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Frequency and Types of Violations of Iowa Motorists*

By ELMER B. SIEBRECHT AND RICHARD CLARK BENNETT

In recent year various studies have been made of the personal characteristics and driving habits of motor vehicle operators. Of these perhaps the most extensive is the five-year study being conducted at Iowa State College. One purpose of this study is to determine the effect of training on accidents and violations in relation to age, sex and type of training of drivers.

Preliminary reports on certain aspects of the general problem have already been made. From the first sampling made in 1950, some of the published contributions are those of Lauer (2), Lauer and Schumacher (4), Siebrecht (5) and Siebrecht, Schumacher and Lauer (6). The present study concerns the frequency and types of violations of Iowa drivers in relation to other factors as obtained from a second sampling made in early 1953.

METHOD AND PROCEDURE

From a systematic sampling of motor vehicle operators from the motor vehicle license files of Iowa, a total of 7,334 cases were drawn from approximately 1,500,000 drivers license cards. Information taken from the file card included age, sex, date of birth, occupation, number and kind of violations and number of accidents recorded against the individual.

To supplement these data a self-addressed double postal-card questionnaire was sent to each of the drivers included in the sample, requesting such additional information as mileage driven during daylight and in darkness, years of driving experience, how the person learned to drive, his educational level and other items pertaining to his car. A total of 1,968 cards were returned, 542 from women and 1,426 from men. The data from these cards together with that obtained from the drivers license files of Iowa were punched on I.B.M. cards for processing.

In this study the frequency of traffic violations was approached with respect to the training of the driver. A trained driver is here

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defined as one who has had an organized course of driver education in high school or in a professional school. An untrained driver is defined as one who is self-taught or was given incidental instruction by a member of his family or a friend.

For the purpose of this study the following null hypothesis was set up: Trained and untrained drivers do not differ in their susceptibilities toward violations. A corollary hypothesis was also tested: Violations are distributed equally between trained and untrained drivers with respect to frequency and type of violation.

The chi square technique was used to test the significance of differences in the various tabular data presented.

FINDINGS AND RESULTS

According to a form used by the Department of Public Safety in Iowa, traffic violations are classified into 14 categories. These are as follows:

Operating motor vehicle while intoxicated	Backing
Speeding	Failed to stop at stop sign
Improper parking	Failed to stop at stop light
Did not have right-of-way	Failed to signal
Following too closely	Leaving scene of accident
Improper passing	Failed to slow down for pedestrian
Improper turning	Other violations—not always specified

The analysis showed that 25 per cent of all male drivers were involved in violations as compared to only three per cent of all female operators. The violations most frequently recorded against both groups of traffic violators were speeding, improper passing and failure to stop at stop signs. The percentages of these drivers involved in specific types of violations according to their records were found to be as follows:

Table 1
Percentage of Types of Violation by Sex

Violation	% Men	% Women
Speeding	38	30
Improper Passing	20	15
Fail to stop at stop sign	24	35

The remaining 11 types of violations reported were each committed by two per cent or less of the drivers with the exception of "Fail to stop at stop light"; in this violation almost six per cent of the women driver violators were involved.

Of the 1,426 male operators, 14 per cent were trained and 86 per cent were untrained. A comparison of the traffic records of the two groups was made as to frequency and type of violation. This comparison revealed no significant differences between the two groups with respect to the number of violation frequencies of 0, 1 and 2 as shown in Table 2. However, a significant difference at the five per cent level was obtained between trained and untrained drivers charged with three or more violations.

Table 2
Association Between Trained and Untrained Drivers
Violation Involvement—All Drivers (Men)

Number of Violations	Drivers	Number	Actual	Expected	$\frac{(o-e)^2}{e}$	Chi Square
0	Trained	202	149	150.8626	.0230	.0268
	Untrained	1224	916	914.1374	.0038	
		1426	1065	1065.0000		
1	Trained	202	31	35.5554	.5836	.6799
	Untrained	1224	220	215.4446	.0963	
		1426	251	251.0000		
2	Trained	202	11	9.9159	.1185	.1281
	Untrained	1224	59	60.0841	.0096	
		1426	70	70.0000		
3 or more	Trained	202	11	5.6662	5.0208	5.8494*
	Untrained	1224	29	34.3338	.8286	
		1426	40	40.0000		

*Significant at the 5% level.

Comparison of the tendency to have accidents at various frequency levels was also studied. This is shown in figure 1. In a previous study (6) the differences in number of accidents for violators and nonviolators were found to be highly significant when grouped together. It would appear that up to three accidents the percentage of violators is much more marked. The small percentages beyond this point are likely due to the relatively few persons involved in three or more accidents.

Because of the small number of women drivers charged with violations, a study of frequency of involvement in relation to training of the drivers was not made.

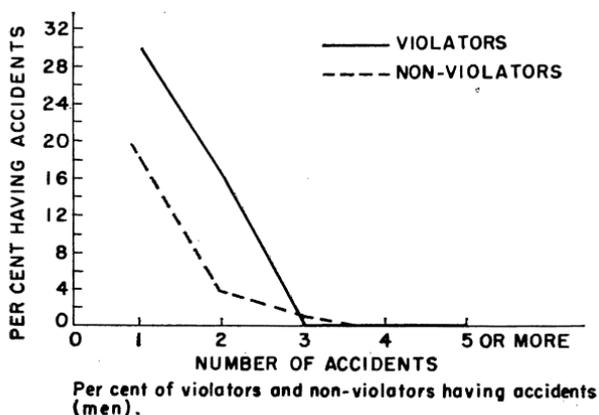


FIGURE 1

SUMMARY AND CONCLUSIONS

In this study reported violations of men and women operators of motor vehicles in the State of Iowa were compared. No attempt was made to equate the groups with respect to age, mileage driven, exposure and other factors. The violation experience was considered only with respect to sex and the training of the operators concerned.

In so far as the hypotheses set up for experimental testing are concerned, and within the limitations and scope of the study, the following conclusions are tentatively drawn:

1. The hypothesis that trained and untrained drivers included in this study do not differ in their susceptibility to violation has not been rejected.

2. The corollary hypothesis that violations are distributed equally between trained and untrained drivers with respect to frequency and type of violation was also not rejected except for those drivers involved in three or more violations. In this instance, the difference is statistically significant at the five per cent level of confidence but no satisfactory explanation is at hand.

3. It is shown that drivers with reported violations have a greater proportion of reported accidents than do drivers not having traffic violations.

4. The most frequent violations reported against both men and women drivers were: speeding, improper passing and failure to stop at stop signs.

5. Reported violations seem to occur with about equal frequency between trained and untrained drivers.

6. It would appear that driver education should give greater emphasis on obedience of traffic laws and ordinances through better attitudes and to develop better observation on the part of drivers in order to eliminate inadvertent violations which often lead to accidents.

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