

Relationships Between Driving Records, Selected Personality Characteristics, and Biographical Data of Traffic Offenders and Non-Offenders

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In this paper are presented: (a) a synopsis of methods employed in arriving at an answer to each of four sub-problems posed in this study, along with a summary of the findings of each; (b) those conclusions which appear warranted on the basis of data revealed and statistical measures obtained; and (c) recommendations pertinent to the application of findings of this study, to the establishment and operation of driver improvement clinics, and to further research into driving performance.

● **THE PURPOSE** of the investigation reported herein was to determine what personality characteristics and biographical data differentiate motor vehicle traffic offenders from non-offenders, and to relate any such differences to records of their driving performance. The solution to this problem was determined by answering the following four sub-problems:

1. What personality characteristics, as revealed by responses to the Thurstone Temperament Schedule, distinguish offenders from non-offenders?
2. What biographical data, as revealed by the subjects in planned interviews, distinguish offenders from non-offenders?
3. What personality characteristics and biographical data, individually and in combinations, are most significant for purposes of distinguishing offenders from non-offenders?
4. How can these statistically significant scores of personality characteristics and biographical factors be related to the actual occurrence of accidents and violations?

The populations studied consisted of an experimental group of 763 traffic offenders who were resident motor vehicle operators of the State of New Jersey and who had accumulated three or more traffic accidents and/or moving traffic violations since December 31, 1949, and a control group of 195 resident motor vehicle operators of the same State whose driving records were free of accidents and violations during this same period. The control group was equated to the experimental group in terms of estimated annual mileage driven, obtained through a specially prepared questionnaire. These subjects appeared at the New Jersey Traffic Accident Prevention Clinic in Trenton over a 22-month period ending August 31, 1955.

In answer to the first sub-problem posed in this investigation, statistically significant differences were found on three of the seven areas of this test device. Subjects of the experimental group were found to rate higher on the impulsive and sociable scales, but lower on the reflective scale, than the control subjects.

In analyzing biographical data obtained during the planned interview for purposes of the second sub-problem, statistically significant differences were found on eight of the thirteen categories investigated. The categories in which differences this great were obtained are as follows:

1. Age.
2. Marital status.
3. Education.
4. Driver education indicated.
5. Annual salary.
6. Present occupation.
7. Job turnover.

8. Reasons indicated for terminating employment.

The experimental group was characterized by younger, unmarried individuals. A greater proportion of this group had failed to complete high school or college and few were engaged in the professions or in managerial or official capacities. Moreover, they reported smaller earnings, higher job turnover, and termination of previous employment for reasons other than self improvement. More of the experimental population indicated driver education; however, because extant data did not permit investigation into either the type or quality of this experience, this item of biographical information was deleted from further statistical analysis.

In determining the answer to the third sub-problem, the multiple-cutoff method was employed. This technique necessitated the establishing of a critical score for each of the three statistically significant areas of the test device and for the sum of statistically significant biographical information. Once these critical scores had been established, test and biographical data for each subject were assessed to determine the number in each group who would achieve a critical score on one or more of these areas. It was found that critical scores on the impulsive scale and on the sociable scale of the Thurstone Temperament Schedule in combination with a critical score on the sum of statistically significant biographical data, provided maximum separation of the groups.

The fourth sub-problem was approached by selecting individuals of the experimental group who were likely to be representative of extremes of adjustment as indicated by test and biographical data. Subjects achieving a critical score on each of the four areas were considered as well-adjusted, subjects failing to achieve a critical score on any one of these areas were considered as poorly adjusted for purposes of this phase of the investigation. The well-adjusted group consisted of 24 subjects, each of whom achieved a critical score on each of the four areas. The poorly-adjusted group consisted of 112 subjects, each of whom had failed to achieve a critical score on any one of the four areas. Each of these two sub-groups then was compared with (a) the remaining members of the experimental group, and (b) with the other sub-group, in terms of their driving records as indicated by accident and violation experience. The well-adjusted group was found to have a better over-all driving record than either the poorly-adjusted group or the remaining members of the experimental group from which they were drawn. The poorly-adjusted group, conversely, exhibited a poorer driving record than either of the other two groups.

As an adjunct to the main portion of this investigation, 63 subjects, each of whom indicated a driving experience of 50,000 or more miles per year, were compared to the experimental group in terms of (a) test data, (b) biographical data, and (c) accident and violation data. Members of this high-exposure group were found to be more vigorous, more impulsive, more sociable, and less reflective than were members of the experimental group.

On items of biographical information, statistically significant differences were obtained between the groups on (a) job turnover, (b) present occupation, (c) annual salary, and (d) type of vehicle driven. Members of the high-exposure group were found to have a higher rate of job turnover and higher annual earnings than members of the experimental group. Moreover, as might be expected, a large proportion of these high-exposure subjects were professional chauffeurs or driver salesmen who drove various types of equipment in addition to passenger vehicles.

Inspection of driving records revealed the high-exposure group to have a violation history considerably poorer than that of the experimental group; however, their accident experience actually was better than that of the experimental group.

CONCLUSIONS

On the basis of (a) data revealed during the planned interviews with each subject, (b) responses to each of the seven areas of the Thurstone Temperament Schedule, and (c) in the case of the experimental and the high-exposure group of offenders, traffic accident and violations records, the following conclusions seem warranted.

For purposes of distinguishing traffic offenders from non-offenders, impulsive, sociable, and reflective traits, as measured by the Thurstone Temperament Schedule,

appear to provide for such differentiation, the offender group rating higher on impulsive and sociable, and lower on reflective, than the non-offender group. However, the active, vigorous, dominant, and stable traits, as measured by the Thurstone Temperament Schedule do not appear to be of value in distinguishing traffic offenders from non-offenders.

The following items of biographical information appear to be of value for purposes of distinguishing traffic offenders from non-offenders:

1. Age.
2. Marital status.
3. Education.
4. Occupation.
5. Number of positions held during the 5-year period preceding examination.
6. Reasons for terminating previous employment.
7. Annual Salary.

The categories of biographical data which do not appear to be of value for purposes of distinguishing between traffic offenders and non-offenders are as follows:

1. Number of children.
2. Languages written.
3. Hospitalization.
4. Types of vehicles driven.
5. Nature of driving experience.

The following combination of personality traits, as measured by the Thurstone Temperament Schedule, and biographical data, appears to be of most value for purposes of distinguishing traffic offenders from non-offenders: Impulsive and sociable traits, in combination with the biographical items of age, marital status, education, occupation, number of positions held during the 5-year period preceding examination, reasons for terminating previous employment, and annual salary.

The traffic accident and violation records of well-adjusted traffic offenders, as identified by a combination of test and biographical data, are likely to be superior to the records of poorly-adjusted traffic offenders as identified by the same criteria. Also, the driving records of these well-adjusted individuals are likely to be better than the records of traffic offenders who are considered neither well-adjusted nor poorly-adjusted. Driving records of poorly-adjusted traffic offenders, on the other hand, are likely to be worse than those of either of the other groups.

From a comparison of the driving records of traffic offenders whose driving experience was less than 50,000 miles per year with those whose driving experience was in excess of this amount, it appears that annual mileage has little effect on accident experience, but that violation experience seems to increase with driving exposure.

RECOMMENDATIONS

With the traffic problem as acute as it is, those active in traffic accident prevention efforts may be interested in possible application of the findings of this investigation. Therefore, the following recommendations are presented for consideration:

1. The items of a biographical nature revealed to be statistically significant be among those items included on application forms for prospective drivers and license applicants. The purpose here would be not that of selection, but of identification of individuals toward whom further investigation might be indicated. Likewise, it may be well to include these items on periodic inventories administered to driver personnel.
2. The areas of the Thurstone Temperament Schedule revealed to be statistically significant be included among the devices used in screening applicants for licenses or for positions as drivers with commercial, business, or industrial establishments. These areas of the test device may well prove of value with in-service drivers, and with traffic offenders as well, in assessing selected personality traits as an aid in establishing refresher and remedial activities.
3. The questionnaire on estimated driving experience, developed for purposes of

this study, be used in an effort to obtain reliable estimates of driving experience among motoring populations.

TABLE 1

COMPARISON OF STATISTICAL MEASURES OBTAINED ON TEST DATA FOR THE EXPERIMENTAL AND CONTROL GROUPS

Area ¹	Group	Mean	Std. Dev.	Std. Error of		Critical Ratio
				Mean	Diff. ²	
Active, A	Exp.	9.34	3.22	0.117	0.28	0.214
	Con.	9.40	3.53	0.253		
Vigorous, V	Exp.	11.88	3.42	0.124	0.31	1.10
	Con.	11.54	4.01	0.287		
Impulsive, I	Exp.	11.46	3.08	0.112	0.25	4.44 ³
	Con.	10.35	3.23	0.231		
Dominant, D	Exp.	10.49	4.67	0.169	0.39	1.18
	Con.	10.03	5.01	0.359		
Stable, E	Exp.	12.04	3.51	0.127	0.28	0.321
	Con.	12.13	3.45	0.247		
Sociable, S	Exp.	13.64	3.25	0.118	0.28	3.64 ³
	Con.	12.62	3.51	0.251		
Reflective, R	Exp.	8.18	3.19	0.115	0.25	3.00 ³
	Con.	8.93	3.20	0.229		

¹ Area of the Thurstone Temperament Schedule.

² Difference between two uncorrelated means.

³ Statistically significant at the 0.01 percent level.

Because it is expected that several States will move in the direction of establishing clinics for driver improvement purposes, the following recommendations, which are based on (a) observations of clinic operation during the conduct of this study, and (b) a review of the literature on clinics, past and present, are advanced for the perusal of those individuals and groups interested in such activity:

1. A thorough and effective accident reporting system, operating with equal effectiveness throughout the populations to be affected, should be established if motorists truly representative of the offender population are to be reached. Ideally, reciprocity among the various States and the District of Columbia should be provided for the exchange of accident and violation information so that the driver's record may be as complete as possible.

2. A point system should be established for purposes of (a) assessing the individual's driving performance, (b) notifying him of this performance, and (c) providing data to the Department of Motor Vehicles, the courts, and persons associated with rehabilitative functions, including the clinic.

3. The reported findings of other traffic clinic operations should be pursued and evaluated before deciding on the procedure to be followed or the instruments to be used.

4. Clinics should be designed and evaluated by a group comprised of persons with preparation and experience in the fields of motor vehicle administration, law, education, sociology, psychology, psychiatry, and medicine. (The new clinic in New York State is being developed along these lines.) Public or privately supported institutions of higher learning appear to be the logical source for obtaining such personnel and consultative services.

5. Personnel used to staff such clinics should be of the highest quality and they should be thoroughly familiar with interviewing procedures and test administration.

6. The keynote of the clinic as it operates in driver improvement situations should be experimentation. New devices, techniques, and processes should be introduced just as soon as practicable when research or rational grounds indicate their possible value.

7. Clinic findings (including those of other individuals and agencies to whom the subject might have been referred) should be interpreted to the subject and whenever possible specific suggestions should be made as to how he might improve his driving performance.

8. Provision should be made for follow-up study of subjects examined at the clinic, such a follow-up to evaluate, in some measure, the effectiveness of clinical procedure.

Inasmuch as considerable emphasis today is being directed toward the role of the driver in traffic accident causation, it is expected that additional research will be conducted in this general area. Accordingly, the following recommendations are presented for the assistance of those undertaking such investigation:

1. That further research be conducted, using the Thurstone Temperament Schedule, on offender and non-offender populations where equating factors in addition to driving experience are considered.

2. That further research be conducted on offender and non-offender populations, using devices which probe more deeply into those relatively stable personality traits of impulsive, sociable, and reflective, as identified by the Thurstone Temperament Schedule.

3. That data of offenders be probed further to establish the relationship between violations and accidents.

4. That more extensive data of a biographical nature be obtained from subjects, because this type of data proved more discriminating than any area of the test device used in this investigation.

5. That test technicians, in cooperation with traffic safety specialists, develop test instruments which will probe more deeply into the impulsive, sociable, and reflective traits of personality as these relate to driving performance.

Through research such as that suggested and through implementation of the recommendations advanced here, it is believed that those active in the field of traffic safety will improve their understanding of why drivers commit traffic offenses, and will be better able to initiate and evaluate driver improvement activities.

REFERENCE

1. Heath, E.D. "The Relationships Between Driving Records, Selected Personality Characteristics and Biographical Data of Traffic Offenders and Non-Offenders." Unpublished Ph.D. Thesis, New York University (1957).