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Neuropsychological Performance of Sexual Assaulters and Pedophiles

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ABSTRACT: Persons who had been arrested for sexual assault were administered the Luria-Nebraska Neuropsychological Battery and the results compared to a group of normal controls. The sexual assaulters performed significantly worse on 7 of the 14 scales of the battery. The data were then broken down into three groups: (1) those who had forcibly assaulted postpubescent victims, (2) those subjects who had sexually molested a prepubescent child, and (3) normal controls. A discriminant analysis correctly classified 68% of the subjects on the basis of their neuropsychological performance alone.

KEYWORDS: psychiatry, criminalistics, criminal sex offenses, neuropsychology

Evidence of brain dysfunction has frequently been found in persons who exhibit aberrant sexual behavior. The Kluver-Bucey syndrome, resulting from bilateral ablations of the anterior temporal lobes, leads to hypersexuality and inappropriate sexual behavior [1,2]. Inappropriate sexual behavior is frequently noted in persons suffering from progressive degenerative disorders such as Alzheimer's disease and Huntington's chorea. One study of Huntington's chorea found inappropriate sexual behavior in 30 of 48 patients studied [3]. Brain dysfunction has also been reported in cases of transvestitism, fetishism, sadism, voyeurism, and pedophilia [4-7].

Another form of deviant sexual behavior, forcible sexual assault, is a troublesome social problem. Forcible sexual assault, though a deviant sexual act, is qualitatively quite different from other inappropriate sexual behavior. There is little evidence that forcible sexual assault is motivated by a desire for sexual gratification. Rather, sexual assault seems to be an act of aggression and domination, with sexual arousal playing a lesser role in motivating this behavior. Rada [8] has stated that no major clinician believes that sexual assault is the result of uncontrolled hypersexuality. A more frequently accepted notion is that the assailant's behavior is a compensation for hyposexuality. Rada also suggested that the assailant typically feels inade-

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quate especially in heterosexual relationships, and demonstrates personal power and adequacy by depriving another person of his/her control of sexual intimacy.

The nosology of sexual assault may be closer to that of nonsexual assault than to other forms of deviant sexual behavior. Mark and Ervin [9] reported a pattern of deviance which they called, "episodic discontrol syndrome." This syndrome involves hyperaggressivity, pathological intoxication, and impulsive sexual behavior. Persons with this syndrome seem to exhibit an impulsive approach to all behavior, not just violent behavior. Such persons have been noted to exhibit impulsive automobile driving [9], ego centeredness [10], and attention seeking behavior [12].

It has been suggested that this syndrome may be related to limbic system dysfunction, or more specifically, to a failure of the cortical structures of the limbic system to inhibit impulses [9,13]. During interviews, sexual assaulters frequently describe the rape as an impulsive behavior that sometimes occurs during an argument, or while committing another illegal act such as a robbery or burglary. This is consistent with an hypothesis that forcible sexual assault may be, in part, a result of poor judgement and poor impulse control in a person with episodic dyscontrol syndrome.

A recent study examined the structural and functional integrity of the cerebrum in sexual assaulters. The investigators found poor neuropsychological performance, decreased cerebral blood flow, and decreased brain density in some of the subjects [14].

The data suggest that aberrant sexual behavior, including forcible sexual assault, may be related to cerebral dysfunction. This study examines the neuropsychological performance of persons arrested for (1) forcible sexual assault against a postpubescent male or female or (2) non-violent sexual assault against a prepubescent child.

Method

Subjects

The subjects were 36 male patients in a secure ward of a state psychiatric facility. All subjects had been arrested for sexual assault and had been ordered to undergo evaluation, as required by Nebraska law, for possible designation as "mentally disordered sex offender." Nebraska statutes define a mentally disordered sex offender as "any person who has a mental disorder and who, because of the mental disorder, has been determined to be disposed to repeated commission of sexual offenses which are likely to cause substantial injury to the health of others." Persons were excluded from the study if there was evidence of neurological impairment, such as a history of seizures, mental retardation, or head trauma. Subjects were included in the study only if they had committed a sexual offense which was assaultive in nature. Persons were included if they had forcibly assaulted a postpubescent adult, or if they had engaged in sexual relations with a prepubescent child. Persons who committed such crimes as bestiality or exhibitionism were not included in the study.

Procedure

All persons meeting the criteria for the study were interviewed upon admission and complete medical, social, legal, and familial histories were obtained. The appropriate police and court records were examined for each subject to assess the circumstances of the offense. The Luria-Nebraska Neuropsychological Battery was administered to each subject. The Luria-Nebraska Neuropsychological Battery (LNNB) is a standardized version of the neuropsychological techniques of the Russian psychologist, the late A. R. Luria [15]. The performance of the sexual assaulters on the LNNB was compared to a group of normal control subjects ($N = 31$) consisting of nonhospitalized volunteers and hospitalized persons without histories of psychiatric and neurological disorders. There were no significant differences in age (mean = 29.2; standard deviation [SD] = 8.6) or education (mean = 11.3; SD = 2.6) between the groups.

Results

Table 1 shows the *t* scores of the summary scales of the LNNB for both groups. The sexual assaulters performed worse on all the scales except Tactile and Left Hemisphere. *T* tests were computed for each of the scales and significant differences were found on 7 of the 14 scales; Visual ($t = 2.22$; $p < .05$), Receptive Speech ($t = 2.88$; $p < .01$), Writing ($t = 3.23$; $p < .01$), Arithmetic ($t = 2.63$; $p < .01$), Memory ($t = 2.22$; $p < .05$), Intellectual Processes ($t = 2.62$; $p < .01$), and Pathognomonic ($t = 2.80$; $p < .01$).

Experiment 2

Method

Perusal of the data seemed to indicate that the subjects arrested for forcibly assaulting adult victims performed differently than those arrested for nonviolent assault of prepubescent children. Police records were examined and the subjects were divided into a forcible sexual assaulters group (FSA) and a pedophiles (PED) group. There was no overlap between the two groups. The results of the Luria-Nebraska Neuropsychological Battery was examined for all three groups: (1) the forcible sexual assaulters, (2) pedophiles, and (3) normal controls (CT).

Results

Table 2 shows the means for the clinical scales of the LNNB for both the FSA and PED groups. The subjects arrested for sexual molestation of prepubescent children performed worse on all scales of the Luria-Nebraska Neuropsychological Battery than those subjects arrested for rape. A discriminant analysis was performed to determine whether the three groups could be differentiated on the basis of their neuropsychological performance. The results of the discriminant function are shown in Table 3. The function correctly classified 68% of the normal subjects while erroneously placing 23% of the normal controls in the FSA group and 10% in the PED group. Only 50% of the forcible sexual assaulters were correctly classified with approximately equal numbers incorrectly classified in the other two groups. Of the pedophiles, 64% were correctly classified, with 21% incorrectly placed into the FSA group and 14% classified as normal.

TABLE 1—*The means and standard deviations on the scales of the Luria-Nebraska Neuropsychological Battery for the sexual assaulters and the normal controls.*

Scale	Controls		Sexual Assaulters	
	Mean	SD	Mean	SD
Motor	44.85	6.99	48.77	11.62
Rhythm	48.64	11.96	49.44	14.86
Tactile	43.56	6.90	43.56	6.75
Visual	46.46	7.74	51.74	11.08
Rec. speech	45.81	12.06	54.50	12.55
Exp. speech	45.67	7.54	50.83	17.42
Reading	47.99	8.66	53.40	14.86
Writing	51.77	9.56	61.18	13.57
Arithmetic	48.96	10.44	60.28	21.91
Memory	44.99	8.68	51.67	14.70
Intellectual	46.88	8.24	55.00	15.48
Pathognomonic	46.08	8.14	53.10	11.76
Left	45.71	8.36	45.23	8.27
Right	42.51	8.22	43.68	10.51

TABLE 2—*The means and standard deviations on the scales of the Luria-Nebraska Neuropsychological Battery for the forcible sexual assaulters and pedophiles.*

Scale	Forcible Assaulters		Pedophiles	
	Mean	SD	Mean	SD
Motor	44.30	8.14	49.92	10.65
Rhythm	48.94	12.34	54.05	18.54
Tactile	41.33	4.70	44.00	7.52
Visual	47.35	7.28	51.79	12.23
Rec. speech	42.13	8.47	54.86	11.73
Exp. speech	41.94	6.02	54.18	21.70
Writing	49.00	7.49	63.39	14.20
Reading	46.33	8.23	55.00	18.11
Arithmetic	45.67	6.09	63.93	26.36
Memory	42.50	7.88	54.11	15.86
Intellectual	47.87	9.13	56.79	15.18
Pathognomonic	42.36	6.56	56.67	12.84
Left	43.21	7.63	45.08	9.78
Right	41.67	9.24	44.64	9.80

A "critical value" was calculated for each subject according to the test manual [16]. The critical value corrects for the effects of age and education on the scores of the Luria-Nebraska Neuropsychological Battery. The test authors [16] state that two or more scales (excluding Writing and Arithmetic) with *t* scores greater than the critical value is suggestive of brain damage. Using this criterion, 55% of the subjects who had forcibly assaulted an adult male or female performed in the brain damaged range. The performance of another 32% could best be described as borderline. Eighteen percent of the subjects in this group performed within normal limits. In the pedophiles group, 36% met the criteria for diagnosing brain dysfunction, 29% performed in the borderline range, and 36% were neuropsychologically normal.

Discussion

In Experiment 1, the sexual assaulters performed significantly worse on 7 of the 14 scales of the Luria-Nebraska Neuropsychological Battery than a group of normal controls. This is consistent with research finding evidence of cerebral dysfunction in some sexual assaulters. As a group, the mean scores did not meet the criteria established for diagnosing brain dysfunction [16]. On an individual level, using the same criteria, nearly half (47%) of the sexual assaulters performed in the brain damaged range with another one third (31%) whose performance was borderline.

TABLE 3—*The results of the discriminant analysis using the scales of the Luria-Nebraska Neuropsychological Battery for the forcible sexual assaulters, pedophiles, and normal controls.*

Actual Group	N	Predicted Group Membership		
		CT	FSA	PED
CT	31	21 67.7%	7 22.6%	3 9.7%
FSA	22	5 22.7%	11 50.0%	6 27.3%
PED	14	2 14.3%	3 21.4%	9 64.3%

The results of the study suggest that a large proportion of persons arrested for sexual assault are suffering from cerebral dysfunction. It is also apparent that not all sexual assaulters being evaluated for possible labelling as mentally disordered sex offenders show evidence of brain dysfunction. While neuropsychological performance seems to be an important variable in understanding sexual assault, it is clearly not the only variable which should be examined.

In our society, rape and child molestation brings a strong emotional reaction from citizens and severe legal consequences. Why then do some persons commit sexual assault knowing the punishment may be serious? The results of this study suggest that the etiology of sexual assault may be multifactorial, but that for a large proportion of the rapists and pedophiles, cerebral dysfunction may be a contributing or dominant factor. It is likely that for some sexual assaulters, brain damage may be an important variable, but for others, who may be neuropsychologically normal, other factors must be investigated. The police reports of the sexual assaults suggests that many of the subjects fit Mark and Ervin's [9] description of persons with episodic discontrol syndrome. Many of these assaulters exhibit poor judgement and impulse control which may be a consequence of deficits in the cortical structures of the limbic system. For those subjects who performed within normal limits some other reason for their behavior must be examined such as substance abuse, severe psychological disturbance, or simply disregard for social standards.

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