

Original Article

Indicators of psychological distress in postacute spinal cord injured individuals

A-L Österåker*^{1,2} and R Levi^{1,2}

¹Rehab Station Stockholm, Stockholm, Sweden; ²Karolinska Institute, NEUROTEC, Stockholm, Sweden

Study design: Consecutive inclusion of spinal cord injured patients admitted for postacute rehabilitation from June 2000 to January 2002.

Objective: Assessment of prevalence of indicators of psychological distress in the subacute and early chronic stages after acute-onset spinal cord injury (SCI).

Setting: A Swedish rehabilitation center.

Methods: In all, 36 patients participated. Psychological assessment was obtained at admission, discharge and 6 months follow-up by psychological measures based on the DSM-IV (ie Beck's Depression Inventory, SPIFA, SCID-screen, AUDIT) and clinical interview. Ongoing psychotropic medication was noted.

Results: Clinical depression was infrequent. However, ongoing psychotropic medication was common, possibly indicating a relatively high incidence of underlying depressive and anxiety disorders. In all, 25% of the sample showed indicators of high alcohol consumption. Few patients had a previously diagnosed personality disorder. By contrast, there was frequent occurrence of personality traits outside normal ranges.

Conclusion: Medication of psychological problems commonly occurs after SCI, especially for depression and anxiety. There are indications of alcohol overconsumption in a substantial minority of SCI patients. The study raises the question of whether suppression of psychological symptoms by drug therapy is the optimal treatment of such problems in a rehabilitation process.

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Introduction

Spinal cord injury (SCI) typically leads to severe functional loss and disability. Several pathophysiological events leading to SCI, for example, trauma or vascular lesions, occur suddenly, thus making severe disability strike 'out of the blue', thereby leaving no time for gradual coping and adaptation. SCI thus constitutes an extremely stressful life event.¹ In fact, one major psychiatry textbook uses SCI as *the* example of a condition likely to elicit somato-psychic reactions.²

Stressful life events put people at higher risk for depression, as do genetic, psychological, and environmental factors.³ Previous empirical-clinical 'common knowledge' indicated that depression following SCI was 'inevitable' and its absence was due to denial.⁴ Craig *et al*⁵ concluded, in a literature review on psychological

consequences of SCI, that conflict exists between such clinical impressions and research, where studies report depression to be present in no more than 20–45% of patients. The contemporary view of psychological reactions to SCI is that it varies interindividually⁶ and that depression and anxiety are not inevitable for subsequent adjustment to occur.⁷ However, findings do indicate that a significantly higher proportion of individuals with SCI are depressed and anxious in comparison to able-bodied persons of a similar background.^{6,7}

Several researchers have suggested that people with disabilities are at risk for depression spectrum disorders.⁸ However, the presumption that depression automatically follows the onset of a disability has been shown to be unfounded.⁹ Since the spectrum of mood disorders is quite wide, researchers are compelled to address the problem of delimitation between the

*Correspondence: A-L Österåker, Rehab Station Stockholm, Frosundaviks Alle 13, Stockholm, Sweden

physiological and the pathological. To determine who is actually clinically depressed is an important task for clinicians and researchers alike working with individuals with disabilities.⁸ The comprehensive work of Elliott and Frank⁹ deals with such difficulties in psychological research in SCI individuals. For example, instruments commonly used to assess and detect mood disorders such as depression and anxiety have not been validated for this particular group. Furthermore, psychological and physical symptoms of depression and anxiety may be obscured or changed by the SCI as such, thus increasing the controversy of psychiatric diagnosis in persons with SCI.

In order to ensure successful rehabilitation and improve patient care, psychological assessment of SCI individuals is an important care component throughout the rehabilitation process.

Thus, the frequency and character of psychological disorders after SCI still is incompletely investigated. The aim of the present study was to assess the prevalence of psychological distress in the subacute and early chronic stages after acute-onset SCI.

Methods

Subjects

Almost all persons in the metropolitan Stockholm area with acute-onset spinal cord lesions, excluding malignancies and multiple sclerosis, are included in a clinical pathway, with subacute treatment in one center. The study comprised 36 consecutive individuals (22% women, 78% men) admitted to this center between June 2000 and January 2002. Mean age was 40 (16–76) years. Mean time since injury at admission was 12 weeks (3–26 weeks), with an in-patient treatment period of 9 weeks (2–26 weeks), before discharge. Causes of injury and mean time in subacute rehabilitation are depicted in Table 1. In all, 22 individuals (61%) suffered from paraplegia (incomplete and complete) and 14 individuals (39%) suffered from tetraplegia (incomplete and complete). In the paraplegic group, about half of the subjects

Table 1 Causes of injury

Cause of injury	n (%)	Days in subacute rehab (mean)
<i>Traumatic</i>		
Traffic accident	10 (28)	59
Fall	9 (25)	80
Diving	3 (8)	54
Sports	3 (8)	98
Firearm injury	1(3)	71
<i>Nontraumatic</i>		
Vascular	5 (14)	80
<i>Other</i>	5 (14)	43
Total	36	68

had complete injuries (ASIA A), whereas in the tetraplegic group only 14% had a complete injury (see Table 2). Of the lesions 72% were traumatic and 28% were nontraumatic. The nontraumatic lesions comprised spinal epidural hematoma ($n=2$), spinal cord infarction secondary to aortic dissection and/or treatment thereof ($n=3$), spinal stenosis ($n=2$), acute transverse myelitis ($n=2$) and infectious spondylitis with epidural abscess ($n=1$).

Procedure

At admission, subjects were invited to take part in the study, and were given oral and written information about the procedure and the purposes of the study.

Three assessments took place: at admission, at discharge, and at 6 months postdischarge. In the paraplegic group, there was a 22% drop-out rate ($n=5$) at 6 months follow-up (one declined participation, two had been readmitted to hospital, two were not reachable). There were no drop-outs in the tetraplegic group. All assessments were made by the same examiner (A-L Ö.) at personal encounters.

The study was approved by the regional ethical research committee.

Measures

Psychological status See Figure 1 for assessment algorithm. The following instruments were used:

- *SPIFA* (Strukturerad Psykiatrisk Intervju for Allmänläkare/Structured Psychiatric Interview For General Practitioners);¹⁰ a diagnostic screening tool for 20 psychiatric disorders based on a structured interview and selected psychiatric assessment scales. The instrument was developed by Dahl and the IDANT-group in Oslo¹¹ and was then adapted for Sweden by von Knorring *et al.*¹⁰ SPIFA is based on the DSM-IV system¹² and consists of two parts: (1) Basic screening, that is, key questions covering compulsory criteria for diagnosis, and (2) Extended screening, that is, more detailed assessment to be performed in cases with positive basic screening. The following scales are included in the extended screening: MADRS (Montgomery-Åsberg Depression Rating

Table 2 Injury classification according to ASIA

Injury classification (ASIA)	ASIA A	ASIA B	ASIA C	ASIA D	ASIA E
Paraplegia ($n=22$)	11 (50%)	2 (9%)	6 (27%)	3 (14%)	0 (0%)
Tetraplegia ($n=14$)	2 (14%)	1 (7%)	4 (29%)	7 (50%)	0 (0%)
Total ($n=36$)	13 (36%)	3 (8%)	10 (28%)	10 (28%)	0 (0%)

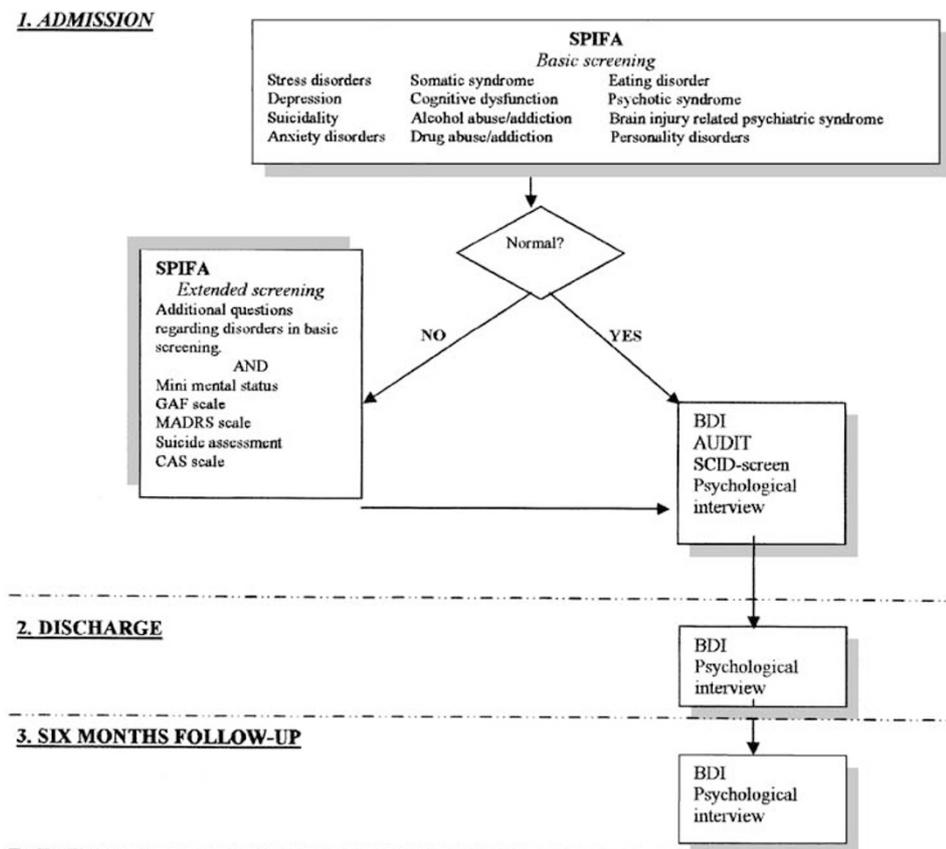


Figure 1 Algorithm of assessment process and psychological instruments used

Scale),¹³ Mini Mental Status (MMS),¹⁴ Global Assessment of Functioning Scale (GAF),¹⁵ Clinical Anxiety Scale (CAS)^{16,17} and Suicidality (evaluation of suicide risk).¹⁸ SPIFA has not to our knowledge previously been used on a SCI population.

- *BDI* (Beck Depression Inventory, Swedish version),¹⁹ a well-known instrument for depression screening based on the DSM-IV system, consisting of 21 items and a scoring range of 0–63 points. Zero to 9 points are considered as ‘minimal’ depression, 10–16 points as ‘minor’, 17–29 as ‘moderate’ and 30–63 as ‘severe’ depression.
- *SCID-screen tool* (short form, Swedish version),^{20,21} a screening instrument for abnormal personality traits based on the axis-II personality disorders in the DSM-III-R (phobic-, dependent-, obsessive-, passive-aggressive-, depressive-, paranoid-, schizotypic-, schizoid-, histrionic-, narcissistic-, borderline-, and anti-social personality disorder). Fulfillment of criteria on the SCID-screen is not, *per se*, sufficient for the diagnosis of a personality disorder. SCID-screen has not to our knowledge previously been used on a SCI population.
- *AUDIT* (The Alcohol Use Disorders Identification Test, Swedish version),²² a screening for alcohol addiction and/or dependence, consisting of 10 questions regarding alcohol consumption (frequency,

dependency and harmful behavioral consequences). A total score of > 8 out of a maximum of 40 suggests high-risk consumption.

- *Psychological interview*, that is, a general clinical interview performed by the psychologist/examiner. Interviews were performed at the same sessions as completion of the screening instruments, and their goal was to clarify and expand on issues raised by the structured tests.

Current medication Information regarding types, doses and indications for psychotropic medications was obtained from medical reports.

Neurological status Assessment of neurological status according to the ASIA classification was performed by a staff physiotherapist at admission and discharge.

Diagnostic criteria A depressive state was judged to be present if: (a) the subjects had ongoing treatment with antidepressant medication on the indication of depression (or a combination of depression and pain), and/or (b) the subjects fulfilled clinical criteria for depression according to DSM-IV, and/or (c) the subjects had a

total score in the 'moderate' (17–29 points) or 'severe' (30–63 points) ranges on BDI.

Risky alcohol consumption was judged to be present if: (a) the subjects had a total score of 8 or more on the AUDIT, and/or (b) corresponding criteria on the SPIFA were fulfilled.

Personality disorder was judged to be present if: (a) there was a documented history of personality characteristics leading to treatment and/or social and occupational difficulties, and (b) criteria according to DSM-IV and SCID-screen were fulfilled. If criteria on SCID-screen were fulfilled, but not in DSM-IV and clinical interview and/or previous diagnosis, the result was considered as reflecting personality *traits* (ie *not* inflexible, maladaptive, or causing significant functional impairment or subjective distress)²³ rather than personality *disorders*.

Other psychiatric disorders were judged to be present if: positive basic and extended screening on the SPIFA.

Results

Depression

Total mean scores for depression on BDI were low (mean score <10) at each assessment and relatively stable over time. Frequency estimates of total scores in the paraplegic and tetraplegic group, respectively, showed a preponderance of scores in the 'minimal' range at all assessments. A few individuals in both groups reported depressive symptoms corresponding to

the 'minor' or 'moderate' ranges. No individual had a total BDI score in the 'severe' range at any occasion.

Results from the SPIFA regarding depression at admission showed no individual in the paraplegic group fulfilling the criteria for depression, although nine individuals reported some depressive symptoms. In the tetraplegic group, one individual out of 14 fulfilled criteria for depression and three individuals reported depressive symptoms. In comparison, clinical psychological interview at admission resulted in diagnosis according to DSM-IV for one individual in each group. At 6 months follow-up, three paraplegics and one tetraplegic fulfilled criteria for depression according to DSM IV (see Table 3).

Taken together, results from medical reports and all screening instruments for depression, showed that at admission, 11 of 36 subjects were either clinically depressed or treated for depression. At discharge, 12 of 36 subjects either suffered from clinical depression or received drug treatment for depression. At 6 months follow-up, 11 of 31 subjects were in this situation. Of these, six individuals were either clinically depressed or treated for depression at every assessment, whereas three individuals were treated at discharge and follow-up. Two individuals were clinically depressed at follow-up (see Table 7).

Psychotropic drugs

In the paraplegic group, 32% used antidepressant medication at admission and discharge, decreasing to

Table 3 Depression according to DSM-IV

Injury	Depression according to DSM-IV		
	Admission	Discharge	6 months
Paraplegia (n = 22)	1	1	2 ^a
Tetraplegia (n = 14)	1	1	2
Total (n = 36)	2	2	4

^aFive paraplegic subjects dropped out from 6 months follow-up

Table 4 Use of antidepressant medication

Injury	Antidepressants		
	Admission	Discharge	6 months
Paraplegia (n = 22)	32% (n = 22)	32% (n = 22)	18% (n = 22) ^a
Tetraplegia (n = 14)	14% (n = 14)	29% (n = 14)	29% (n = 14)
Total (n = 36)	25% (n = 36)	31% (n = 36)	22% (n = 36) ^a

^aFive subjects dropped out from 6 months follow-up

Table 5 The use of psychotropic drugs, other than antidepressants

Injury	Neuroleptics			Sedatives (ataractics)			Hypnotics/Sedatives		
	Admission	Discharge	6 months follow-up	Admission	Discharge	6 months follow-up	Admission	Discharge	6 months follow-up
Paraplegia (n = 22)	9% (n = 2)	9% (n = 2)	6% (n = 1)*	9% (n = 2)	9% (n = 2)	0%*	59% (n = 13)	55% (n = 12)	28% (n = 5)*
Tetraplegia (n = 14)	0%	0%	0%	21% (n = 3)	21% (n = 3)	7% (n = 1)	64% (n = 9)	64% (n = 9)	29% (n = 4)
Total (n = 36)	6% (n = 2)	6% (n = 2)	3% (n = 1)	14% (n = 5)	14% (n = 5)	3% (n = 1)	61% (n = 22)	58% (n = 21)	28% (n = 9)

*Subjects missing: five

18% at 6 months follow-up. In the tetraplegic group, 14% used antidepressant medication at admission, increasing to 29% at discharge and 6 months follow-up, (see Table 4). Review of medical reports showed

Table 6 Frequencies below and above cutoff in AUDIT

Injury	Admission*	
	>8	<8
Paraplegia (n = 22)	14	6
Tetraplegia (n = 14)	13	1
Total (n = 36)	27	7

*Data from 2 subjects missing, one in each group

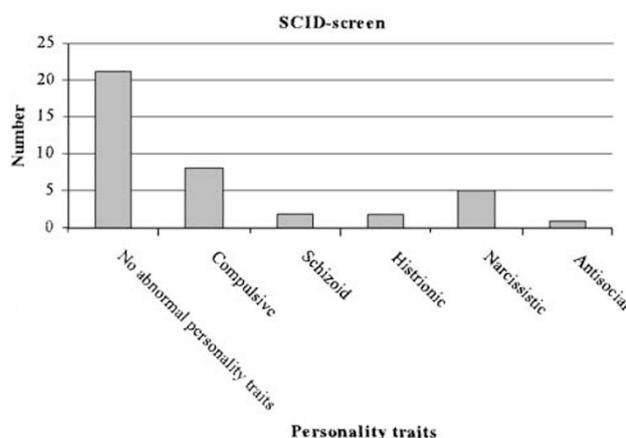


Figure 2 SCID-screen

Table 7 Summary of diagnostic results and prescribed psychotropic drug use

Subjects	Admission							Discharge					6 months follow-up					
	D	P	A	AD	H	S	N	D	AD	H	S	N	D	AD	H	S	N	
1																		
2																		
3																		
4					X					X								
5				X	X				X	X			X	X	X			
6					X					X					X			
7				X	X	X			X	X	X			X	X	X		
8			X	X	X	X			X	X	X							
9																		
10				X	X				X	X				X	X			
11				X	X				X	X								
12				X					X									
13									X					X				
14					X					X								
15			X		X													
16					X					X								
17	X	X	X		X	X	X			X	X	X	X					
18	X			X	X			X	X	X			X	X	X			
19																		
20			X		X	X			X	X	X			X	X			
21																		
22	X				X			X		X				X				
23				X	X				X	X				X	X			
24					X	X				X	X							
25																		
26		X	X		X		X			X		X	X		X			X
27					X					X								
28				X	X				X	X				X				
29			X		X					X								
30			X															
31			X															
32					X					X					X			
33					X					X								
34			X															
35													X					
36																		
Total	3	2	9	9	22	5	2	2	11	21	5	2	5	8	9	1	1	
Total %	8	5	25	25	61	14	5	5	31	58	14	5	16	26	29	3	3	

D = depression, P = personality, A = alcohol, AD = antidepressant, H = hypnotic, S = sedative, N = neuroleptic, — = drop-out

that antidepressant medication was prescribed for the following indications: depression ($n=6$), pain ($n=3$), and pain and depression combined ($n=2$).

Considering other psychotropic drugs, about 60% of all patients used hypnotic drugs. At follow-up, the number of patients still using hypnotics had dropped to 30%. Hypnotics were prescribed for sleep disturbances in 14 cases (64%). In eight cases (36%) there was no specified indication stated in the medical records. Furthermore, about 20% of tetraplegics used sedatives, compared to 9% among paraplegics. In the majority of cases, information from medical reports showed that sedative medication was prescribed to treat high anxiety and psychological stress triggered by injury and changed life situation (see Tables 5 and 7).

Abnormal personality traits and other psychiatric disorders

About 40% of all subjects showed dimensional personality traits outside the normal ranges; however, none of the traits fulfilled the criteria for personality disorder according to the DSM-IV, axis II (see Figure 2). Two of 36 subjects had a previously diagnosed schizophrenia, according to DSM IV, axis I.

Alcohol

Six of 22 subjects in the paraplegic group were within risky consumption ranges at admission according to AUDIT. In the tetraplegic group, one individual of 14 scored in accordance with riskful consumption at admission (see Table 6).

Results from the SPIFA regarding alcohol consumption and drug addiction/abuse showed that three subjects of 22 in the paraplegic group had an alcohol dependency and two subjects suffered alcohol addiction. Of these, three subjects reported a combined alcohol dependency/abuse and drug abuse. In the tetraplegic group, one individual was found to have alcohol dependency at admission.

In summary, nine subjects were considered as having risky alcohol consumption, that is, drinking behavior prior to injury outside the normal ranges. Of these, four subjects fulfilled criteria for alcohol dependency. Three individuals also had a documented drug addiction.

Discussion

Clinically overt symptoms of psychological distress were infrequent in the early postacute phase. In contrast, ongoing medication with psychotropic drugs, particularly antidepressants and anxiolytics, was frequent. Since these patients were admitted from a specialized SCI unit at a university hospital, it is reasonable to assume that prescriptions were made according to established indications. Under this assumption, psychological problems seem to be common in postacute SCI patients. This despite the fact that the Swedish social security system is one of the most developed, thus

reducing several psychosocial and socioeconomic stressors that in other societal contexts would further add psychological distress. Additionally, one-fourth of patients had assessment scores indicating harmful alcohol and/or illicit drug consumption. Clearly, then, management of psychological and behavioral problems must be one of the focus areas in SCI rehabilitation.

There are some caveats in generalizing from the results. First, the sample is relatively small, due to low regional incidence. Second, as in all research concerning psychological processes, there is the dilemma of what to measure and how. The authors are aware of concerns regarding the use of BDI in SCI rehabilitation.²⁴ Furthermore, SPIFA and SCID-screen have not been validated for the SCI population.

One key issue is to what extent psychological distress post-SCI should be treated with drugs. Does pharmacological treatment facilitate or antagonize the rehabilitation process? Further, prospective studies are warranted to address this question.

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