Personality Dynamics of Driving Under the Influence of Alchohol

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Abstract

Two hundred persons arrested for DUI, 30 social drinkers, 30 clinically
depressed patients, 30 incarcerated criminals, and 30 alcoholics completed
the Hogan Personality Inventory (HPI). A cluster analysis of HPI scores
for the DUI group revealed five personality types similar to those
identified by Donovan & Marlatt (1982): Impulsive Extraverts, Normals,
Passive Depressives, Hostile Aggressives, and Serious Conventionals.
Impulsive Extraverts and Normals had HPI profiles similar to the social
drinkers, Passive Depressives resembled the depressed patients, and Hostile
Aggressives resembled the criminals.

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Recent research indicates that driving under the influence of alchohol (DUI) may be better explained by personality variables than by attributing the problem to clinical alcoholism (Clay, 1972; Donovan & Marlatt, 1982; Donovan, Marlatt, & Salzberg, 1983; Donovan, Queissler, Salzberg, & Umlauf, 1985; Scoles, Fine, & Steer, 1984; Snowdon, 1984). Donovan and Marlatt (1982), for example, identified the following five distinctive personality types within the DUI population through cluster analysis: Passive Depressed, Hostile Aggressive, Impulsive Extraverted, Self-Controlled, and Normal. The present study conceptually replicates and extends Donovan and Marlatt's work.

Two considerations warrant the present replication and extension. First, Donovan and Marlatt's questionnaire, constructed specifically for their study, is an ad hoc assemblage of short scales. Donovan and Marlatt themselves note that their scales, taken out of their original context, may be unreliable, and that the unusual length of their questionnaire may have affected the validity of the scale scores.

Donovan and Marlatt also fail to compare the personality profiles of their DUI types to any non-DUI groups. Type labels (e.g., "Passive Depressed") are based upon relative differences within the DUI sample itself. Passive Depressives may show relatively high levels of depression compared to the remainder of the DUI sample, but it is uncertain how their level of depression compares to normal non-DUI's, clinically depressed non-DUIs, etc.

The present study corrects for these two shortcomings. First, it

uses the Hogan Personality Inventory (HPI; Hogan, 1986), an inventory

with demonstrated reliability and validity. HPI normative data can be

used to compare DUI types to the general population. The HPI was also

administered to four additional reference groups who were expected to

resemble the DUI types as follows: depressed patients (Passive

Depressed DUIs), criminals (Hostile Aggressive DUIs), social drinkers

(Impulsive Extraverts and Normals) and alcoholics (no predictions

made).

Method

Subjects

Five groups of subjects took part in the study. All were

volunteers who participated without compensation. The first were 200

DUI offenders (184 male, 6 female) arrested for driving a motor vehicle

while at the "per se level" level of intoxication (.10 blood alcohol

level in Pennsylvania, measured by certified breath or blood testing).

The remaining comparison groups had never been arrested for a DUI

offense. The first comparison group consisted of 30 social drinkers (6

male, 24 female) who responded to an advertisement to participate in

the study. These persons reported ingesting no more than two drinks

per day, had never experienced life problems through the use of

alcohol, and had no alcohol related health problems. The second

comparison group consisted of 30 patients from a rural Pennsylvania

community mental health center (6 male, 24 female) who were being

treated at the time for depression as defined by DSM III diagnostic

criteria. The third group contained 30 criminals (26 male, 4 female)

serving jail terms in a Pennsylvania county prison for reasons other than driving under the influence. The final comparison group was 30 alcoholics (23 male, 7 female) recruited from drug/alcohol agencies, AA groups, and hospital/rehabilitations centers in rural northwest Pennsylvania.

Procedure

After signing an informed consent form, all subjects completed the Hogan Personality Inventory (HPI; Hogan, 1986). The HPI, a 310 item true/false self-report inventory, assesses six major dimensions of personality identified and replicated over a forty year span of factor analytic research (Fiske, 1949; Norman, 1986): Intellectance, Adjustment, Prudence, Ambition, Sociability, and Likeability. Alpha reliabilities for the scales range from .76 to .89; four-week test-retest reliabilities range from .74 to .99. The scales have been validated in samples (total N over 2000) of adult men and women employed in a variety of occupations (Hogan, 1986).

The PKM clustering program from the BMDP statistical package (Dixon, et al., 1983) was applied to the six primary HPI scale scores for the 200 DUI offenders. PKM was programmed to begin with one cluster and to split cases based upon Euclidian distances to the cluster mean until five clusters were formed. The intent was to define five groups in which the HPI profile patterns within groups are similar and profiles between groups are different.

Mahalanobis D^2 values (Rao, 1952) were computed to test for statistically significant differences between DUI and comparison group

profiles. Relative similarities between the DUI and reference group profiles were then examined through Cronbach's D^2, a descriptive measure better suited for comparing profile similarity values (Cronbach & Gleser, 1953). Finally, groups were compared through the SPSS discriminant analysis program (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The intent was to determine whether cases from each DUI type group would be misidentified most frequently as belonging to its distinctive comparison group and whether the comparison groups would be misidentified most frequently as belonging to their respective DUI type groups. Such differential "misidentification" would indicate the degree of similarity between the DUI types and their comparison groups.

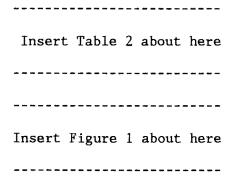<div align="center">Results</div>

Cluster Analysis

The cluster analysis generated five DUI groups with distinctive profiles on the Hogan Personality Inventory. A multivariate analysis of variance using cluster membership as the grouping variable and the six HPI scores as dependent variables produced an $F(6,190)$ value of 3604.94, $p < .00001$. Univariate ANOVAs showed significant differences among the clusters on every HPI scale. Means, expressed as T-scores based on normative data from the HPI manual, are presented for the DUI clusters and four comparison groups in Table 1. Clusters were named according to each profile's distinctive pattern of high and low scores. Four of the five clusters showed a strong prima facie resemblance to the types identified by Donovan and Marlatt.

Insert Table 1 about here

HPI Profile Comparisons

Table 2 presents both the Mahalanobis and Cronbach D^2 values. Mahalanobis D^2 values showed that all DUI cluster profiles differed significantly from the profiles of the four comparison groups. Thus, none of the DUI clusters was found to "belong to" one of the comparison group populations in a statistical sense.

According to the Cronbach D^2 values, Impulsive Extravert DUIs are most similar to social drinkers. Both groups showed relatively flat profiles hovering about the T-score = 50 level with a slight elevation on the Sociability scale. Impulsive Extraverts differed from the social drinker group only in a somewhat lower score on the Prudence scale, indicating a greater degree of impulsivity and self-indulgence (see Figure 1).

Insert Table 2 about here

Insert Figure 1 about here

Normal DUIs resembled the social drinkers more than any other group, but the resemblance is much smaller than the similarity between the Impulsive Extravert DUIs and social drinkers. Normal DUIs showed

average Intellectance and Adjustment, slight peaks on Prudence and Likeability, and slightly depressed scores on Ambition and Sociability. These last two scores distinguish Cluster 2 from the Impulsive Extraverts and social drinkers (see Figure 1).

Passive Depressed DUIs most closely resembled clinically depressed patients, but also showed similarities to the criminal and alchoholic groups. The profile shapes of the Passive Depressed DUIs and depressed patients were nearly identical (peaks on Prudence, Sociability, and Likeability with valleys on Adjustment and Ambition) but the patients had much lower Adjustment scores and much higher Prudence scores (see Figure 2).

Insert Figure 2 about here

The Hostile Aggressive DUIs resembled the criminals most closely, but also tended to resemble the alcoholics. Both profiles showed valleys on Adjustment and Likeability, but the valleys were much deeper for the DUIs (see Figure 3).

Insert Figure 3 about here

Finally, the remaining DUI cluster showed little resemblance to any comparison group. The HPI profile for this cluster showed average scores on Adjustment, Prudence, and Likeability, a low score on Sociability, and extremely low scores on Intellectance and Ambition

(see Figure 4). Such a pattern suggests an individual who is practical, unimaginative, quiet, reserved, unassertive, conventional, and conforming; hence the label, "Serious-Conventional."

Insert Figure 4 about here

The HPI profile of the 30 alcoholics fit the description of an alcoholic "self-handicapper" (Berglas, 1985): low adjustment (marking anxiety and low self-esteem) with high sociability (marking a need for social approval). Although none of the DUI types showed primary resemblance to this profile, both the Passive Depressives and Hostile Aggressives showed some resemblance to the pattern.

Discriminant Analysis

Only the first discriminant function showed an eigenvalue greater than unity (1.4). This function accounted for 46.5% of the variance and classified 62.5% of the 320 cases correctly. Table 3 shows the results of the hit and miss rates for the discriminant analysis. The data of most interest are the misclassifications. In all cases DUI cluster types were most often misclassified as belonging to their predicted comparison group, and vice-versa (see Table 3). For example, Impulsive Extraverts were misclassified most often as social drinkers and social drinkers were misclassified most often as Impulsive Extravert DUIs.

Insert Table 3 about here

Discussion

The present results strongly support Donovan and Marlatt's (1982) contention that the driving-under-the-influence population contains distinct personality subtypes. Two types--an egocentric, sensation-seeking "Hostile Aggressive" type and a poorly adjusted "Passive Depressed" type--clearly correspond to Donovan and Marlatt's types of the same name. Data from the present study suggest that these two types also tend to resemble clinical alcoholics and thus support Donovan and Marlatt's contention that these types are the most deviant and possess the most risk-enhancing personality characteristics.

The present study also replicates Donovan and Marlatt's identification of two less deviant DUI personality types--a group of somewhat careless "Impulsive Extraverts" and a group of mild-mannered "Normals." These types correspond to Donovan and Marlatt's types of the same name. In both studies the Impulsive Extraverts showed high interpersonal involvement while the Normals scored relatively low on risk-taking and aggression. Although less than fully well-adjusted, these two groups appear to be at less risk than the Passive Depressed and Hostile Aggressive types.

The remaining personality type in the present study (Serious Conventional) bears a family resemblance to the Donovan and Marlatt Self-Controlled type. Donovan and Marlatt suggest that their

Self-Controlled type is a milder version of the hypermasculine Hostile

Aggressive type. Indeed, the present Serious Conventional type can be

described in terms of a cluster of traits typically found in the many

working class men: anti-intellectual, unambitious, reserved,

conventional, and conforming.

One methodological caveat concerns the fact that the proportion of

males to females in our comparison groups did not always approximate

the largely male DUI population. However, HPI norms for males and

females are highly similar (Hogan, 1986) and the HPI profiles for the

DUI clusters and their respective reference groups are similar despite

the differences in male/female proportions. Had the reference groups

been primarily male, we might expect even greater profile similarities.

This replication of Donovan and Marlatt's (1982) DUI personality

types further suggests the need for differential assessment and

treatment programs for DUI offenders. "Normal" types--particularly the

Impulsive Extraverts--may benefit the most from the kind of

self-control drinking programs used in the treatment of alcoholics and

problem drinkers. Passive Depressives might benefit from assertiveness

training and/or related depression management programs. Hostiles may

need to develop skill at anger managment and might also profit from

career counseling to channel their energies in a socially constructive

direction. Now that Donovan and Marlatt's results have been

replicated, it seems appropriate to investigate the relative outcome of

such differential treatment programs across the personality types.

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Author Notes

Table 1

HPI Profiles for DUI Clusters and Reference Groups

Cluster/Group	N	Means[a]					
		INT	ADJ	PRU	AMB	SOC	LIK
1 Impulsive Extraverts	49	48.8	46.7	41.3	49.8	55.7	52.0
2 Normals	45	49.0	50.7	58.3	41.4	43.0	55.4
3 Passive Depressed	32	35.7	33.4	44.4	32.8	40.7	42.0
4 Hostile Aggressive	36	45.3	31.4	44.2	47.9	48.9	32.4
5 Serious Conventional	38	28.6	46.2	56.2	28.4	42.0	47.8
Total DUI	200	41.9	42.6	49.4	40.7	46.6	46.8
$F(4,195)$		47.9***	48.3***	36.2***	48.7***	37.0***	67.0***
Social Drinkers	30	45.2	45.1	48.8	45.8	52.7	51.0
Depressed Patients	30	40.3	23.2	50.4	34.7	43.6	40.0
Criminals	30	46.2	37.6	44.7	44.9	51.1	44.4
Alcoholics	30	40.9	29.7	37.8	45.1	54.3	41.7

[a]T-scores computed from normative data for males presented in Hogan (1986).

***$p < .001$

Table 2

Indices of Profile Similarity for DUI and Reference Groups

Similarity to Reference Groups

	Social Drinkers	Depressed Patients	Criminals	Alcoholics
DUI Clusters				
Impulsive Extraverts	43.74	486.00	73.50	216.00
	1.92	10.28	3.09	4.60
Normals	100.86	541.50	245.76	588.06
	2.84	11.54	4.96	11.41
Passive Depressives	194.94	91.26	96.00	105.84
	7.70	3.85	4.63	3.01
Hostile Aggressives	181.50	116.16	50.46	54.00
	6.74	4.28	2.18	2.13
Serious Conventionals	201.84	393.66	294.00	496.86
	8.90	9.32	8.98	11.26

Note. Top number is Cronbach's D^2; second number is Mahalanobis D^2.
All Mahalanobis values are significant at the p < .001 level.

Table 3

Hit and Miss Rates for Group Identification from Discriminant Analysis

Group	Percent Classified in Each Group								
	Group								
	1	2	3	4	5	6	7	8	9
DUI Types									
1 Impulsive Extraverts	71.4	0.0	2.0	0.0	2.0	18.4	0.0	4.1	2.1
2 Normals	0.0	82.3	0.0	0.0	0.0	13.3	0.0	4.4	0.0
3 Passive-Depressed	0.0	0.0	71.9	0.0	3.1	0.0	15.6	9.4	0.0
4 Hostile	0.0	0.0	2.8	58.3	0.0	0.0	2.8	22.2	13.9
5 Serious-Conventional	0.0	0.0	2.6	0.0	94.8	0.0	0.0	2.6	0.0
Comparison Groups									
6 Social Drinkers	30.3	13.3	3.3	3.3	6.7	26.5	3.3	10.0	3.3
7 Depressed Patients	3.3	6.7	6.7	3.3	0.0	0.0	70.0	3.3	6.7
8 Criminal	10.0	3.3	10.0	16.7	10.0	16.7	6.7	13.3	13.3
9 Alcoholics	10.0	3.3	10.0	16.7	3.3	0.0	6.7	0.0	50.0

Figure Captions

Figure 1. HPI profiles for Impulsive Extravert DUIs, Normal DUIs, and social drinkers.

Figure 2. HPI profiles for Passive Depressive DUIs and clinically depressed patients.

Figure 3. HPI profiles for Hostile Aggressive DUIs and criminals.

Figure 4. HPI profile for Serious Conventional DUIs.

Legend:
□ Impulsive Extravert DUIs
○ Normal DUIs
■ Social Drinkers

Y-axis: 30, 40, 50, 60
X-axis: INT ADJ PRU AMB SOC LIK