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Neuropsychological Complaint Base Rates of 170 Personal Injury Claimants

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Reports base rate data for 50 controls and 170 personal injury claimants' self-reported symptoms associated with neuropsychological impairment. These base rates were obtained from claimants with no history of brain injury or toxic exposure and no documented neuropsychological impairments. Personal injury claimants reported high rates of complaints generally recognized as being associated with neuropsychological impairment. For example, 93% reported anxiety or nervousness, 92% sleeping problems, 89% depression, 88% headaches, 79% fatigue, 78% concentration problems, 77% irritability, 65% impatience, 61% feeling disorganized, 59% confusion, 56% loss of efficiency with everyday tasks, 53% memory problems, 44% dizziness, 39% numbness, and 34% word finding problems. These results underscore the need for caution when relying on self-reported symptoms as evidence of brain damage in patients involved in litigation.

INTRODUCTION

Previous research has suggested that personal injury claimants report a high base rate of symptoms that are generally recognized as indicative of neuropsychological impairment (Lees-Haley, in press). However, the previous study did not utilize a control group and was based on a relatively small sample. The purpose of the present study is to explore this hypothesis with findings from 170 personal injury claimants and 50 controls with no significant neuropsychological history.

Over the years a variety of self-reported complaints have been associated with brain damage from closed head injuries and toxic neuropsychological claims (see Binder, 1986; Gouvier, Cubic, Jones, Brantley, & Cutlip, 1992;

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Hartman, 1988; Levin, Benton, & Grossman, 1982; Lezak, 1983; Oddy, Coughlan, Tyerman & Jenkins, 1985; Oddy, Humphrey, & Uttely, 1978; Russell, 1932; Rutherford, Merrett, & McDonald, 1977).

In forensic evaluations, these complaints are cited as evidence that the patient has sustained a brain injury or neuropsychological impairment. These self-reports are also used as a partial basis — sometimes as the entire basis — for diagnoses and quasi-diagnostic descriptive labels such as organic mental disorder, organic brain syndrome, postconcussion syndrome, and similar designations.

Experts such as Meehl and Ziskin have argued for many years that failure to correct for base rates may render opinions erroneous or speculative (Faust, Ziskin & Hiers, 1991; Meehl, 1954; Ziskin & Faust, 1988). Recently there has been an increase in awareness of the problem of base rates in evaluations of personal injury claimants (Matarazzo, 1987, 1990; Matarazzo, Daniel, Prifitera, & Herman, 1988; Matarazzo & Prifitera, 1989).

A critical problem in knowing how to weigh the value of self-reported complaints as evidence of neuropsychological injury is that so many of these complaints are routinely reported by individuals who do not have an injury. For example, Gouvier, Uddo-Crane, and Brown (1988) found that postconcussive symptoms are common in a normal population. In their study, head injured and uninjured samples reported similar symptoms.

Lees-Haley (1989, 1990), Lees-Haley and Fox (1990), Price (1990), and Weissman (1990, in press) have suggested that the process of personal injury litigation affects patient behavior in ways which may serve to undermine the validity of psychological assessment procedures. The conclusions of these authors imply that litigation can increase the rate of false-positive findings which resemble neuropsychological impairment or brain damage. Litigation is a context which appears to have different base rates and different evaluation requirements from traditional therapeutic or clinical environments. This study provides base rate data for 170 personal injury claimants with respect to complaints commonly associated with brain injury and tests the hypothesis that these individuals will present base rate levels distinct from nonlitigating controls.

METHOD AND SUBJECTS

Immediately prior to a comprehensive psychological evaluation, 170 patients completed a 37-item checklist in which they were asked whether they had experienced any of a list of common neuropsychological complaints following their injury. These checklists were administered prior to any discussions with the examiner and prior to any potentially suggestive tests or interviews. After they identified their complaints, patients were asked whether these problems were caused by the injury which led to their claim.

This checklist included 10 distractor items which are not generally recognized as being associated with mild brain injury (e.g., diarrhea, foot pain, bleeding, and elbow pain). These distractor items serve two purposes. They allow a patient to select any portion of the items associated with mild brain injury without having to check off the presence of 100% of the items on the list. The distractor items also permit comparisons between claimants and controls on self reports of symptoms not generally considered as indicia of neuropsychological impairment.

Patients were excluded from this sample if they were filing a claim for neuropsychological impairment. Patients were also excluded if they had any known history of head injury, toxic exposure, seizure disorder, or neuropsychological impairment based on self report or available medical records. Eight patients were permitted to remain in the study despite having indicated a history of "seizures" on their checklists, because in discussing their seizure history it quickly became apparent that they were using the term in a nonclinical sense (e.g., as synonymous with having fainted or having felt dizzy). Only claimants reporting nonneurological injuries were included in this study.

Claimant data were collected for 170 claimant patients, including 90 men and 80 women, mean age 39 years (SD = 11.1). Claimants were filing claims for emotional distress or industrial stress. Claimants reported psychological injury associated with a diverse range of stressful experiences, including sex discrimination, race discrimination, age discrimination, sexual harassment, verbal harassment by co-workers and supervisors, verbal threats, wrongful termination, intimidation, and a number of other forms of unfair or abusive or threatening treatment. Many also reported orthopedic complaints, primarily back pain.

Control data were collected for 50 outpatients from a group family practice clinic, including 13 men and 37 women, mean age 34.5 years (SD = 12.5). Controls presented a diverse range of complaints familiar to family practice settings, largely dominated by sore throat and respiratory complaints, flu, hypertensive problems, fatigue, and headaches.

Both controls and claimants consisted predominantly of lower and lower middle socioeconomic status patients but referral sources were dramatically different. Control patients were "self" referrals (more specifically, the predominant decision maker with respect to when males and females of any age see a family physician and which family physician they see appears to be the senior female member of the residence). Claimants were referred by third parties, predominantly attorneys.

An attempt was made to include a control group of 50 mild brain injury patients who were not in litigation. Interestingly, we were unable to locate a clinic in which we could identify 50 mild brain injury patients who were not involved in some form of litigation. We tentatively anticipate being able to obtain nonlitigated data in the future from a large southern California HMO.

Claimants were evaluated an average of 24 months post-injury onset, and asked if they had suffered any of these complaints since their injury began. The rationale for using date of onset of injury was that so many psychological injuries are reported as cumulative injuries with no single date of injury (for example, verbal abuse and discriminatory remarks beginning 1-10-91 and continuing intermittently until wrongful termination 3-20-91). For purposes of comparison, controls were asked to report whether they had suffered these complaints during the last 24 months.

To examine the possibility of a gender difference in symptom reporting, a chi-square analysis was conducted in the claimant sample. Five of 37 items had to be deleted from the analysis due to insufficient cell size. The analysis indicated no significant gender difference for overall symptom reporting in the claimant group ($\chi^2 = 106$, $df = 91$). The control sample had more women than men (37 vs. 13) but most items had insufficient cell values to conduct chi-square analysis on the total item inventory. Only four of the thirty-seven items had sufficient cell values. Given the lack of gender effects for the claimant population, gender was no longer considered in the analysis.

RESULTS

The percentages of claimant and control patients reporting each complaint are depicted in Table 1. Symptoms are rank ordered by frequency of reporting in the claimant patient population. Additionally, results from chi-square analysis and significance level for each item are included. Note that for the majority of items, there is a significant difference in symptom reporting. All significant differences indicate the claimant group was more likely to endorse the symptom than was the control group. When claimants were asked if they knew the cause of these complaints, they attributed the overwhelming majority of these complaints to the events which led them to file their claim.

DISCUSSION AND CONCLUSIONS

Expert reliance on self-reported complaints as evidence of neuropsychological impairment due to a specific injury is based on the assumption that the complaints are not produced by factors other than that injury. This is a difficult assumption in litigation due to a host of extraneous forces which complicate forensic neuropsychological evaluations.

For example, psychologically significant complaints may arise from preexisting conditions, the stresses of litigation, emotional distress associated with the litigated trauma, nonneuropsychological injuries such as orthopedic problems, unrelated illnesses, malingering, treatment for the litigated injury, treatment for other conditions, inspiration or hysteria precipitated by prior medical-legal evaluations, or influence of third parties. In other words, in order to

Controls	C
54%	
52%	
32%	
62%	
48%	
58%	
26%	
36%	
38%	
30%	
36%	
18%	
24%	
30%	
16%	
16%	
14%	
20%	
26%	
6%	
12%	
34%	
20%	
28%	
22%	
8%	
18%	
16%	
22%	
12%	
20%	
12%	
16%	
4%	
12%	
2%	
8%	

[a]indicates items
[b]several patient
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TABLE 1
Neuropsychological Complaint Baserates

Controls	Claimants	Symptom	χ^2	$p <$
54%	93%	Anxiety or nervousness	43.79	0.005
52%	92%	Sleeping problems	42.75	0.005
32%	89%	Depression	68.22	0.005
62%	88%	Headaches	18.23	0.005
48%	80%	Back pain[a]	19.95	0.005
58%	79%	Fatigue (mental or physical)	8.73	0.005
26%	78%	Concentration problems	47.23	0.005
36%	77%	Worried about health[a]	29.80	0.005
38%	77%	Irritability	27.17	0.005
30%	74%	Neck pain[a]	31.64	0.005
36%	65%	Impatience	13.70	0.005
18%	62%	Restlessness	29.64	0.005
24%	61%	Feeling disorganized	21.40	0.005
30%	60%	Loss of interest	14.00	0.005
16%	59%	Confusion	28.35	0.005
16%	56%	Loss of efficiency in carrying out everyday tasks	24.70	0.005
14%	55%	Shoulder pain[a]	26.50	0.005
20%	53%	Memory problems	16.90	0.005
26%	44%	Dizziness	5.28	0.025
6%	41%	Sexual problems	21.60	0.005
12%	39%	Numbness	2.60	0.005
34%	38%	Nausea	0.30	ns
20%	34%	"Word finding problems, not finding the word you want, using the wrong word"	3.61	ns
28%	2%	Diarrhea[a]	0.34	ns
22%	32%	"Visual problems, blurring, or seeing double"	1.77	ns
8%	30%	Trembling or tremors	9.97	0.005
18%	29%	Hearing problems	2.33	ns
16%	29%	Constipation[a]	3.31	ns
22%	24%	Foot pain[a]	0.10	ns
12%	24%	Trouble reading	3.38	ns
20%	21%	Bumping into things	0.03	ns
12%	21%	Elbow pain[a]	1.88	ns
16%	18%	Speech problems	0.13	ns
4%	15%	Impotence	4.44	0.05
12%	11%	Bleeding[a]	0.03	ns
2%	4%	Seizures[b]	0.49	ns
8%	2%	Broken bone or bones[a]	3.52	ns

[a]indicates items included as distractors.
[b]several patients self-reported experiencing seizures, but follow-up questioning and medical histories indicated no clinical seizure experience.

attribute complaints to a specific brain injury, it is assumed that the patient would not have had these complaints in the absence of the neuropsychological cause in question.

These data strongly suggest the need for a closer look at the assumption that self-reports of these symptoms are substantive evidence of neuropsycho-

logical impairment for a forensic population like this one. The high base rate of complaints of neuropsychological problems by patients in litigation calls for methods for differentiating styles of complaint. Evidence and procedures are needed for distinguishing symptoms of a specific injury from base rates. In the current study, claimants had a higher rate of endorsement on almost every symptom complaint. One very pointed implication is that neuropsychological symptom checklists should be used with skepticism in litigated cases. Symptom checklists may prompt the patient to complain of matters which would otherwise not be a concern of the patient.

These results also point to the need for examiners to be aware that expectations derived from traditional clinical environments may not apply in forensic neuropsychological evaluations and, hence, they could lead to erroneous conclusions. Clearly, there is a need for more research on base rate phenomena in forensic neuropsychological evaluations.

REFERENCES

Binder, L. M. (1986). Persisting symptoms after mild head injury: A review of the postconcussive syndrome. *Journal of Clinical and Experimental Neuropsychology*, 8(4), 323–346.

Faust, D., Ziskin, J., & Hiers, J. B., Jr. (1991). *Brain damage claims: Coping with neuropsychological evidence*. Law & Psychology Press.

Gouvier, W. D., Cubic, B., Jones, G., Brantley, P., & Cutlip, Q. (1992). Postconcussion symptoms and daily stress in normal and head-injured college populations. *Archives of Clinical Neuropsychology*, 7(3), 193–211.

Gouvier, W. D., Uddo-Crane, M., & Brown, L. M. (1988). Base rates of postconcussional symptoms. *Archives of Clinical Neuropsychology*, 3, 273–278.

Hartman, D. E. (1988). *Neuropsychological toxicology*. New York: Pergamon Press.

Lees-Haley, P. (1989). Litigation Response Syndrome: How the stress of litigation confuses the issues in personal injury, family and criminal litigation. *Defense Counsel Journal*, 56(1), 110–114.

Lees-Haley, P. (1990). Contamination of neuropsychological testing by litigation. *Forensic Reports*, 3(4), 421–426.

Lees-Haley, P. (in press). Neuropsychological complaints of personal injury claimants. *Forensic Reports*.

Lees-Haley, P., & Fox, D. (1990). Neurological false positives in litigation: Trail Making Test findings. *Perceptual and Motor Skills*, 70, 1379–1382.

Levin, H., Benton, A., & Grossman, R. (1982). Neurobehavioral consequences of closed head injury. New York: Oxford University Press.

Lezak, M. (1983). *Neuropsychological assessment*. New York: Oxford University Press.

Matarazzo, J. D. (1987). Validity of psychological assessment: From the clinic to the courtroom. *Clinical Neuropsychologist*, 1, 307–314.

Matarazzo, J. (1990). Psychological assessment versus psychological testing. *The American Psychologist*, 45(9), 999–1017.

Matarazzo, J., Daniel, M., Prifitera, A., & Herman, D. (1988). Intersubtest scatter in the WAIS-R standardization sample. *Journal of Clinical Psychology*, 44, 940–950.

Matarazzo, J., & Prifitera, A. (1989). Subtest scatter and premorbid intelligence: Lessons from the WAIS-R standardization sample. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 1(3), 186–191.

Meehl, P. (1954). *Clinical versus statistical prediction: A theoretical analysis and a review of the evidence*. Minneapolis: University of Minnesota Press.
Oddy, M., Coughlan, T., Tyerman, A., & Jenkins, D. (1985). Social adjustment after closed head injury: a further follow-up seven years after injury. *Journal of Neurology, Neurosurgery, and Psychiatry*, 48, 564–568.
Oddy, M., Humphrey, M., & Uttely, D. (1978). Subjective impairment and social recovery after closed head injury. *Journal of Neurology, Neurosurgery, and Psychiatry*, 41, 611–616.
Price, R. (1990). *Compendium on malingering*. Tampa, FL: Psychological Seminars.
Russell, W. R. (1932). Cerebral involvement in head injury. *Brain*, 55, 549–603.
Rutherford, W. H., Merrett, J. D., & McDonald, J. R. (1977, January). Sequelae of concussion caused by minor head injuries. *Lancet*, 1–4.
Weissman, H. (1990). Distortions and deceptions in self presentation: Effects of protracted litigation in personal injury cases. *Behavioral Sciences and the Law*, 8, 67–74.
Weissman, H. (in press). Forensic psychological assessment and the effects of protracted litigation on impairment in personal injury litigation. *Forensic Reports*.
Ziskin, J., & Faust, D. (1988). *Coping with psychiatric and psychological testimony* (4th ed.). Marina del Rey, CA: Law and Psychology Press.