

## Personality Disorders and Spinal Cord Injury: A Pilot Study

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A substantial body of research has found that spinal cord injury (SCI) patients have relatively high degrees of energy, impulsivity, and risk-taking (W. Fordyce, 1964; G. P. Taylor, 1970; B. Woodbury, 1978). The present study endeavors to extend our knowledge to the personality disorder (PD) domain. Forty SCI participants and 40 matched controls were given a semistructured diagnostic interview and a self-report personality disorder instrument. Findings indicated that 27.5% of SCI patients, and a similar number of controls, have PDs. Unexpectedly, impulsive/externalizing disorders (histrionic, narcissistic, antisocial, and borderline) were not unusually high in SCI patients, and were not higher than controls. Avoidant and depressive disorders were unexpectedly high.

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**KEY WORDS:** spinal cord injury; personality disorders.

### INTRODUCTION

Individuals with spinal cord injury (SCI) have long been considered at risk for various kinds of impulsive and acting out behavior. In theory, this is because SCI is often sustained during risky activities, such as adventure sports (diving, rock climbing), drug/gang activities (gun shot wounds, stabbings), and high-risk driving (e.g., driving while intoxicated, motorcycle riding). Some related characteristics can be helpful during rehabilitation; for example, strengths such as perseverance, positive attitude, and an outgoing personality can facilitate rehabilitation, as well as adjustment to the changes that the acquisition of a disability brings (Mann, 1994). However, other associated characteristics may predispose those individuals who tend to acquire disabilities such as SCI to related personality disorders (PDs). Such behaviors can interfere with a patient's rehabilitation, or can

disrupt the functioning of the rehabilitation unit as a whole. For example, an individual with borderline PD can undermine his rehabilitation while creating dissension and splitting among staff (Bockian, 1994). Further, individuals with a wide array of PDs can create challenging countertransference reactions in the rehabilitation specialist (Stewart, 1994).

### Personality Patterns in Individuals With Spinal Cord Injury and Other Medical Conditions

A substantial body of research demonstrates that traumatically injured SCI patients have relatively high degrees of energy, impulsivity, and risk taking. Fordyce's and Taylor's studies used the MMPI and their results supported the assumption that certain personality characteristics are associated with accidents that involve traumatic disability (Fordyce, 1964; Tylor, 1970). Both found SCI patients to have impulse-dominated characteristics on the basis of elevations in scales 4, 9, or both on the MMPI. These characteristics include impulsivity, acting out, and a subjective sense of high energy and personal drive. Fordyce's analysis revealed that those whose onset of injury was judged to be "imprudent" were more likely to have impulse-dominated behavior than those not judged imprudent. Nonpathological instruments have

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yielded similar results. Malec (1985) found that persons with SCI appeared more extroverted than those with nontraumatic injuries or injuries resulting in chronic pain. Kuncze and Worley (1966), using the Strong Vocational Interest Blank, found that individuals active in receiving their injury were characterized by adventurousness, boldness, and assertiveness. A sample of paraplegics evaluated with the Rorschach test revealed characteristics such as impulsiveness, body image concerns, and interpersonal distancing (Mattlar, Tarkkanen, Carlsson, Aaltonen, & Helenius, 1993). Mawson et al. (1996), using a case control design, found that spinal cord injury was associated with sensation-seeking prior to injury. Woodbury (1978), in his extensive literature review, also reported similar findings, noting that increased risk taking and impulsivity may have an etiologic role in SCI.

Individuals with most other medical conditions have a pattern that is markedly different. Mean MMPI profiles generally demonstrate significant elevations on scales 1, 2, and 3 (McDaniel, 1976). Studies also have found elevations on scales 7, 8, and 0, depending on the particular condition under evaluation (e.g., Harper & Richman, 1978). These findings suggest concern with somatic issues (scale 1) that would be natural in a group with medical problems. Coping with such conditions may lead to denial or putting on a "good front" (scale 3), anxiety/worry (scale 7), and depression (scale 2). Spergel, Erlich, and Glass (1978) found elevations on scales 1, 2, 3, and 7 for a rheumatoid arthritis group, with similar overall profiles for ulcers, low back pain, MS, and pulmonary patients. Wilson, Olson, Gascon, and Brumback (1982), also found subclinical mean elevations on scales 1, 2, and 3 for an MS sample, in a slight conversion V pattern, with similar finding for a rheumatoid arthritis group.

Multivariate studies of medical populations have generally uncovered three to four naturally occurring patterns. For example, Berven, Habeck, and Malec (1985) found four clusters. The "adaptive copier" pattern, with no mean elevations in the clinical range, accounted for 50% of the sample. Cluster 2, labeled "depression," was marked by a pronounced elevation on scale 2; approximately 16% of the sample had this pattern. The third cluster, "somatic focusing" (12.4% of the sample) had high elevations on scales 1 and 3 in a "conversion V" configuration. Finally, cluster 4, "personality disorganization" (19.8%) had extreme elevations on scales 8, 7, 2, and F, and moderate elevations on most of the remaining scales; this pattern suggests being emotionally overwhelmed and/or

psychotic. These patterns are strikingly similar to studies of, for example, chronic pain patients. McGill, Lawlis, Selby, Mooney, and McCoy (1983) found four patterns: "psychophysiological responders" with high elevations on scales 1, 2, and 3 and moderated elevations on scales 7 and 8, "pain adapters" with the first three scales in a modestly elevated conversion V, "pain copers" with no significant elevation on any scale, and "pain decompensators," with marked elevations on nearly all scales. Similar patterns can be found with substantially different instrumentation. Turk and Rudy, (1988, 1990), using the West Haven–Yale Multidimensional Pain Inventory (WHYMPI; Kerns, Turk & Rudy, 1985) describe three patterns: (1) dysfunctional, (2) interpersonally distressed, and (3) "adaptive copier." In all cases there are patterns of coping well, feeling distressed, and being overwhelmed.

#### The Present Study

Although the previous literature has evaluated a number of important personality patterns in individuals with SCI and other medical conditions, no study had previously investigated the presence of PDs (as defined in the *DSM-III*, *III-R*, or *IV*) in these populations. Given that there are now promising treatments for PDs (e.g., Beck & Freeman, 1990; Linehan, 1993; Millon, 1999), discovering the frequency and types of PDs has important implications for comprehensive SCI rehabilitation. The first goal of the study is to begin to determine the prevalence of PDs in the SCI and general medical populations.

Because previous research suggests that the MMPI 4–9 pattern is associated with the externalizing/impulsive personality types (i.e., histrionic, antisocial, borderline, and aggressive–sadistic personality disorders), it was anticipated that these disorders would be more frequent among individuals with SCI than in medical controls. Similarly, on the basis of MMPI elevations of scales 1, 2, and 3, as well as frequent anxiety and depression in medical populations, one would anticipate that individuals in a general medical sample may have a relatively high proportion of internalizing PDs (i.e., avoidant, dependent, obsessive–compulsive, depressive, negativistic, and self-defeating). These sets of disorders parallel *DSM-IV* Clusters B and C, respectively.

On the basis of the literature, we hypothesize that participants with SCI will have a higher prevalence of Cluster B PDs (antisocial, borderline, histrionic, and narcissistic) whereas participants

with general medical conditions will have more Cluster C PDs (avoidant, dependent, and obsessive-compulsive). For purposes of this research, the aggressive-sadistic PD will be categorized with the Cluster B disorders whereas the depressive, negativistic, and self-defeating personality disorders will be put together with the other Cluster C disorders.

## METHODS

### Sample

Participants were 40 male veterans with SCI from a small suburban VA Medical Center, which provided intermediate and long-term care, some rehabilitation, and reconstructive plastic surgery. Participants were matched with 40 VA medical patients on age ( $\pm 5$  years), gender, and inpatient/outpatient status. Although ethnicity and SES were not matched, the demographics were similar for both groups. Most were either 40–49-years old (44%), 50–59 (30%), or over 60 (20%). Mean years of education was 13.8, and most patients were either retired (44%) or unemployed (24%). In the SCI sample, most participants (73%) were injured approximately 10–20 years ago, and another 15% were injured over 30 years ago. Euro-Americans constituted 76.2% of the sample, followed by Latinos (6.3%), Asian Americans (2.5%), and Native Americans (2.5%). The SCI sample was evenly divided between paraplegic (50%) and quadriplegic (50%). Ninety percent were traumatically injured, and 30% reported that drugs/alcohol played a role in their injury. Eight SCI participants did not complete the MCMI-III, and therefore that data is missing from the analysis.

### Instruments

The following instruments were administered, in the following order:

1. Demographics questionnaire: information on age, occupation, income, type of injury and how acquired, education, marital status, and whether pain was a problem to them were obtained.
2. Structured interview for *DSM-IV* Personality (SIDP-IV; Pfohl, Blum, & Zimmerman, 1995). The SIDP-IV is a semistructured interview that measures Axis-II disorders of the DSM-IV. Two raters administered

the SIDP-IV; interrater reliability (kappa) was .94.

3. Millon Clinical Multiaxial Inventory, 3rd edition (MCMI-III; Millon, 1994). The MCMI-III measures 13 PDs, which includes all PDs from the *DSM-III*, *III-R*, and *IV*. The PD scales are schizoid, avoidant, depressive, dependent, histrionic, narcissistic, antisocial, aggressive-sadistic, obsessive-compulsive, passive-aggressive/negativistic, self-defeating/masochistic, schizotypal, borderline, and paranoid. The instrument also has scales for most Axis-I disorders. The MCMI-III is normed to have a mean of 60 on each scale. Scores over 75 indicate the presence of a particular pathology, whereas scores over 85 indicate that a disorder is prominent. Low scores are not directly interpretable.

Participants also received the following instruments for analyses, that are not included in this report: The Quality of Life Questionnaire (Evans & Cope, 1989), The State-Trait Anger Expression Inventory (Spielberger, 1988), and the McGill Pain Questionnaire (Melzack, 1975). The latter instrument was administered only to patients who reported that pain was an area of difficulty for them.

### Procedure

After randomly selecting a portion of the hospital's current inpatient SCI population (a total of approximately six patients), all consecutive SCI patients, both inpatient and outpatient, were asked to participate. Once an SCI subject was run, an appropriate match was sought from the general medical population of the facility. Participants were matched on age ( $\pm 5$  years) and inpatient/outpatient status.

Reading the items to participants would have impacted the nature of the responses, and compromised the use of available normative data (Millon, personal communication); further, limiting the study to individuals who could use their hands would eliminate an important group of individuals from the study. Therefore, to standardize the procedure, all clients were given all of the self-report instruments from a single, custom-written administration program. This program was accessible by mouse. For participants whose hand/arm mobility was insufficient to operate a mouse, a sip-and-puff-operated

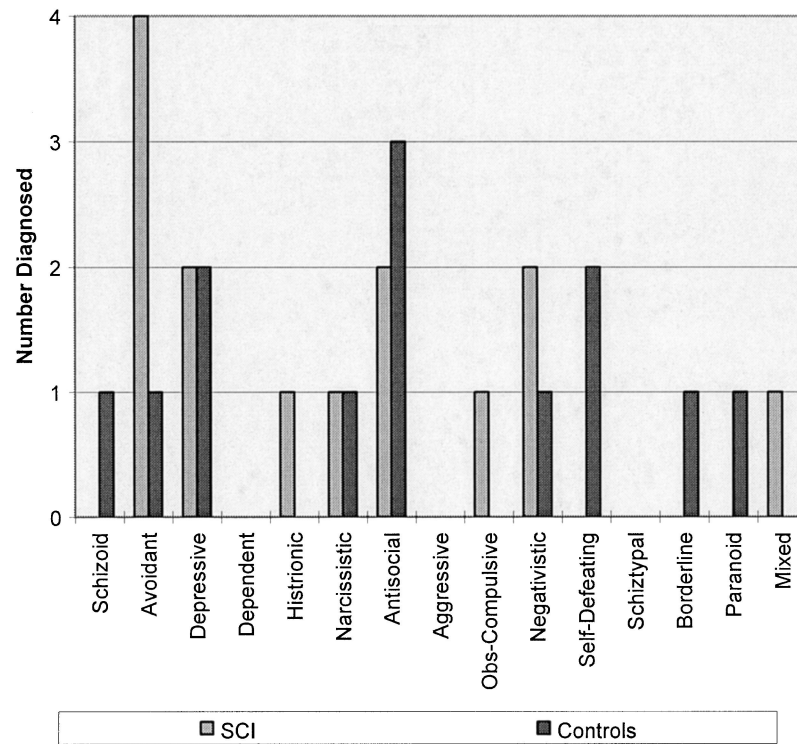


Fig. 1. Personality disorders, diagnosed by structured interview (SIDP-IV  $n = 80$ ).

head-controlled pointing device (a Headmaster) was provided.

## RESULTS

As seen in Fig. 1, using structured interview data (SIDP-IV), there were a total of 14 PDs in the SCI group. These disorders occurred in 11 patients (some patients had multiple PD diagnoses). Therefore, the prevalence of PDs in the SCI group was 27.5% (11/40). General medical patients had a total of 13 PDs. If one uses the MCMI-III scales to diagnose PDs, then there are 16 disorders occurring in 7 patients in the SCI group, and 23 disorders occurring in 12 patients in the non-SCI group (see Fig. 2).

We hypothesized that individuals with SCI would have more Cluster B PDs than control participants, and the general medical controls would have more Cluster C PDs. As shown in Table I, a chi-square analysis of the diagnostic data from the structured interviews, combined into the relevant categories, reveals no differences between groups,  $\chi^2(1, N = 24) = 0.55, p = .46$ . Our hypotheses were not supported.

The MCMI-III mean profiles (Fig. 3) suggest the absence of overall pathology in both samples. The data in this present study reveals that no scale exceeds 60 (the instrument's mean). The overall pattern of elevations was extremely similar for SCI and medical participants, although elevations for medical participants were slightly higher for nearly all scales.

## DISCUSSION

No substantial differences were found in overall personality pathology between male SCI participants and medical controls. Contrary to expectations, mean profiles of SCI patients did not show high levels of elevation on the externalizing/impulsivity related scales (histrionic, narcissistic, antisocial, aggressive, and borderline). Not only were the results nonsignificant, but also the findings were in the opposite direction of the anticipated results (i.e., there was a slightly higher proportion of internalizing/Cluster C PDs in the SCI group than in the medical controls). On the MCMI-III, mean elevations on the externalizing scales were

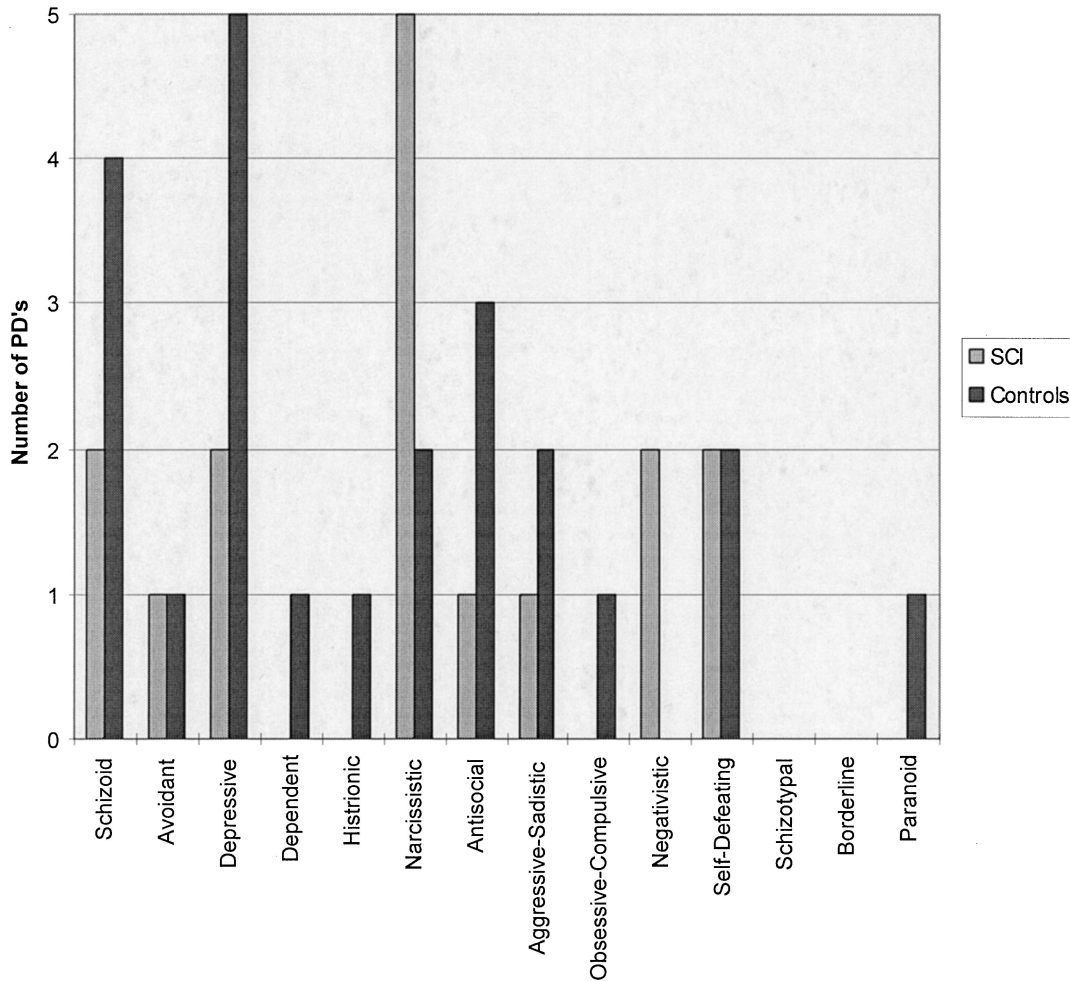


Fig. 2. MCI-III diagnosed personality disorders (BR > 85), SCI Versus non-SCI.

not higher for SCI participants than for the control group, and were about average (or below) relative to the instrument's norms.

In the SCI sample, using structured interview data, 27.5% of the participants had one or more PDs. If this percentage is similar in the SCI population

as a whole, this is sufficient to warrant routine screening of SCI patients for PDs. These preliminary data suggest that there may be a fair amount of avoidant and depressive pathology in the SCI population, at least among older veterans with long-term injuries.

These results stand in contrast to assumptions held for many years regarding individuals with SCI. It is possible that these results reflect this particular sample, which was generally older and long-injured. However, it is also possible that there are many SCI patients who do not fit in our present model of SCI-related personality characteristics. It is likely that more attention needs to be paid to SCI patients with internalizing personalities (e.g., avoidant) and passive-withdrawn styles (e.g., depressive).

This study has several limitations. The sample is small, and geographically limited. The sample is

Table 1. Number of Cluster B and Cluster C Personality Disorders in SCI Versus Medical Participants, Diagnosed by Structured Interview

	SCI	Medical
Cluster B <sup>a</sup>	4	5
Cluster C <sup>b</sup>	9	6

Note.  $\chi^2(1, N = 24) = .55, p = .46, ns.$

<sup>a</sup>Histrionic, narcissistic, antisocial, borderline, aggressive-sadistic.

<sup>b</sup>Avoidant, dependent, obsessive-compulsive, depressive, negativistic, self-defeating.

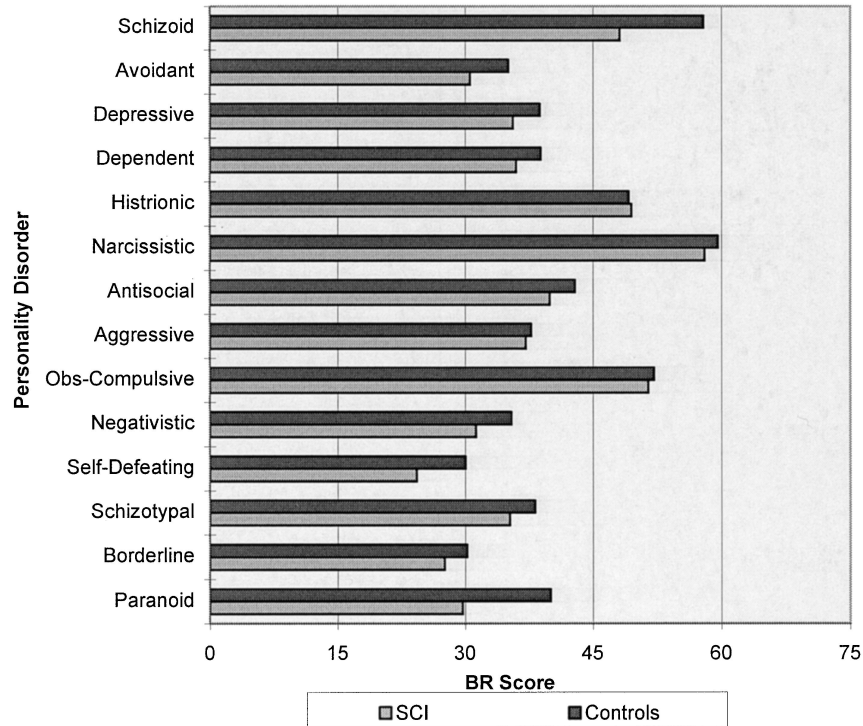


Fig. 3. MCI-III mean profile ( $N = 72$ ).

mostly Euro-American and is all male, and may not generalize well to other ethnic groups or to women. Future research with a broader range of subjects will help to provide more definitive answers to the questions raised in this study.

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