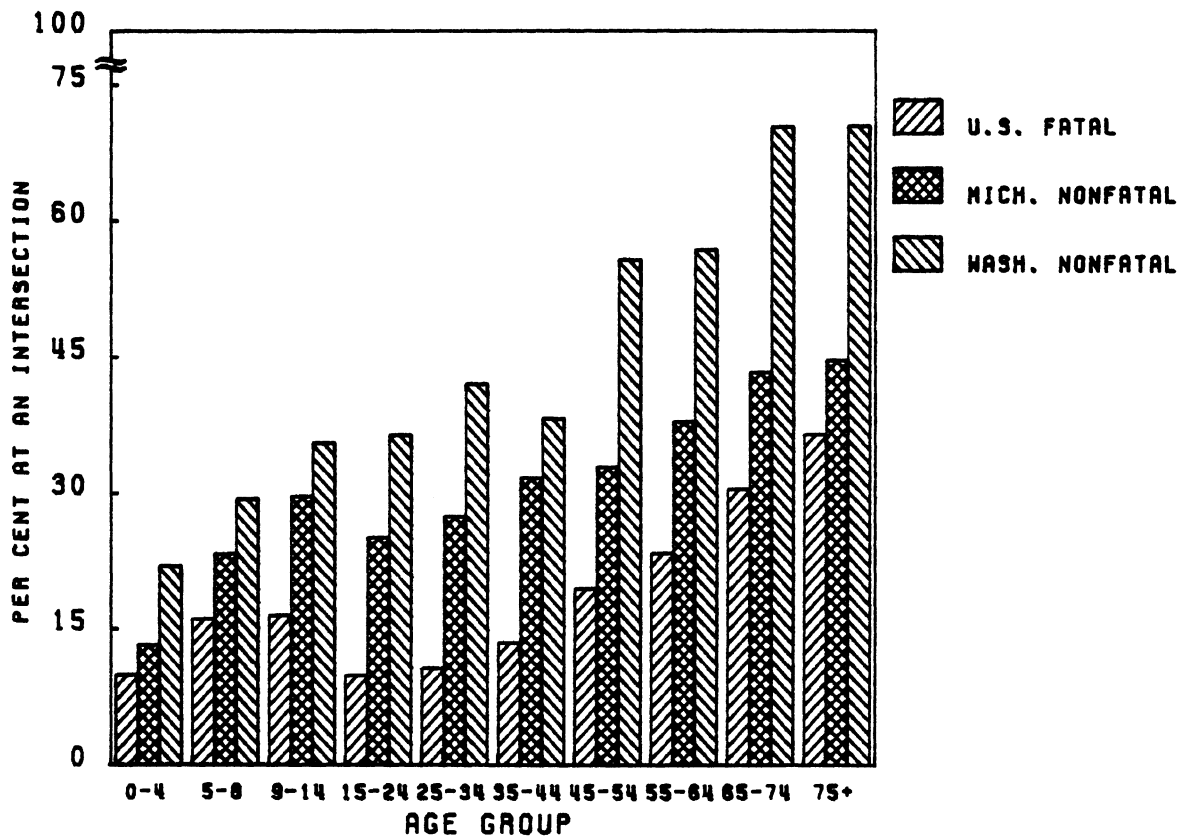
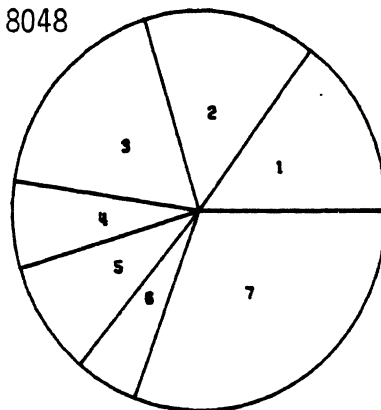


FIGURE 23
Intersection Percent of Fatal and Non-fatal Pedestrian
Accidents, by Age Group

TABLE 27
U.S. Pedestrian Fatalities by Age Group and Speed Limit of Road,
1975-1979

Age	Speed Limit in Miles Per Hour							
	5-25	30	35	40	45	50	55	Total
0-4	N 647 35.3	401 21.9	309 16.9	56 3.1	93 5.1	40 2.2	287 15.7	1833 6.1
5-8	N 640 25.1	463 18.1	512 20.1	131 5.1	184 7.2	81 3.2	540 21.2	2551 8.5
9-14	N 289 15.3	276 14.6	330 17.5	148 7.9	210 11.1	105 5.6	526 27.9	1884 6.2
15-24	N 369 7.0	415 7.8	669 12.6	400 7.5	575 10.8	399 7.5	2480 46.7	5307 17.7
25-34	N 243 6.9	314 8.9	507 14.4	228 6.5	327 9.3	249 7.1	1646 46.8	3514 11.7
35-44	N 218 8.6	297 11.7	395 15.5	186 7.3	274 10.8	178 7.0	995 39.1	2543 8.5
45-54	N 379 12.5	379 12.5	579 19.2	249 8.2	303 10.0	171 5.7	960 31.8	3020 10.1
55-64	N 418 14.0	521 17.5	622 20.8	260 8.7	306 10.3	161 5.4	697 23.4	2985 9.9
65-74	N 526 17.2	609 19.9	675 22.0	241 7.9	279 9.1	123 4.0	614 20.0	3067 10.2
75+	N 707 21.3	785 23.6	773 23.2	248 7.5	230 6.9	102 3.1	480 14.4	3325 11.1
Total	N 4436 14.8	4460 14.9	5371 17.9	2147 7.1	2781 9.3	1609 5.4	9225 30.7	30,029 100.0

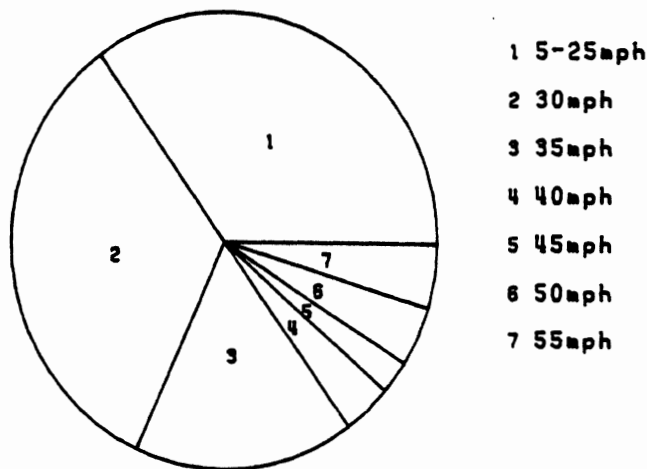
Missing Data Cases = 8048



- 1 5-25mph
- 2 30mph
- 3 35mph
- 4 40mph
- 5 45mph
- 6 50mph
- 7 55mph

TABLE 28
 Speed Limit of Road and Severity of Pedestrian Injury
 in Washington Pedestrian Accidents, 1974-78

Speed Limit	Injury Severity				Total
	Fatal	Disabling	Non-Disabling	Possible	
5-25	N 67	648	781	451	1947
	% 3.4	33.3	40.1	23.2	35.0
30	N 73	692	687	411	1863
	% 3.9	37.1	36.9	22.1	33.4
35	N 73	412	296	147	928
	% 7.9	44.4	31.9	15.8	16.7
40	N 25	94	66	22	207
	% 6.8	45.4	31.9	10.6	3.7
45	N 20	65	33	16	134
	% 14.9	48.5	24.6	11.9	2.4
50	N 50	102	65	23	240
	% 20.8	42.5	27.1	9.6	4.3
55	N 58	109	65	19	251
	% 23.1	43.4	25.9	7.6	4.5
Total	N 366	2122	1993	1088	5570
Total	% 6.6	38.1	35.8	19.5	100.0
Missing		149	999	1523	3665



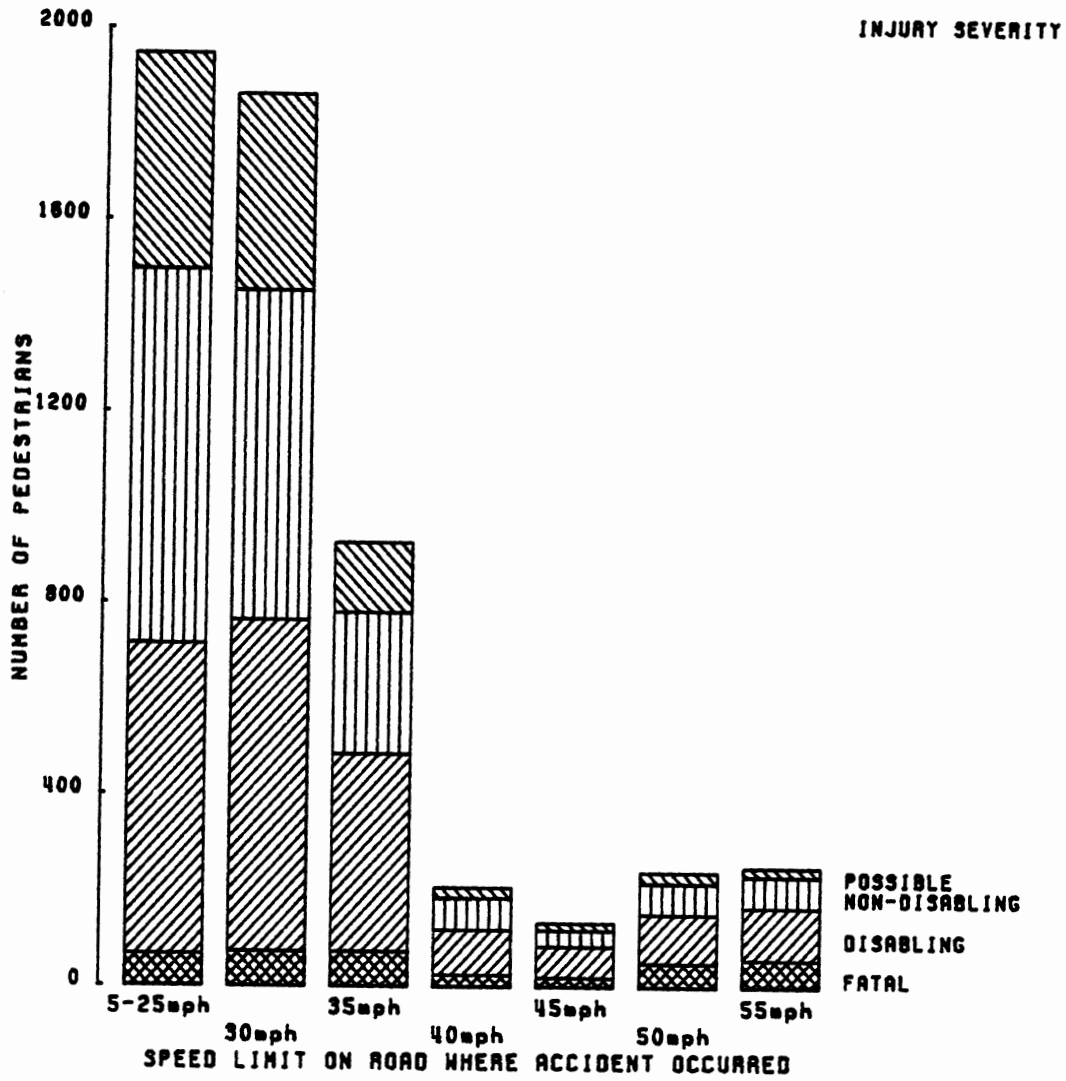


FIGURE 24
 Severity of Injury by Speed Limit in Washington
 Pedestrian Accidents, 1974-78

TABLE 29
U.S. Pedestrian Fatalities by Age Group and First Contributing Factor in the Accident, 1975-79

Age	Physical Impairment	Not Visible	Darting/Running in Road	Improper Crossing	Playing, Working, in Road	Interfering w/Driver	Failure to Yield or Obey Devices	Other Improper Vehicle Operation	Total
0-4	N 47 2.6	387 21.2	766 41.9	453 24.8	161 8.8	2 0.1	9 0.5	3 0.2	1878 7.6
5-8	N 37 1.5	527 21.2	1086 43.7	682 2.7.5	120 4.8	0	25 1.0	6 0.2	2483 10.2
9-14	N 28 1.7	259 15.6	614 36.9	573 34.5	160 9.6	0	25 1.5	4 0.2	1663 6.9
15-24	N 189 4.7	453 11.3	869 21.7	1628 40.7	800 20.0	3 0.1	44 1.1	16 0.4	4002 16.6
25-34	N 139 5.3	256 9.8	566 21.8	1127 43.4	470 18.1	3 0.1	26 1.0	12 0.5	2599 10.8
35-44	N 79 4.1	182 9.5	444 23.3	852 44.6	309 16.2	3 0.2	28 1.5	12 0.6	1909 7.9
45-54	N 80 3.5	204 8.9	584 25.6	1065 46.7	293 12.9	2 0.1	43 1.9	9 0.4	2280 9.4
55-64	N 83 3.7	211 9.3	608 26.9	1084 47.9	221 9.8	3 0.1	39 1.7	13 0.6	2262 9.4
65-74	N 99 4.1	226 9.3	632 26.1	1195 49.3	194 8.0	1 0.0	65 2.7	12 0.5	2424 10.0
75+	N 110 4.0	229 8.4	757 27.8	1415 52.0	139 5.1	1 0.0	61 2.2	7 0.3	2719 11.2
Total	N 891 3.7	2934 12.1	6926 28.7	10,074 41.7	2867 11.9	18 0.1	365 1.5	94 0.4	24,169 100.0

Missing Data Cases = 13,908

5. CHARACTERISTICS OF VEHICLES INVOLVED IN PEDESTRIAN ACCIDENTS

Almost all pedestrian accidents involve a single vehicle and a single pedestrian. As noted in Table 25, only 5.3 percent of the fatal pedestrian accidents involve more than one vehicle, and similar proportions are found in Michigan and Washington non-fatal accidents.

Table 30 and Figure 25 show that most of these vehicles are passenger cars, both in fatal accidents and in Michigan and Washington non-fatal accidents. In order to try to determine if certain types of vehicles are disproportionately involved in pedestrian accidents, the proportions of vehicle types involved in pedestrian accidents for 1977 have been compared with proportions of 1977 miles driven by those vehicle types according to FHWA estimates. Unfortunately, these national VMT proportions may not apply accurately to particular states such as Michigan and Washington, so the non-fatal accident comparisons may be somewhat suspect. But for the fatal accidents the data clearly indicate that passenger cars and motorcycles are slightly underrepresented in relation to VMT in pedestrian fatal accidents, while trucks are slightly overrepresented and buses are very overrepresented.

Table 31 and Figure 26 look at the severity of injury in Washington pedestrian accidents in relation to vehicle type. These data support the previous findings, since pedestrian accidents involving pickups, vans, buses, and especially other trucks are more likely to result in fatalities than accidents involving passenger cars and motorcycles.

Table 32 and Figure 27 look further into the relationship of different sized passenger cars to fatal pedestrian accidents in comparison with their distribution in the driving population. If one assumes that there is little bias in the large amount of missing vehicle weight data and that there are no large differences in driving exposure for different weight classes, these data show quite a strong relationship between vehicle weight and involvement in fatal pedestrian accidents. Passenger cars over 3500 pounds seem about twice as likely to be involved in a fatal pedestrian accident as passenger cars in the 1500-2500 weight class.

Finally, Table 33 and Figure 28 show the pedestrian percent of all fatal accidents involving motor vehicles in 15 weight classes. These data also show greater involvement in fatal pedestrian accidents for heavier vehicles. Of course, this result might be an artifact of the fact that larger vehicles tend to protect their own occupants better than smaller vehicles, and thus the base of all fatal accidents might tend to be smaller for large vehicles than small ones.

Nevertheless, these limited available data all tend to support the finding that the larger the vehicle the more likely it is to be involved in a fatal pedestrian accident.

TABLE 30
Involvement Ratios of Four Motor Vehicle Types in 1977
Fatal and Non-fatal Pedestrian Accidents

	Passenger Cars	All Trucks	All Buses	Motorcycles	Total
<u>U.S. Fatal</u>					
No. of Vehicles	5125	1631	113	85	6954
% of Ped. Accidents	73.7	23.5	1.6	1.2	100.0
% of U.S. 1977 VMT	75.8	22.3	0.4	1.5	100.0
Ratio	0.972	1.054	4.000	0.800	
<u>Mich. Fatal and Non-fatal</u>					
No. of Vehicles	4257	645	44	80	5026
% of Ped. Accidents	84.7	12.8	0.9	1.6	100.0
% of U.S. 1977 VMT	75.8	22.3	0.4	1.5	100.0
Ratio	1.117	0.574	2.250	1.067	
<u>Wash. Non-fatal</u>					
No. of Vehicles	1259	316	14	25	1614
% of Ped. Accidents	78.0	19.6	0.9	1.5	100.0
% of U.S. 1977 VMT	75.8	22.3	0.4	1.5	100.0
Ratio	1.029	0.879	2.250	1.000	

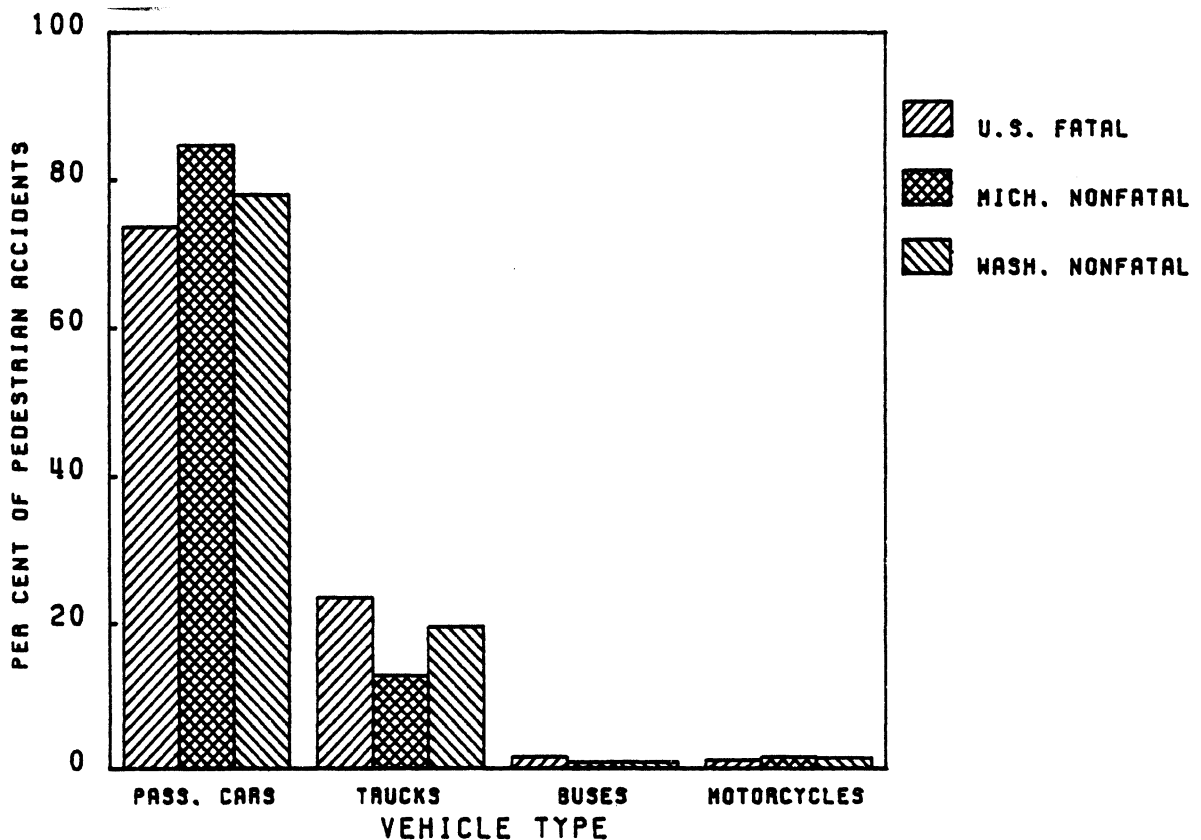


FIGURE 25
Involvement of Four Vehicle Types in Fatal and Non-fatal
Pedestrian Accidents

TABLE 31
Vehicle Type and Severity of Pedestrian Injury in Washington Pedestrian Accidents, 1974-78

	Pedestrian Injury Severity					
	Fatal	Disabling	Non-Disabling	Possible	Total	
Passenger Cars	N 339 5.1	2266 34.1	2529 38.1	1508 22.7	6642 77.3	
Pickups	N 85 7.1	406 33.9	453 37.8	253 21.1	1197 13.9	
Vans, Carryalls	N 25 9.9	87 34.5	80 31.7	60 23.8	252 2.9	
Trucks	N 30 11.4	101 38.4	90 34.2	42 16.0	263 3.1	
Buses	N 7 7.6	22 23.9	37 40.2	26 28.3	92 1.1	
Motorcycles	N 4 2.7	65 43.3	67 44.7	14 9.3	150 1.7	
Total	N 490 5.7	2947 34.3	3256 37.9	1903 22.1	8596 100.0	
Missing	25	174	260	180	639	

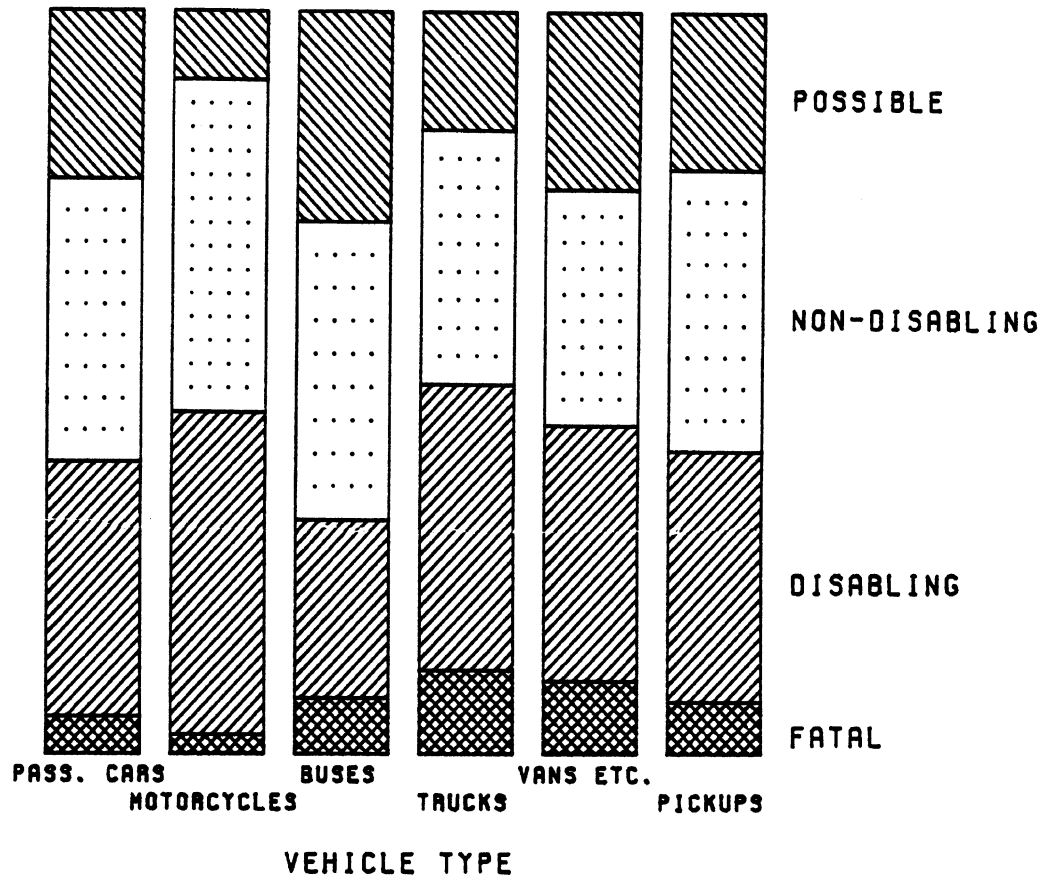


FIGURE 26
Injury Severity Proportions for Six Vehicle Types in Washington Pedestrian Accidents, 1974-78

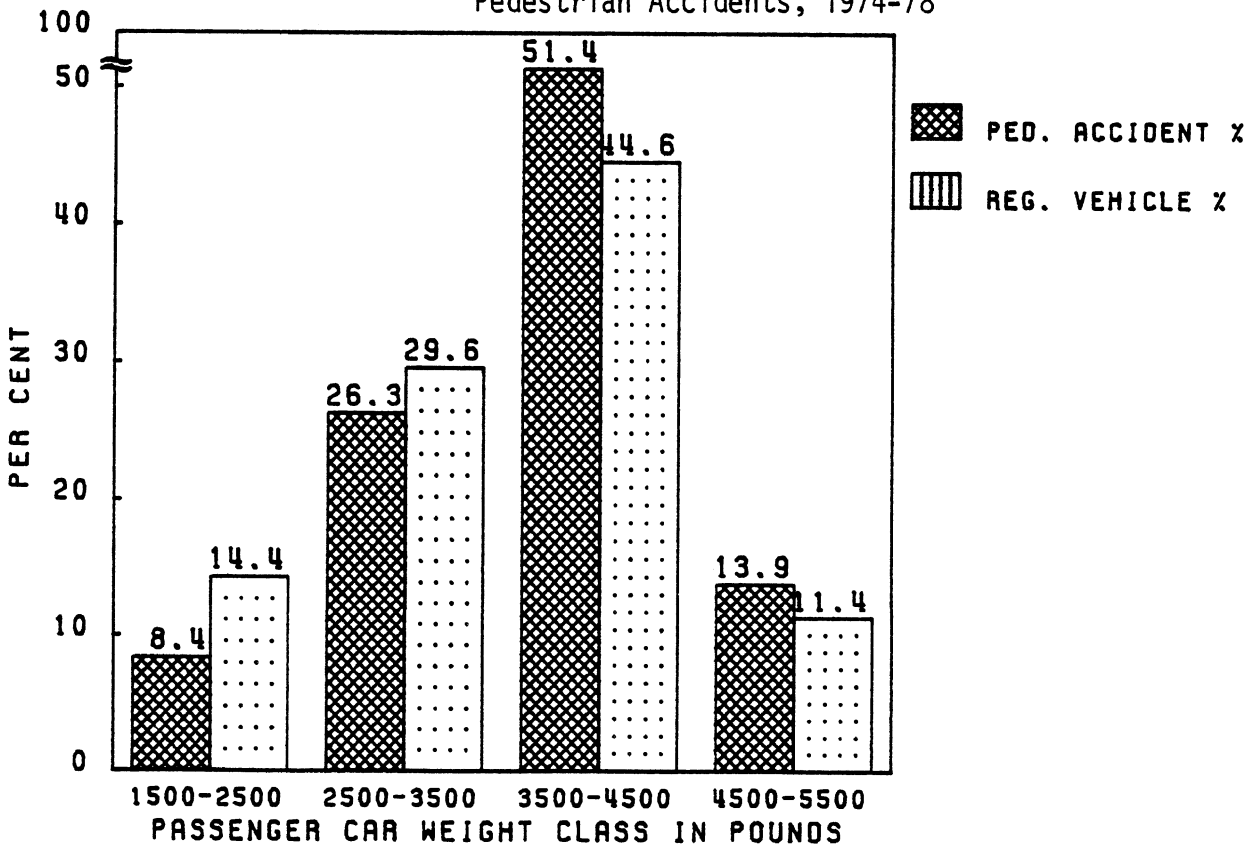


FIGURE 27
1977 Fatal Single-Vehicle Pedestrian Accident Involvements of Four Passenger Car Weight Classes and Registered Vehicles in Those Classes in 1976

TABLE 32
Involvement Ratios of Four Passenger Car Weight Weight Classes*
in 1977 U.S. Single Vehicle Fatal Pedestrian Accidents

Passenger Car Weight Group	Pedestrian Accidents		% of 1966-76 Passenger Vehicles in Weight Class**	Involvement Ratio
	N	%		
1500-2500	226	8.4	14.4	0.58
2500-3500	705	26.3	29.6	0.89
3500-4500	1378	51.4	44.6	1.15
4500-5500	371	13.8	11.4	1.21
Total	2680	99.9	100.0	

*It should be noted that weight class is unknown for about one-half of the vehicles involved in fatal pedestrian accidents.

**Numbers of passenger vehicles in each weight class are compiled from K. Jatras and W. L. Carlson, Frequency Distribution of Passenger Cars by Weight and Wheelbase by State: July 1, 1976, Washington: National Highway Traffic Safety Administration, June 1978.

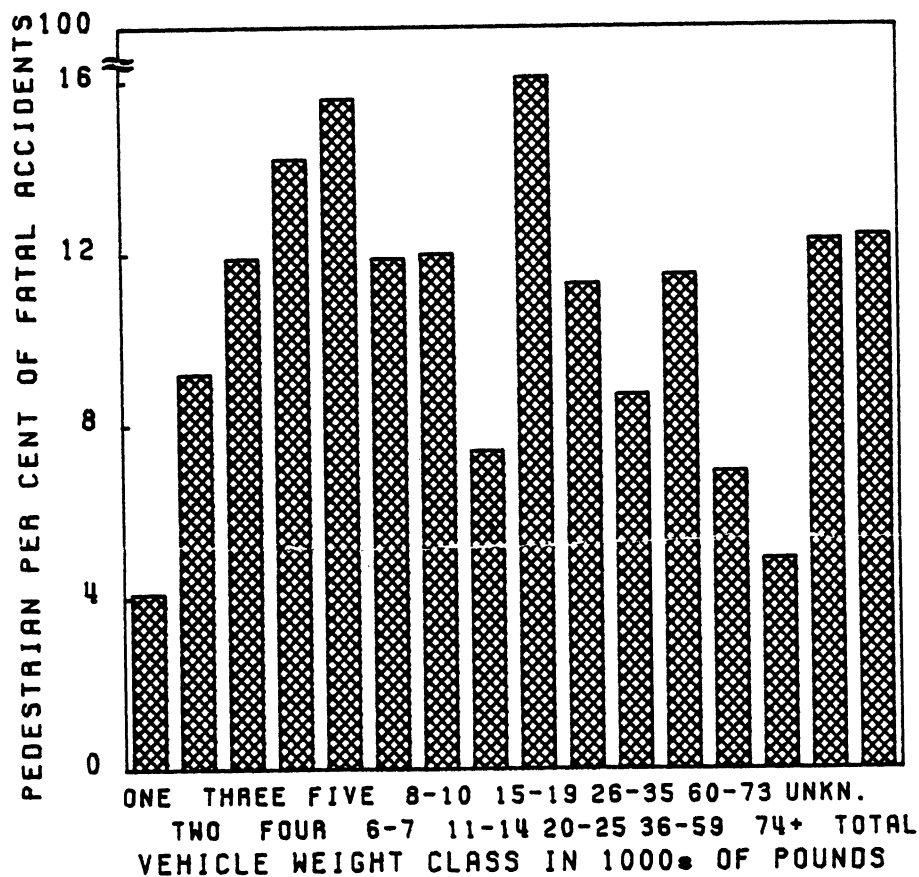


FIGURE 28
Pedestrian Fatal Accident Involvements as a Percent of All Fatal Accident Involvements for 15 Vehicle Weight Classes, 1976-77

TABLE 33
 Weight Group of U.S. Vehicles Involved in All Fatal Accidents and in Pedestrian Fatal Accidents,
 1976 and 1977

Pounds	1976			1977			Total		
	Total	Ped.	% Ped.	Total	Ped.	% Ped.	Total	Ped.	% Ped.
500-1500	393	16	4.1	578	18	3.1	971	34	3.5
1500-2500	2639	244	9.2	2773	257	9.3	5412	501	9.3
2500-3500	6297	749	11.9	6651	765	11.5	12,948	1514	11.7
3500-4500	9514	1352	14.2	10,169	1484	14.6	19,683	2836	14.4
4500-5500	2229	347	15.6	2662	396	14.9	4891	743	15.2
5500-7500	682	81	11.9	1055	122	11.6	1737	203	11.7
7500-10,500	316	38	12.0	679	67	9.9	995	105	10.6
10,500-14,500	284	21	7.4	465	26	5.6	749	47	6.3
14,500-19,500	254	41	16.1	326	38	11.7	580	79	13.6
19,500-25,500	141	16	11.3	229	30	13.1	370	46	12.4
25,500-35,500	161	14	8.7	231	33	14.3	392	47	12.0
35,500-59,500	217	25	11.5	332	36	10.8	549	61	11.1
59,500-73,500	480	33	6.9	658	49	7.4	1138	82	7.2
74,500 up	348	17	4.9	557	27	4.8	905	44	4.9
Unknown	24,003	2947	12.3	33,530	3664	10.9	57,533	6611	11.5
Total	47,958	5941	12.4	60,895	7012	11.5	108,853	12,953	11.9

NOTE: The Vehicle Weight variable is only available in 1976 and 1977 FARS data sets, and, as can be seen above, there is considerable missing data both years.

6. SUMMARY OF MAIN FINDINGS

- (1) In absolute numbers, annual pedestrian deaths have declined somewhat since the 1930s, and the pedestrian death rates in relation to registered vehicles and miles traveled have declined dramatically. In a comparison with other developed countries, the United States has the lowest pedestrian death rate on a vehicle/kilometer-traveled basis. Pedestrian deaths dropped in 1974 and 1975 at almost the same rate as all motor vehicle deaths but have increased to about 9000 in the most recent year.
- (2) The peak ages for involvement in pedestrian accidents are 5-8, both for fatal and non-fatal accidents. However, adults and especially older persons are much more likely to be killed, given a pedestrian accident, than are children. Children under 15 make up almost 40 percent of the non-fatal pedestrian accident victims, but only 21.5 percent of the pedestrian fatalities. At all ages females are much less likely to be involved in pedestrian accidents than males, although this is less true for children than for adults.
- (3) In terms of time of day, the peak hour for Michigan and Washington non-fatal pedestrian accidents is 3-4 pm., but for fatal accidents it is 7-8 pm. Almost two thirds of fatal accidents took place after dark compared to less than three eighths of non-fatal accidents. When one looks at age and time of day in fatal accidents, two groups stand out--young children 2-9 in the afternoon and early evening period and youth aged 16-23 in the late evening and early morning hours. Also there is a less pronounced but identifiable concentration of older persons in the early evening hours.
- (4) Drinking prior to the accident seems to be an important factor in many adult pedestrian accidents, especially in the early morning hours. Males are more likely than females to have been drinking, but large proportions of adult females killed were also judged to have been drinking, especially in the 25-44 age range. Drinking seems to be more involved in fatal accidents than non-fatal accidents both among drivers and among pedestrians.
- (5) Most pedestrian accidents take place on local roads in urban areas, but accidents in rural areas, on freeways and other major roads, and on high-speed roads are more likely to lead to a fatality. Also most pedestrian accidents take place away from an intersection, but those accidents which do take place at an intersection are less likely to involve a fatality. The older the pedestrian, the more likely that an accident in which he or she is involved is located at an intersection.
- (6) Most pedestrian accidents involve passenger cars, but it appears that accidents involving pickups, vans, trucks, and buses are more likely to lead to a pedestrian fatality. Also, within different-sized passenger cars, it appears that the larger the car weight the more likely it is to be involved in a fatal pedestrian accident.

