Perceptual Distortion in a Forensic Population

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Abstract

After conducting a series of research examinations to evaluate the parameters of various individual psychological constructs in a mid-Michigan prison-diversion, work-release program, it became clear that perceptual distortion, paranoia, and other dysfunctional dynamics were a factor in individual cognitive processing. The following article examines those reported dynamics in this population from valid Hoffer-Osmond Diagnostic test results.

Introduction

Evaluating the potential for genuine psychiatric symptoms, psychopathy, and general psychopathology within a forensic population is, at best, an arduous task. Sincerity and trustworthiness must be conveyed by the researcher or evaluator, and exceptional rapport must be established if the collected data is to be meaningful. Based on the above statement, and with several exclusions discussed below, it is believed that the following data is representative of the true level of experiential functioning of the participants.

Participants

The tested population consisted of residents (N=79) of a mid-Michigan prison and jail diversion program. All subjects were male, and ages ranged from 18 to 60 years old (M=34.5, SD=10.31). The participant's median age was 35, similar to the mean, but the mode was significantly lower at 18. Completed education levels reported by the participants ranged from seventh grade (n=1) to college graduate (n=1), with all others falling between (M=11.7, SD=1.63). The median and the mode grade completed was 12, as slightly over one-third of the participants reported completing high school or its equivalent (n=28, 35.4%). A comparison of age and education level delineated by race is defined in **Table 1**, (p.183).

The racial composition of the group reflects a diverse population. The breakdown of the population by number, and percent of the total population, is illustrated in **Table 2**, (p.183). Please note that the term Black is used throughout with respect to the participants who prefer the term, rather than African American. Zero participants indicated being in three other categories listed on the demographic sheet, which were Native American, Oriental, and Other, and due to the low number of Hispanic and Mixed participants, those two categories were combined for comparative purposes.

Total arrests and convictions were also evaluated for potential impact or correlation to perceptual distortion and other symptoms within the population. The total number of adult arrests reported by this population was 624 (M=7.9, SD=5.40). The median reported number of arrests was six, and the mode was four. While the 0.05 confidence level of this data was 1.19, Microsoft® Excel TRIMMEAN[a] function was used to eliminate high and low reported extremes and established a more probable mean of 7.23 arrests per person. Convictions for misdemeanors totalled 380 (M=4.8, SD=3.78). The median reported number of convictions for misdemeanors was four, and the mode was three. The 0.05 confidence level of the misdemeanor conviction data set was 0.83, but TRIMMEAN returned a more probable mean of 4.40 misdemeanor convictions each. Reported felony convictions for the population totalled 200 (M=2.5, SD=2.20). The median for felony convictions was two, and the mode was one. The 0.05 confidence level of the felony conviction data set was 0.49, and

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Table 1: Age and education means and standard deviation by race.

Category	Total (N=79)	White (n=40)	Black (n=32)	Remaining (n=7)
Age	34.60 (SD = 10.31)	34.70 (SD = 9.3)	35.20 (SD = 11.1)	30.90 (SD = 12.8)
Education	11.56 (SD = 1.63)	11.98 (SD = 1.69)	11.28 (SD = 1.42)	10.43 (SD = 1.72)

Table 2. Population by race and percent.

Race	Number	Percent
White	40	50.6
Black	32	40.5
Hispanic	4	5.1
Mixed	3	3.8

TRIMMEAN provided a more probable mean of 2.14 felony convictions each. The combination of convictions for felonies and misdemeanors totalled 580, or a mean of 7.34 combined convictions each.

Method

Each participant completed a demographic sheet, and the Hoffer-Osmond Diagnostic test (HOD),[1] paper and pencil version. The respondent's answers from each completed form were then entered into a Microsoft® Excel scoring program designed by the author with corrected HOD scoring procedures.[2] Those data were then analyzed for statistical patterns and factor correlation. Based on various reasons, four of the original 83 participant's tests were considered invalid, and neither their demographic data nor their HOD scores were included in any of the following analysis.

The demographic sheet of the various research projects asked numerous questions about the participant. Obviously from the above reported data, age, race, highest grade completed, arrests, and convictions were requested. Gender was not requested, as all participants were male. They were asked to indicate if they had been to prior counselling, and if they were on any current psychotropic medications. Further, the demographic sheet listed nine categories of commonly used drugs (i.e., alcohol, marijuana, cocaine, hallucinogenics, "downers", crack, "speed," mushrooms, and heroin.[b] Each participant was asked to indicate (up to) the top four choices with regard to the individual's use pattern, although not all four ranks were required if the participant did not use four substances. The participant's were asked to only indicate a rank number of one through four to indicate preference order, with the number one being the participant's favourite drug-of-choice. All listed substances beyond the individual's indicated choices, or the four ordered numbers requested, were given an equal value of five to statistically evaluate the data. Some participants had no second, third, or fourth choice. The participants were also asked to provide the number of days per week they used their drug of choice.

Results

Hoffer-Osmond Diagnostic Results

The Total Score (TS) mean of the population was elevated well above what one would expect from a normal population merely incarcerated for violations of the law (M=44.76, SD=31.82). The range of the TS was 4 (n=2) to 144, and the median TS was similar to the mean at 42, but the mode was 23. The 0.05 confidence level of the TS was an elevated 7.02, but TRIMMEAN provided a much more probable corrected mean of 41.18. Many of the participants (n=21, 26.5%) had scores at the diagnostic level (60) or above.

There were similar elevated results for the sub-scales as well. The perceptual score (PerS) possible range of 0 to 53 returned a mean of 8.56, with a standard deviation of 7.68. The range of the PerS was 0 (n=6) to 33 (n=2), the median was eight, and the mode was 2. The 0.05 confidence level of the PerS was a less elevated 1.69, and TRIMMEAN provided a much more probable corrected mean of 7.49. Again, a significant number of participants (n=29, 36.7%) reported experiencing perceptual distortions at, or greater than, 10 on this subscale.

The paranoid score (PS) mean was equally elevated (M=3.96, SD=3.07). With a possibility of 0 to 18, range scores for the subscale were 0 (n=9) to 12 (n=3), with a median of 3, and a mode of 5. The 0.05 level of confidence was 0.68, and the TRIMMEAN smoothing resulted in a probable mean of 3.68. While there are some legitimate concerns within this population regarding paranoid ideation, plugging this data into the constellation of issues that are being explored here gives this elevation validity. More than 40% (n=33) reported experiencing paranoia at or above 27% of the possible symptoms on the scale.

The depression score (DS) subscale indicates a thread of distressing rumination (M=4.68, SD=3.84) on the 0 to 15 scale. The range of scores were 0 (n=9) to 15 (n=2), and the median and the mode were both 4. Confidence at the 0.05 level was 0.85, and TRIMMEAN provided a corrected total mean of 4.26. Fourteen of the participants (17.7%) reported DS scores of 8 (53.3%) or above.

The HOD Short Form (SF) scale provides a view toward the most individually distressing symptoms in the inventory. SF scores have the possibility of 0 to 17, and this population evidenced a range of 0 (n=7) to 15 (n=1). The population mean was also high (M=4.08, SD=3.38), and the median was 3 with a mode of 0. Interestingly, 32 of the total 79 participants (40.5%) endorsed 5 (29.4%) or more of the items on the SF. Confidence of the SF at the 0.05 level was 0.75, and TRIMMEAN calculated a more probable SF total mean of 3.94.

The HOD items most endorsed are presented in **Table 3,** (p.185) along with the percentage that endorsed that item as true. Those endorsements would tend to indicate a high amount of projection, magical thinking, paranoia, auditory hallucination, dissociation, and experiential time distortion. Items 82 through 101, which are not included in the HOD totals or subscales, are excluded from this analysis. Those items are primarily used to determine the level of cognitive processing, intact logic, and the possible mental disorganization of the subject, and thus are excluded from overall analysis. It should be noted here, that most of the participants in this research were considered to be cognitively intact.

Substance Abuse Results

Of the selections cast for drug of choice on the demographic sheet, alcohol garnered the most number one votes (n=33, 41.7%), and marijuana finished number two in first place votes (n=28, 35.4%). Crack received 9 votes (11.3%), and interestingly cocaine and heroin tied

Table 3. HOD items most endorsed with percentage of subjects that endorsed item as true.

Item No.	Pct.	Most Endorsed HOD Items
138	75.9	I know that most people expect a great deal of me
70	68.4	I have a mission in life given to me by God
67	64.4	At times I am aware of people talking about me
73	62.0	At times when I come into a new situation, I feel strongly the situation is a repeat of one that happened before
109	62.0	I am often misunderstood by people
121	58.2	I often hear my thoughts inside my head
123	58.2	I hear my own thought as clearly as if they were a voice
111	57.0	Very often friends irritate me
64	54.4	At times my ideas disappear for a few moments and then reappear
54	53.2	Some days move by so quickly it seems only minutes have gone by

Table 4. Weighted value means and days of use per week.

Substance	M	SD
Alcohol	2.20	1.40
Marijuana	2.71	1.67
Cocaine	4.06	1.27
Hallucinogenics	4.77	0.64
Downers	4.80	0.69
Crack	4.01	1.49
Speed	4.75	0.78
Mushrooms	4.84	0.54
Heroin	4.75	0.91
Use Days Per Week	5.22	1.83

Note. The lower the mean, the more preferred. Closer to 5, the more rejected. The Use Days Per Week is not weighted, but is presented as a straight mean.

with 4 (5.0% each). This was a marked increase in heroin preference as drug of choice over previous research at this facility.[3]

To further illustrate the drug-of-choice patterns in the population, the weighted values of reported choices were also analyzed (see Table 4, above) for a statistical mean based on numerical values assigned by the respondents. Note that the closer the mean is to 1 the more preferred the substance is for the user. Conversely, the closer the mean is to 5, the more rejected the substance was by the population. Use days per week

(UPW) is presented as a straight mean, as it had no weighted value. The UPW as reported (see Table 4) was very high (M=5.22, SD=1.83). In reported number of days per week that the individuals engaged in using their drug-of-choice, the median was 5, and the mode was 7. The 0.05 confidence level of the UPW data set was 0.49, and TRIMMEAN provided a slightly higher and more probable mean of 5.38 days per week that a statistically similar population would use their drug of choice.

Correlations

Correlations of HOD TS and other subscales to drug use in this population are included to evaluate potential connections. Other factors (e.g., age, education, etc.) are also included to evaluate any possible connection to increased scoring on HOD scales. A complete correlative table is presented in **Table 5**, (p.187), including a Key A and Key B evaluation.[4] While most correlation data in this comparison was less than statistically significant, the strongest positive correlation was the use of crack with the increased HOD symptoms reported, specifically to Key A1. All crack use correlations are positive. The strongest overall negative correlation to HOD symptoms was indicated in those participants with a preference for the use of "downers." Interestingly, there is a mild correlation between the preference for marijuana and the HOD paranoid score (PS) reported.

Also evaluated was the potential correlation of reported criminal history to scales of the HOD. The data again proved less conclusive that originally anticipated, however, some interesting patterns do appear (see **Table 6**, p.187). Elevations in convictions for misdemeanors were all correlated positively, if somewhat mildly, with reported HOD symptoms.

Discussion

When 100% of even a small sub-population within a community engages in a similar activity, such as using mind altering substances, there is a genuine possibility that individuals could be self-medicating various aspects of personal psychological dysfunction. Recidivism at this level now becomes more of a clinical issue, rather than a problem that can be corrected by purely punitive measures. Psychiatric influences and potential biological disequilibrium must be appropriately evaluated and addressed, or the behaviours that led to this episode of incarceration will merely recur with progressively more severe consequences.[5]

Another disturbing fact revealed by this collected data is the extremely high number of individuals (78.48%) that have been in previous therapy prior to this current incarceration (n=62), apparently to little avail. Finally, the number of individuals who tested very high in terms of genuine psychiatric symptoms was also unsettling, and yet only a minor portion were receiving medicinal compensation for those symptoms (n=7, 8.86%). From other research, symptoms of dissociation, personality disorder, depression, psychosis, among other severe psychological problems, are almost uniformly elevated in this population,[4] with the more disturbing symptoms on various inventories more consistently endorsed. The results of the above-evaluated data indicate a genuine need for further study of potential biological causation of socially unwanted behaviour, incorporation of more appropriate evaluative measures, and a reconsideration of current treatment modalities.

References

1. Kelm H, Hoffer A, Osmond H: *Hoffer-Osmond Diagnostic test manual: Revised edition.* 1981; Behaviour Science Press: Tuscaloosa, AL.
2. Mitchell JA: Scoring errors in the Hoffer-Osmond Diagnostic test. *J Orthomol Med,* 2004; 19: 51-53.
3. Mitchell JA: Substance abuse trends in mid-Michigan 2001-2003 based on drug-of-choice reports in a forensic population. 2004 (Manuscript in submission).

Table 5. Correlation of HOD totals to gathered demographic data.

	HOD Scales and Keys							
Substance	**TS P**	**PerS**	**PS**	**DS**	**SF**	**Key A1**	**Key A2**	**Key B**
Alcohol	-0.11	-0.06	-0.05	-0.10	-0.17	-0.22	-0.06	-0.16
Marijuana	0.07	0.05	0.19	0.01	0.18	-0.06	0.09	0.04
Cocaine	0.00	0.00	0.00	-0.07	-0.01	0.14	-0.05	0.04
Hallucinogenics	-0.05	-0.02	-0.15	-0.02	-0.05	0.10	-0.07	-0.05
Downers	-0.19	-0.21	-0.22	-0.16	-0.20	-0.23	-0.17	-0.19
Crack	0.18	0.14	0.17	0.16	0.11	0.31	0.06	0.27
Amphetamines	0.15	0.20	-0.01	0.23	0.15	0.18	0.09	0.20
Mushrooms	-0.09	-0.06	-0.07	-0.12	-0.06	0.07	-0.10	-0.08
Heroin	0.03	0.04	-0.03	-0.01	-0.01	-0.01	0.01	0.05
UPW	0.02	0.01	0.06	0.06	0.08	-0.09	0.01	0.04
Age	-0.08	-0.06	-0.16	-0.03	-0.15	-0.04	-0.11	-0.03
Education	-0.19	-0.08	-0.24	-0.25	-0.20	-0.07	-0.23	-0.14

Note. TS = Total Score, PerS = Perceptual Score, PS = Paranoid Score, DS = Depression Score, SF = Short Form, UPW = Use days Per Week. Key A1 is the four-item subset of Key A. Other key descriptions can be found in the Hoffer-Osmond Diagnostic test manual.

Table 6. Correlation of arrests and convictions to HOD total score and subscales.

	HOD Scales and Keys							
Record	**TS**	**PerS**	**PS**	**DS**	**SF**	**Key A1**	**Key A2**	**Key B**
Arrests	-0.06	-0.04	-0.15	0.02	-0.09	0.01	-0.09	-0.03
Con Mis	0.09	0.06	0.05	0.02	0.14	0.09	0.10	0.06
Con Fel	-0.07	-0.10	-0.11	0.03	0.01	0.01	-0.07	-0.07

Note. Con = Convictions, Mis = Misdemeanors, Fel = Felony, TS = Total Score, PerS = Perceptual Score, PS = Paranoid Score, DS = Depression Score, SF = Short Form. Key A1 is the four-item subset of Key A. Other key descriptions can be found in the Hoffer-Osmond Diagnostic test manual.

4. Mitchell JA: Psychiatric symptoms in a forensic population. 2004. (Unpublished raw data).
5. Mitchell JA: Biological determinants of mens rea: When choice fails to compensate for bio-psychological perseveration. *J Orthomol Med*, 2005; 20: 35-49.

Footnotes

a. Microsoft® TRIMMEAN calculates the interior mean of the data set by excluding outlying data from the top and bottom tails of the data set. The trimmed percentage of all TRIMMEAN functions calculated in this research is 0.2, or 20 percent, ten percent from the top and ten percent from the bottom.
b. While cocaine and crack are quite simply both cocaine, and mushrooms and marijuana are in fact hallucinogenics, due to the variety of their strength, individual impact, and forms these were listed separately to further delineate use trends.