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A STUDY OF ALCOHOL RELATED FATAL MOTOR VEHICLE
ACCIDENTS, STATE OF IOWA, 1970 - 1971



IOWA DEPARTMENT OF PUBLIC SAFETY
MICHAEL M. SELLERS, COMMISSIONER

Prepared by;
Aurora P. Berenguel
Stat. Research Analyst
Dept. of Public Safety
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SUMMARY

1. Object of this study is to determine the extent of alcohol involvement in m. v. fatal accidents in Iowa during the period 1970 - 1971.
2. Data were collected from confidential fatal accident reports, the opinion of the investigating officer provided information as to whether the driver has been drinking or not.
3. In 1971, alcohol related fatal accidents accounted for about 34% of total fatal accidents and around 35% of total fatalities. The obviously drunk category accounted for about 20%.
4. Multi-Vehicle Collision and Ran Off Road and Overturned accounted for about 40% each and the remaining 20% were Collision with Pedestrian, Parked M.V., Railroad Train, Bicycle and Fixed Object.
5. About 3 out of 5 of the multi-vehicle collision and ran-off type crashes had obviously drunk drivers which had blood alcohol content .100 and up.
6. Drinking Drivers by Age:

Peak age for drinking drivers is 20-24 years which account for 29.4% of total. This age group combined with the 25-34 age group accounted for 52.5% of the total.
7. Drinking Drivers by Sex:

Out of 238 drinking drivers and pedestrians in m. v. fatal accidents, 91.7% were male and 8.3% were females.
8. Fatal M. V. Accidents by Location:

A total of 183 out of 233 alcohol related fatal accidents or 78.5% occurred in rural areas.
9. Of the 232 drinking drivers and involved in fatal accidents during 1971, 142 or 61% were tested for BAC. Out of the 142 tested, 108 or 76 % were found to be obviously drunk with blood alcohol content .100 and up.

10. Time of Day and Day of Week:

Peak periods were 9:00 P.M. to 3:00 A.M. and 63.5% of fatal crashes occurred during weekends (Friday, Saturday and Sunday).

11. October is a peak month for alcohol related fatal accidents in 1971.

12. Occupation of Drinking:

A search into the occupation of drinking drivers involved in these crashes showed that laborers, skilled and semi-skilled, students accounted for 31.0%, 14.2% and 13.8% respectively of total, a combined percentage of 59 %.

13. Alcohol Related Fatal Accidents by County:

There were 60 out of the 99 counties wherein 26-75% of fatal accidents were alcohol related during 1970-1971. However, 10 counties did not have a single alcohol related fatal accident.

14. Results of an analysis showed that there is no significant difference between the occurrence of alcohol related fatal accidents in high accident rate counties compared to low accident rate counties.

15. Drivers Ed. of Drinking Drivers Involved in Fatal Crashes in 1971.

Out of 232 drinking drivers, 50 or 21.6% had Drivers Ed., 89 or 38.4% had none and 93 or 40% were unknown.

ALCOHOL RELATED FATAL ACCIDENTS
STUDY: IOWA, 1970-1971

1. Object of this study is to determine the facts, circumstances and the extent of alcohol involvement in fatal motor vehicle accidents during the period 1970 through 1971.

2. Definition of Alcohol Related Fatal Accidents:

A fatal m. v. accident is said to be alcohol related if according to the report of the investigating officer, the driver or pedestrian had been drinking and degree of drinking classified under the following categories:

1. Obviously Drunk
2. Ability Impaired
3. Ability Not Impaired

Usually a blood alcohol test is taken to verify or support the claim.

3. Collection of Data:

Data were collected from confidential investigated fatal accident reports. The following information strongly indicates that drinking excessively and driving creates a very serious factor in deaths resulting from motor vehicle traffic accidents. Alcohol related fatal accidents account for about 34% of total fatal accidents and around 35% of total fatalities during 1971.

TABLE 1: NUMBER OF FATAL ACCIDENTS AND FATALITIES WHICH WERE ALCOHOL RELATED: IOWA, 1970-1971

Degree of Drinking	Fatal Accidents				1971 Fatalities	
	1970	%	1971	%	Number	%
Obviously Drunk	124	16.6	133	19.6	166	20.1
Driver Ability Impaired	73	9.7	71	10.4	91	11.0
Driver Ability Not Impaired	20	2.7	23	3.4	30	3.6
Pedestrian Drinking	5	0.7	6	0.9	6	0.7
Total Alcohol Related	222	29.6%	233	34.3%	293	35.4%
Drivers Not Known If Drinking	115	15.3%	102	15.0%	-	-
Total	751	100.0%	680	100.0%	827	100.0%

TABLE 2: FATAL CRASHES INVOLVING DRINKING DRIVERS BY TYPE OF CRASH, BY DEGREE OF DRINKING: 1971

Type of Crash	Number	Distribution in Percent	Driver Obviously Drunk	Driver Ability Impaired	Driver Ability Not Impaired
Multi-Vehicle Collision	92	39.5	52	25	15
Ran Off Road and Overturned	94	40.3	58	32	4
Collision with:					
Pedestrian	16	6.9	10 ^{1/}	3	3
Parked M. V.	3	1.3	1	2	-
Railroad Train	4	1.7	2	2	-
Bicycle	2	0.9	2	-	-
Fixed Object	22	9.4	14	7	1
Total	233	100.0%	139	71	23

^{1/} 6 pedestrians were obviously drunk

The preceding tabulation shows that 40% of fatal crashes were of the multi-vehicle or ran off road type and 20% were collisions of m. v. with pedestrian, parked m. v., railroad train, bicycle or fixed object. Of these crashes, about 3 out of 5 were crashes which involved drivers who were obviously drunk with blood alcohol ranging from .100 and up.

4. Drinking Drivers by Age: 1971 TABLE 3

Age	Drinking Drivers		All Drivers
	Frequency	%	%
15-19	29	12.2	17.0
20-24	70	29.4	17.8
25-34	55	23.1	17.9
35-44	30	12.6	14.0
45-54	32	13.4	13.7
55-64	10	4.2	9.4
65-74	12	5.0	5.9
75 or Over	-	-	3.6
Not Stated	-	-	.7
Total	238	100.0%	100.0%

As shown in Chart 1 enclosed with this report, peak age for drinking drivers is 20-24 age group and 20-34 years accounting for 52.5% of total. This compares with 35.7% for all drivers involved in fatal accidents in the same age group.

5. Drinking Drivers by Sex:

Out of 238 drinking drivers and pedestrians involved in fatal accidents, 8.4% were females and 91.6% were males.

TABLE 4: DRINKING DRIVERS AND DRINKING PEDESTRIAN BY SEX: 1971

Sex	Total		Pedestrians		Driver					
					Obviously Drunk		Ability Impaired		Ability Not Impaired	
	No.	% Dist.	No.	%	No.	%	No.	%	No.	%
Male	218	91.6	6	100.0	128	94.8	60	83.3	22	95.7
Female	20	8.4	-	-	7	5.2	12	16.7	1	4.3
Total	238	100.0%	6	100.0%	135	100.0%	72	100.0%	23	100.0%

6. Number of Alcohol Related Fatal Accidents by Location (Urban or Rural): 1971

TABLE 5:

Degree of Drinking	Geographical Location		Total
	Urban	Rural	
(1) Driver Obviously Drunk	25	108	133
(2) Driver Ability Impaired	15	56	71
(3) Driver Ability Not Impaired	9	14	23
Sub Total	49	178	227
(4) Pedestrian	1	5	6
Grand Total	50	183	233

The preceding tabulation shows that 78.5% of total alcohol related fatal accidents in 1971 occurred in rural areas.

7. Blood Alcohol Concentration of Drivers by Degree of Drinking:

There were 232 drivers who had been drinking and involved in fatal m. v. accidents during the period under review. Out of these, 161 or 69.4% were killed. The following tabulations show the proportion of drinking drivers tested for BAC, 1971.

TABLE 6:
PROPORTION OF DRINKING DRIVERS TESTED BY DEGREE OF DRINKING, 1971 (IOWA)

Drinking Drivers	Degree of Drinking		Total		Obviously Drunk		Ability Impaired		Ability Not Impaired	
	No.	%	No.	%	No.	%	No.	%	No.	%
Tested	142	61.2	108	80.6	30	41.1	4	16.0		
Not Tested	90	38.8	26	19.4	43	58.9	21	84.0		
Total	232	100.0%	134	100.0%	73	100.0%	25	100.0%		

From the above table, it is observed that about 81% of the obviously drunk were tested for BAC and were found to be positive with BAC ranging from 0.100 and up. Under the ability impaired classification, 41.1% were tested and were found to be positive.

The following shows the BAC of 142 drinking drivers who were tested and involved in fatal m. v. accidents , 1971 (Iowa).

TABLE 7:

Blood Alcohol Content	Degree of Drinking		Total		Obviously Drunk		Ability Impaired		Ability Not Impaired	
	No.	%	No.	%	No.	%	No.	%	No.	%
less than .100	15	10.6	-	-	11	36.7	4	100.0		
.100-.149	31	21.8	17	15.7	14	46.7	-	-		
.150-.199	31	21.8	26	24.1	5	16.7	-	-		
.200-.249	31	21.8	31	28.7	-	-	-	-		
.250-.299	23	16.2	23	21.3	-	-	-	-		
.300 and up	11	7.8	11	10.2	-	-	-	-		
Total Tested	142	100.0%	108	100.0%	30	100.0%	4	100.0%		

8. Alcohol Related Fatal Accidents by Time of Day:

Time of day for alcohol related fatal accidents was investigated

and revealed that 9:00 P.M. to 3:00 A.M. were peak periods. This is shown in the following distribution:

TABLE 8:

Time of Day	Alcohol Related Fatal accidents		All Accidents
	Number	% Distribution	% Distribution
12:00-2:59 A.M.	64	27.6	13.7
3:00-5:59 A.M.	26	11.2	6.4
6:00-8:59 A.M.	7	3.0	7.2
9:00-11:59 A.M.	4	1.7	11.7
12:00-2:59 P.M.	12	5.2	11.5
3:00-5:59 P.M.	28	12.1	19.6
6:00-8:59 P.M.	35	15.1	16.0
9:00-11:59 P.M.	56	24.1	13.9
Not Known	1	-	-
Total	233	100.0%	100.0%

9. Alcohol Related Fatal Accidents by Day of Week, 1971:

Day of the week variation shows that consumption of alcohol tends to occur to a greater extent on weekends, hence most crashes involving alcohol therefore occurred on weekends as shown below.

TABLE 9:

Day of Week	Alcohol Related Accidents		All Fatal Accidents
	Number	%	%
Sunday	46	19.7	15.3
Monday	16	6.9	10.1
Tuesday	16	6.9	9.0
Wednesday	24	10.3	11.9
Thursday	29	12.4	12.5

Friday	41	17.6	20.6
Saturday	61	26.2	20.6
Total	233	100.0%	100.0%

This probably reflects the likelihood that the drinking people drink heartily all week long and probably augmented on weekends by a good deal of exceptionally abusive drinking.

10. Alcohol Related Fatal Accidents by Month:

Variation by month of year was also investigated and the results strongly indicate that October is a peak month for alcohol related fatal accidents in 1971. It is interesting to note that this coincides with the peak month for all fatal accidents during 1971.

TABLE 10:

Month	% Distribution
January	6.9
February	5.1
March	6.0
April	9.4
May	9.4
June	6.0
July	10.3
August	9.4
September	10.3
October	12.4
November	7.3
December	7.3
Total	100.0% ^{1/}

^{1/} Totals donot always add up to 100 % due to rounding.

11. Occupation of Drinking Driver:

TABLE 11

Occupation	Number	%
Laborers	72	31.0
Skilled & Semi-skilled	33	14.2
Students	32	13.8
Commercial Drivers	17	7.3
Farmers & Farm Laborers	16	6.9
Housewives & Domestic Help	14	6.0
Professional & Businessmen	13	5.6
Clerical, Sales, etc.	6	2.6
All Others (Retired, etc.)	13	5.6
Unemployed	6	2.6
Not Stated	10	4.3
Total	232	100.0%

Laborers, skilled & semi-skilled workers accounted for 45.2% of total drinking drivers and 13.8% were students. The rest were commercial drivers, farmers, housewives, professional men, clerical, sales and others.

12. Alcohol Related Fatal Accidents by County:

An investigation of the proportion of alcohol related fatal accidents by county was made covering the period 1970-1971. A frequency distribution presented below shows that 26% to 75% of fatal accidents that were alcohol related occurred in 60 out of a total of 99 counties during the period under review. There were 10 counties which did not have a single alcohol related fatal accident. These counties were Davis,

Keokuk, Shelby, Ida, Wapello, Hamilton, O'Brien, Wayne and Howard.

TABLE 12: DISTRIBUTION OF COUNTIES BY PERCENT ALCOHOL RELATED FATAL ACCIDENTS:

% of Total Which were Alcohol Related Fatal Accidents	Number of Counties	% Distribution
0%	10	10.1
1 -25%	29	29.3
26-50%	52	52.5
51-75%	8	8.1
76-100%	-	-
Total	99	100.0%

To determine whether there is a significant difference between the occurrence of alcohol related fatal accidents in high accident rate counties^{1/} compared to low accident rate counties an analysis was made and the results showed that alcohol was present in 34.37% of fatal accidents in high accident rate counties compared to 30.05% in low accident rate counties. The difference of 4.32% was tested at 5% level and was found out to be insignificant. Hence, drinking and driving is a problem in high accident rate counties as well as low accident rate counties.

13. Conclusion:

This study afforded us to ascertain the proportion of accidents which were alcohol related as well as facts and circumstances regarding the fatal accident.

^{1/} Study on Identification of High Accident Rate Counties, 1978-1970 by A. P. Berenguel, March 1972

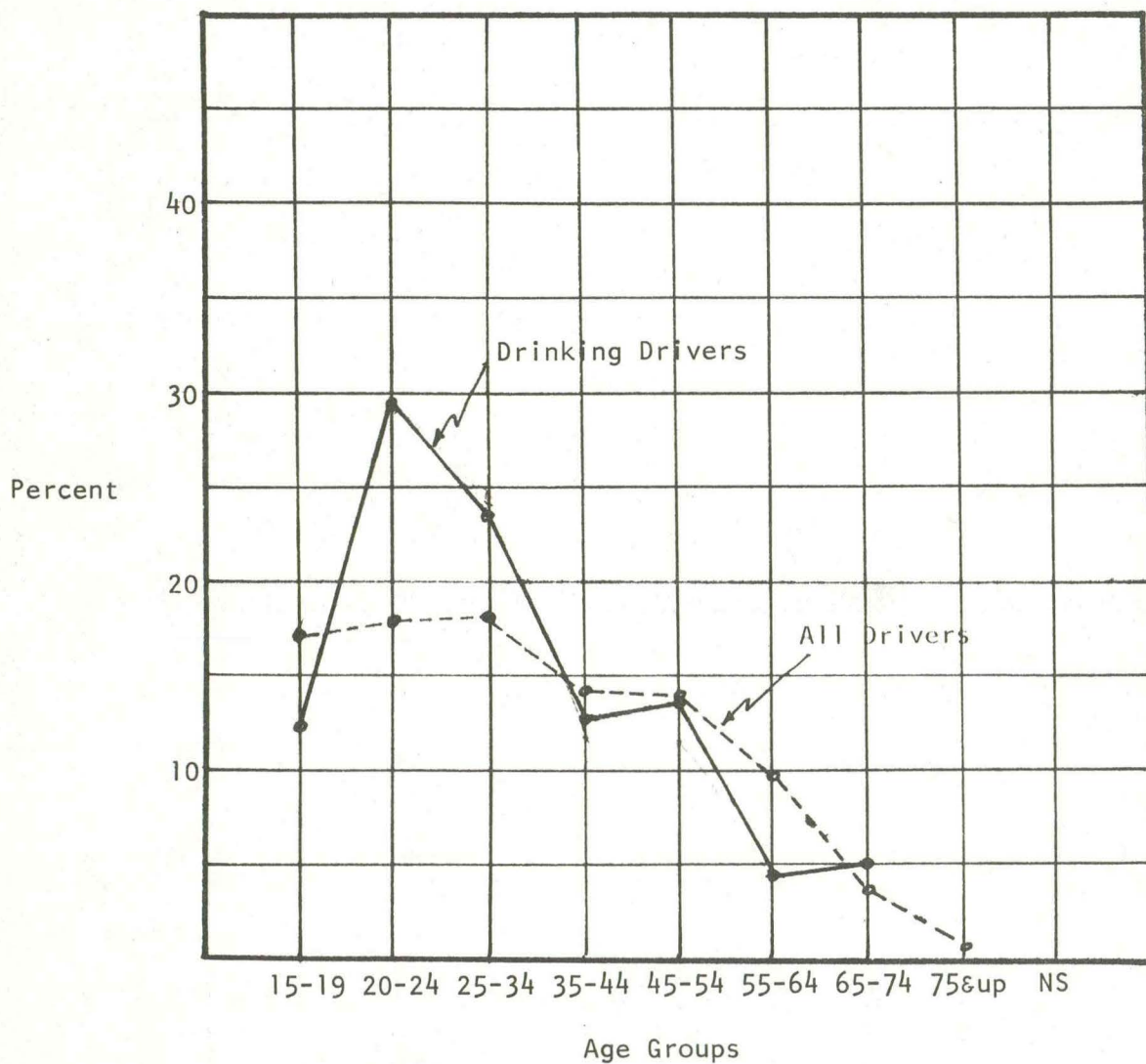


CHART 1: COMPARISON BETWEEN AGE DISTRIBUTION OF DRINKING DRIVERS AND ALL DRIVERS 1971 FATAL ACCIDENTS

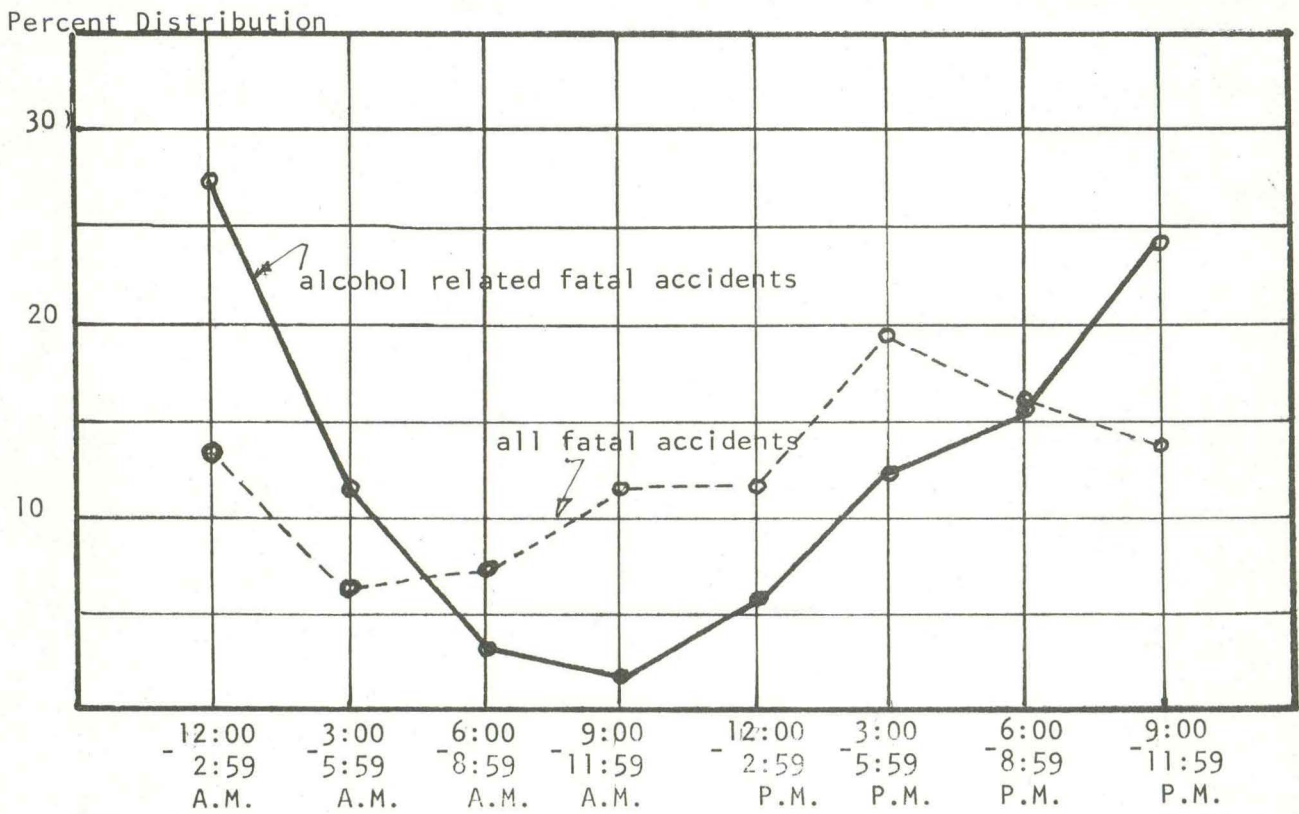


CHART 2: PERCENT DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS AND ALL FATAL ACCIDENTS BY TIME OF DAY : 1971

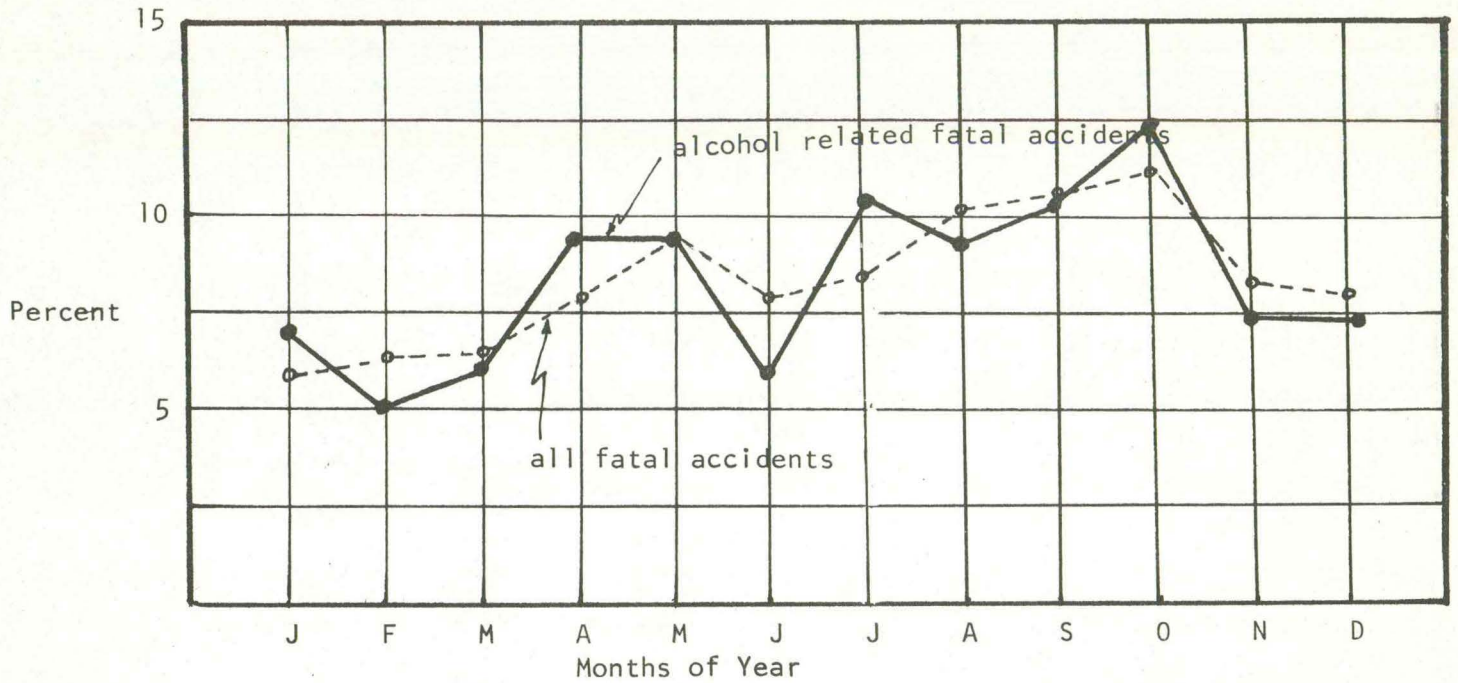


CHART 3: PERCENT DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS COMPARED TO ALL FATAL ACCIDENTS BY MONTH OF YEAR: 1971

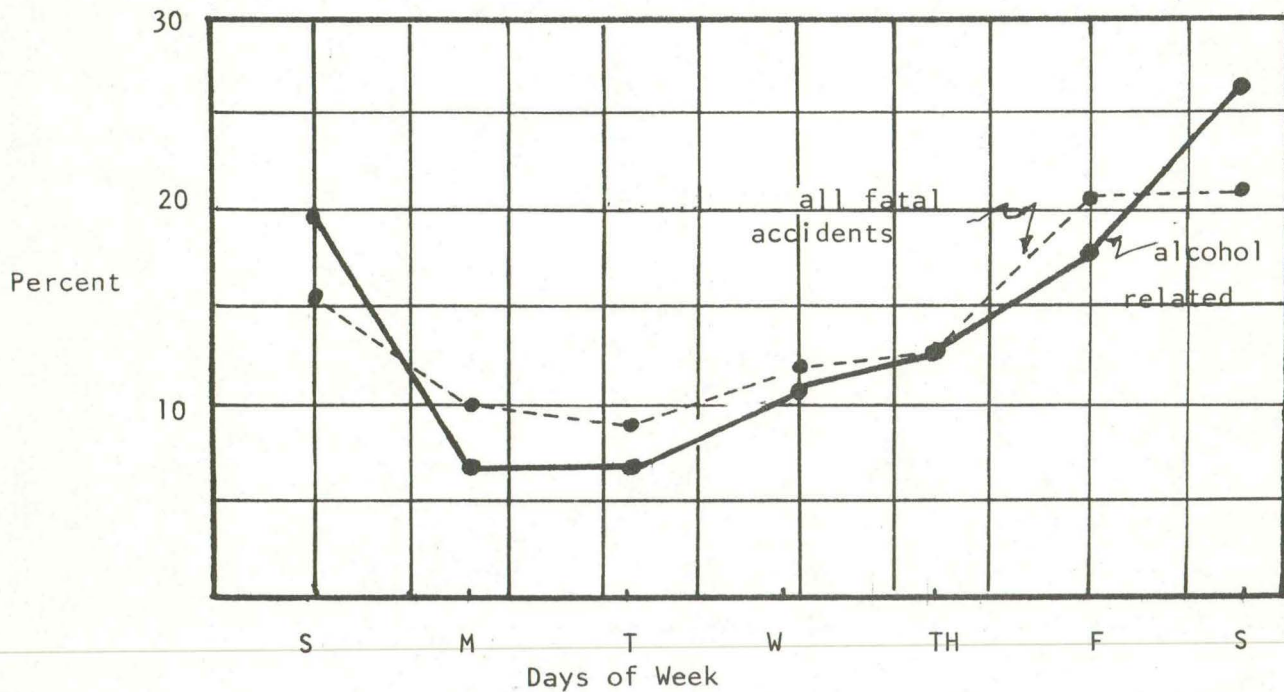


CHART 4: PERCENT DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS COMPARED TO ALL FATAL ACCIDENTS BY DAY OF WEEK: 1971

Percent Distribution
30

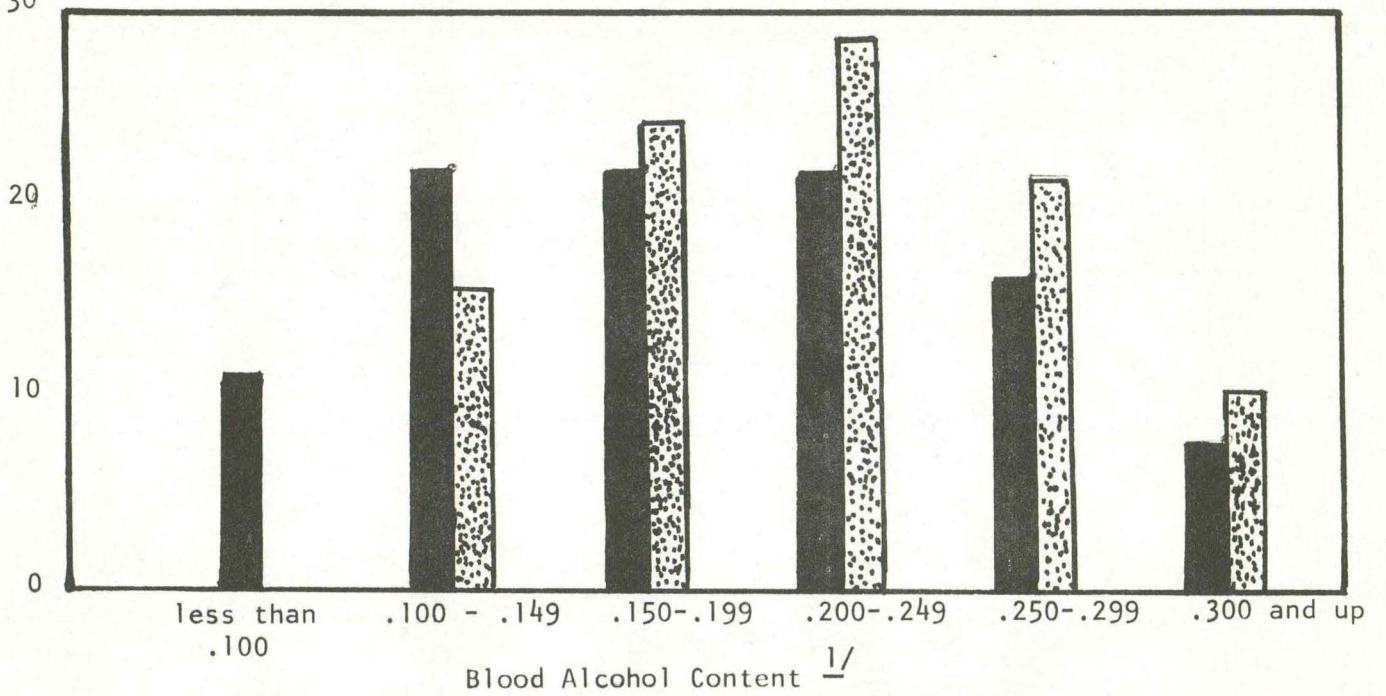




TABLE 5: : PERCENT DISTRIBUTION OF BLOOD ALCOHOL CONTENT : 1971

 All drinking drivers
 Obviously drunk

1/ .100 BAC means 100 mg. alcohol per 100 ml. or .100 % by weight.

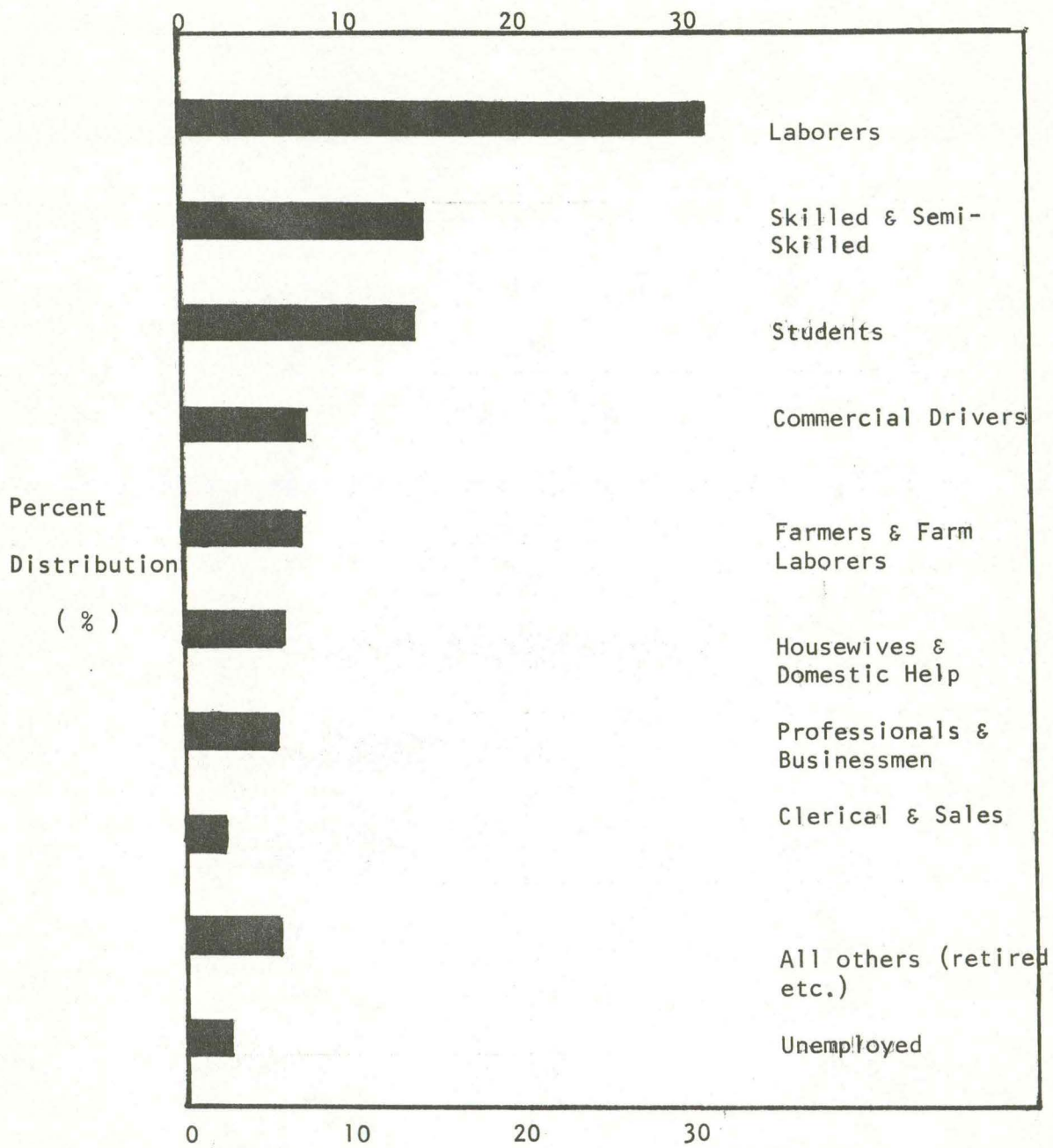


TABLE 6 : PERCENT DISTRIBUTION OF DRINKING DRIVERS BY OCCUPATION
1971

FATAL M. V. ACCIDENTS

1970 - 1971, State of Iowa

High Accident Rate Counties	Alcohol Related		All Fatal M. V. Accidents		% Alcohol Related Fatal Accidents (1970÷1971)
	1970	1971	1970	1971	
Linn	9	13	33	33	34.4
Polk	15	17	46	43	36.0
Black Hawk	6	7	24	30	24.1
Dubuque	6	6	12	15	44.4
Woodbury	9	9	18	16	52.9
Cerro Gordo	3	7	13	12	40.0
Scott	11	10	24	18	50.0
Lee	1	5	14	11	24.0
Muscatine	4	4	12	10	36.4
Des Moines	2	2	7	6	30.8
Clinton	5	3	18	10	28.6
Webster	2	2	13	8	19.0
Marshall	3	2	11	10	23.8
Union	1	2	4	5	33.3
Crawford	4	2	7	4	54.5
Wapello	-	-	4	5	-
Carroll	3	1	8	5	30.8
Floyd	2	2	5	6	36.4
Boone	3	4	14	11	28.0
Cherokee	4	1	8	3	45.4
Winneshiek	2	3	8	9	29.4
Jefferson	-	2	3	5	25.0
TOTAL	95	104	306	273	34.37%

Low Accident Rate Counties	Alcohol Related		All Fatal M. V. Accidents		% Alcohol Related Fatal Accidents (1970-1971)
	1970	1971	1970	1971	
Buchanan	4	5	9	9	50.0
Marion	4	1	6	3	55.6
Emmet	2	1	4	2	50.0
Lucas	1	2	5	4	33.3
Page	4	1	6	7	38.5
Pottawattamie	11	7	30	22	34.6
Buena Vista	2	1	8	3	27.3
Appanoose	-	2	1	6	28.6
Johnson	6	9	23	20	34.9
Monroe	1	1	4	4	25.0
Henry	3	2	6	2	62.5
Clay	3	-	4	2	50.0
Plymouth	4	4	11	10	38.1
Mahaska	-	1	2	3	20.0
Audubon	2	-	4	-	40.0
Jones	3	3	10	7	35.3
Franklin	2	2	4	7	36.4
Jackson	-	3	4	5	33.3
Clayton	1	4	5	4	55.6
Montgomery	1	-	1	3	25.0
Humboldt	3	2	6	6	41.7
Adams	1	2	2	5	42.8
Davis	-	-	6	3	-
Decatur	1	-	6	2	12.5
Mitchell	1	-	4	4	12.5
Keokuk	-	-	7	4	-

Low Accident Rate Counties	Alcohol Related		All Fatal M. V. Accidents		% Alcohol Related Fatal Accidents (1970-1971)
	1970	1971	1970	1971	
Shelby	-	-	4	4	-
Dickinson	2	1	5	2	42.8
Hardin	1	-	5	4	11.1
Chickasaw	1	2	4	7	27.3
Warren	3	5	6	12	44.4
Fayette	1	2	10	4	21.4
Kossuth	1	3	10	6	25.0
Palo Alto	1	1	4	1	40.0
Sioux	-	3	8	8	18.8
Benton	5	2	10	9	36.8
Tama	1	5	6	6	50.0
Allamakee	1	1	3	4	28.6
Bremer	3	-	10	7	17.6
Wright	3	-	4	4	37.5
Madison	1	-	3	4	14.3
Ida	-	-	3	7	-
Story	3	4	11	8	36.8
Butler	1	1	6	3	22.2
Osceola	-	1	4	4	12.5
Harrison	-	3	9	10	15.8
Hamilton	-	-	6	1	-
Greene	2	-	7	3	20.0
Mills	1	3	4	7	36.4
Pocahontas	-	3	4	4	37.5
O'Brien	-	-	2	7	-

Low Accident Rate Counties	Alcohol Related		All Fatal M. V. Accidents		% Alcohol Related Fatal Accidents (1970-1971)
	1970	1971	1970	1971	
Fremont	2	4	4	6	60.0
Sac	1	1	2	5	28.6
Delaware	1	2	6	4	30.0
Winnebago	-	2	1	3	50.0
Clarke	1	-	2	2	25.0
Wayne	-	-	3	2	-
Ringgold	1	-	4	2	16.7
Van Buren	1	1	3	2	40.0
Lyon	-	2	3	4	5.4
Taylor	1	1	2	2	50.0
Hancock	-	2	3	5	25.0
Jasper	3	2	13	15	17.8
Washington	2	1	4	3	42.8
Worth	1	2	1	3	75.0
Howard	-	-	1	5	-
Monona	3	1	6	5	36.4
Guthrie	-	1	1	6	14.3
Louisa	1	3	2	5	57.1
Cass	1	3	9	8	23.5
Dallas	6	5	16	8	45.8
Calhoun	-	1	2	5	14.3
Grundy	1	-	3	3	16.7
Poweshiek	-	1	4	8	8.3
Iowa	5	-	11	7	27.8
Adair	3	-	7	3	30.0
Cedar	2	1	6	3	33.3
TOTAL	127	129	445	407	30.046 %

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