

# Impact of injury level and self-monitoring on free time boredom of people with spinal cord injury

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Accepted for publication: May 2004

## Abstract

**Purpose:** The purpose of this study was to determine whether or not level of injury and personality characteristics creates an interaction effect that impacts the free time boredom of individuals with spinal cord injury (SCI).

**Method:** Using a survey method, a packet containing a cover letter, a consent form, research questionnaires, and a self-addressed, stamped envelope was sent to 500 individuals with SCI who were randomly selected by computer at one of the rehabilitation centres in USA. The research questionnaires included the measures of self-monitoring (SM) and free time boredom (FTB) along with some demographic factors such as gender, ethnicity, age, injury level, and etc.

**Results:** This study found that a significant interaction effect between injury level and SM on FTB. That is, low self-monitors with tetraplegia reported higher levels of boredom in free time than high self-monitors with paraplegia.

**Conclusion:** Not all individuals with similar injury levels rate FTB in a similar degree. Individuals' personality characteristics play an important role in experiencing FTB. In particular, the significant interaction effect indicates a potential risk factor for clients with tetraplegia who are low in SM which should be an important consideration in the lives of people with tetraplegia following rehabilitation.

## Introduction

Leisure has been identified as an important life context within which a person with spinal cord injury (SCI) can fulfill social roles and can participate in various activities in community. Various scholars<sup>1–4</sup> reported that ability to enjoy leisure in daily life facilitates a successful transition to integrated circumstances

and helps establish a satisfying life. A body of knowledge has been established to report that satisfaction with leisure is positively associated with adjustment to disability.<sup>5</sup>

However, lack of such positive experience in leisure can be a problem. Various empirical studies in SCI reported relationships between lack of meaningful experience and alcohol abuse,<sup>6</sup> depression,<sup>7</sup> stress<sup>8</sup> and even increased suicide attempts.<sup>9</sup> While the term boredom characterizes lack of satisfying life experience in general,<sup>10</sup> boredom in free time occurs when an individual perceives that his or her leisure experiences are not satisfying one's needs for optimal arousal.<sup>11</sup> Having too much time, or experiencing 'free-time blues',<sup>12</sup> people with SCI spent at least three to four more hours per day in free time activities than those in a comparison group without disabilities in order to deal with their boredom.<sup>13</sup>

## FREE TIME BOREDOM FOR INDIVIDUALS WITH SCI

Free Time Boredom (FTB) is 'a subjective feeling, characterized as sensory deficit and dissatisfaction with passing time and in failing to reach an optimal level of flow or arousal, originating from underload due to the lack of meaning or purpose during a person's free time ... with less mental and physical involvement'.<sup>14</sup> While the concept of free time boredom or leisure boredom was first introduced by Iso-Ahola and Weissinger,<sup>15</sup> the body of knowledge in this area is still developing. In particular, application of this concept to disability contexts has been very limited.

Some studies reported problems associated with boredom in free time for individuals with SCI.<sup>16, 17</sup> Caldwell and Weissinger<sup>16</sup> included variables such as self-determination, competence, leisure ethic, work ethic, leisure constraints, leisure awareness, frequency of recreation

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participation and income to explain FTB. A total adjusted  $R^2$  of 0.21 resulted from three variables including perceived competence ( $R^2 = 0.11$ ), income ( $R^2 = 0.07$ ), and frequency of recreation activities ( $R^2 = 0.06$ ), which significantly contributed to the explained variance in FTB. Lee *et al.*<sup>17</sup> on the other hand, included variables such as life view, perceptions of health, watching TV, perceived freedom in leisure, and leisure identity, as well as demographic characteristics in an attempt to predict FTB. They found that life view, defined as a positive view or having optimistic thoughts about life after one's disability, contributed the most variance ( $R^2 = 0.28$ ) when explaining FTB, followed by watching TV ( $R^2 = 0.06$ ) and perceived freedom in leisure ( $R^2 = 0.05$ ). Extant literature, though limited in number, shows that the experience of FTB of individuals with SCI stems from (a) possessing a lack of competence in leisure engagement (b) living in a low income status (c) infrequently participating in recreation activities, (d) viewing life negatively or pessimistically, (e) spending more time watching TV, and (f) having less freedom in leisure. These research findings support many aspects of the definition of FTB provided by Ragheb and Merydith.<sup>14</sup>

A number of researchers identified social variables as factors that influence FTB. Iso-Ahola and Weissinger,<sup>15</sup> for example, reported that a lack of friends was associated with boredom during leisure or free time. Oppenheim<sup>18</sup> and Leary *et al.*<sup>19</sup> also reported a significant association between social incompetence and boredom. Furthermore, various researchers noted an association between loneliness and boredom.<sup>20-22</sup> Considering these research findings, a personality variable that could help to explain individual differences in social interaction would seem to be important when attempting to understand FTB.

#### SELF-MONITORING

Self-monitoring (SM) is a personality index that is an indication of the extent to which an individual is likely to monitor and control his or her expression in situations which contain reliable cues to social appropriateness.<sup>23</sup> The study of SM examines the extent to which people cultivate as well as project social images and public appearances. The key in this theory is concerned with the active construction of public selves to achieve social ends.<sup>24</sup> As the very concept of SM indicates, there is an important individual difference in expressive control.

High self-monitors (SMs) are likely to be pragmatic in their interactions with other people.<sup>23</sup> They easily modi-

fy their behaviours and self-expressions to fit the social situations in which they find themselves; hence Snyder<sup>23</sup> characterized them as 'social chameleons'. Thus, high SMs are sensitive to group norms and the behaviours of others. They tend to scan the social world for information about people<sup>25</sup> and are flexible in their behaviour to be more comfortable when interacting with many people.<sup>24</sup> Furthermore, high SMs conceive of friendship in terms of activities engaged in with others. More specifically, they tend to choose activity partners based on similar or shared recreation preferences<sup>26</sup> and their own expertise in a particular activity.<sup>23</sup> They tend to choose friends and activity partners who facilitate the construction of their own situationally appropriate appearances.<sup>27</sup>

However, low SMs often express their selves in a consistent fashion from situation to situation.<sup>23</sup> Low SMs tend to maintain congruence between their personal values and beliefs, and their behaviours.<sup>23, 28</sup> Snyder<sup>23</sup> noted that low SMs are 'principled beings' whose behaviours flow from internal value systems. Thus, low SMs give minimal attention to situational norms, and their behaviours are highly consistent from situation to situation.<sup>24, 29</sup> Another study found that low SMs tend to choose social situations consistent with privately held attitudes<sup>30</sup> and endorse feedback consistent with their own self-image.<sup>31</sup> Unlike high SMs, low SMs seek relatively homogenous social worlds,<sup>24</sup> and engage in long-term dating relationships with a single partner. Low SMs prefer to belong to a clique within which the individual can freely express a characteristic disposition.<sup>23</sup> They like to be with the same friends across activity domains.<sup>27</sup>

#### FUNCTIONAL COMPARISON BETWEEN PARAPLEGIA AND TETRAPLEGIA

Rehabilitation researchers have examined functional differences with regard to physical, psychological, and social circumstances comparing individuals with paraplegia and tetraplegia. Gordon<sup>32</sup> reported that the level of injury (i.e., tetraplegia or paraplegia) was related to one's activity repertoire and independence in activity. That is, individuals with lower injury (i.e., paraplegia) tend to have a broader activity repertoire and experience relatively higher independence than those with a higher injury level. Heinemann *et al.*<sup>6</sup> and Gordon<sup>32</sup> all reported that persons with paraplegia were involved in a greater variety of activities with higher frequency than those with tetraplegia. In social relationships, Hirschenfang and Benton<sup>33</sup> reported that individuals with paraplegia tended to

experience more constraints in interpersonal relationship than those with tetraplegia.

Numerous researchers further compared the psychosocial aspects of individuals with paraplegia and tetraplegia. Judd *et al.*<sup>34</sup> for example, reported that individuals with low injury level (i.e., paraplegia) tended to be better adjusted. Yarkony *et al.*<sup>35</sup> reported that one's level of injury is directly associated with the capacity for independent self-care and mobility. Gruber<sup>36</sup> reported that individuals with high injury levels are more likely to be in poorer health and need assistance in more areas. Using a meta analysis, Evans *et al.*<sup>37</sup> concluded that perceived quality of life diminishes as the severity of the impairment increases. Mehnert *et al.*<sup>38</sup> also reported that life satisfaction decreases as the severity of the injury increases.

In leisure research, Lee *et al.*<sup>39</sup> investigated how leisure experiences vary by injury levels. They reported that, while frequency of recreation participation as well as leisure identity was not significantly different between individuals with tetraplegia and paraplegia, individuals with tetraplegia experienced higher levels of FTB than those with paraplegia. Their study provided evidence that people with a higher injury level experienced higher levels of boredom in free time.

Taken together, numerous studies indicate that a higher level of injury is associated with lower levels of activity involvement, more limited activity repertoire, lower levels of independence, poorer adjustment and perceptions of health, increased social barriers, and lower levels of life satisfaction. That is, individuals with a higher level of injury may experience higher levels of boredom, considering their limited activity involvement, limited repertoire and independence, poor health condition, and increased social constraints. However, other than injury level, some important individual difference variables such as personality characteristics were not taken into consideration in most research just reviewed above. An individual's personal disposition may help us to better understand the FTB of individuals with SCI.

### *This study*

The purpose of this study was to determine whether or not level of injury (i.e., paraplegia vs. tetraplegia) and SM characteristic (i.e., high SM vs. low SM) created an interaction effect that impacted FTB. The two key independent variables for all analyses are injury level and SM characteristic. The following research question was carefully examined: Is the relationship between free time boredom and injury level (paraplegia or tetraplegia) the same for low SMs and high SMs?

## **Methods**

### *Sampling*

This sample was drawn from the outpatient mailing list of the Shepherd Centre in Atlanta, Georgia. The computer programme that contained the outpatient mailing list initially selected those individuals who had been discharged from the agency for more than 6 months. From this pool, a random number of 500 were selected by computer. A packet containing a cover letter explaining the nature of the study, a consent form, research questionnaires, and a self-addressed, stamped envelope was sent to the 500 individuals. To ensure confidentiality, the mailing labels were affixed to envelopes by staff at the rehabilitation hospital. The cover letter informed potential respondents that participation in the study was voluntary. To protect anonymity, respondents were not asked to identify themselves by name on the questionnaires. Since the return envelope used the hospital's address, all responses were sent accordingly.

While 117 individuals returned their responses by the designated date (1-month from the distribution day), a second mailing occurred right after the designated deadline, asking for a response. The same packet of questionnaires was sent to all respondents along with a cover letter encouraging their cooperation. The cover letter encouraged those who had not responded previously, to do so at their earliest convenience. The letter also instructed those who responded earlier to discard the questionnaire. This second mailing procedure generated 114 additional responses. The use of bulk mail eliminated seven forwarded or returned packets with incorrect addresses. Among 231 responses, 25 were eliminated because large parts of the questionnaire were left blank. Considering the (a) returned questionnaires, (b) questionnaires with unusual responses, and (c) non-respondents, this study achieved a 41% response rate ( $206/500 = 0.412$ ).

### *Demographic characteristics of the sample*

The final sample consisted of 206 respondents, with a mean age of 40.6 years (range = 19–75, SD = 13.3). A majority was male (72.3%) and white (82%). Approximately 42% of the individuals were single and 37% were married. Almost 38% of the sample was unemployed, 20% were employed full time, 11% were students, and 18% were housewives. Slightly over 50% of the sample had less than 12 years of education, and another 26% of the sample had at least 4 years of college education, or

more. Approximately 47% of the sample had an annual income below \$10 000, and almost 25% earned more than \$30 000 a year. The average length of injury was 9.3 years (range = 1–48 years,  $SD = 7.63$ ). Just less than half (47%) had paraplegia and 53% had tetraplegia.

### Instrumentation

**Self-Monitoring.** Snyder's<sup>23</sup> 18-item Self-Monitoring Scale was used, which has reported acceptable levels of validity and reliability.<sup>24</sup> This scale assesses (a) the level of social appropriateness, (b) the degree of using social comparison information, (c) the degree to which an individual controls and modifies one's presentation of self to others, and (d) the extent to which one's presentation of self is tailored to fit the social situation. While the original instrument used only 'yes' or 'no' response categories, this study employed a Likert scale using a 1 to 5 interval response pattern (i.e., 1 = 'strongly disagree' to 5 = 'strongly agree'). A high score indicates a high degree of self-monitoring. Sample items or statements include: 'At parties and social gatherings, I do not attempt to do or say things that others will like'; 'I guess I put on a show to impress or entertain others'; 'In a group of people I am rarely the centre of attention.' Cronbach's alpha in this study was 0.76.

**Free time boredom (FTB)** was assessed through a mean score on two single-item indicators used by Caldwell and Weissinger.<sup>16</sup> FTB is defined as the subjective perception that leisure experiences do not satisfy individual needs for optimal arousal.<sup>16</sup> The two indicators were: (a) 'In my free time, I usually don't like what I'm doing, but I don't know what else to do' and (b) 'I am usually bored in my free time.' Using a 5-point Likert scale, respondents were asked to answer from 'strongly disagree' (1) to 'strongly agree' (5). Higher scores indicate higher levels of boredom during leisure. The reliability for the original 16-item scale was reported as 0.85, 0.86, and 0.88 in three separate studies reported by Iso-Ahola and Weissinger.<sup>11</sup> These studies also provided support for the construct validity of the leisure boredom scale and the items included therein. In this study, Cronbach's alpha for this two-item measure was 0.85.

In addition to above-mentioned measures, the researchers included basic demographic factors in the questionnaire (e.g., gender, age, injury levels, etc). In assessing injury level, the researchers used the following opened-ended question: 'What is your injury level?' Classification of tetraplegia and paraplegia was used by American Spinal Cord Injury Association definition.<sup>40</sup>

### Data analysis

Data were analysed using the SPSS programme (version 11.5). Descriptive statistics (e.g., means, percentiles, standard deviations) were used to examine the demographic characteristics of the sample. Cronbach's alpha tests were conducted to explore the reliability of the measures (e.g., SM, FTB). A two-way ANOVA (2X2) was conducted to examine the impact of injury level (tetraplegia and paraplegia) and self-monitoring characteristic (high and low SM) on FTB. In order to ensure that assumptions of normality were met, Levene's test for homogeneity of variance was included.

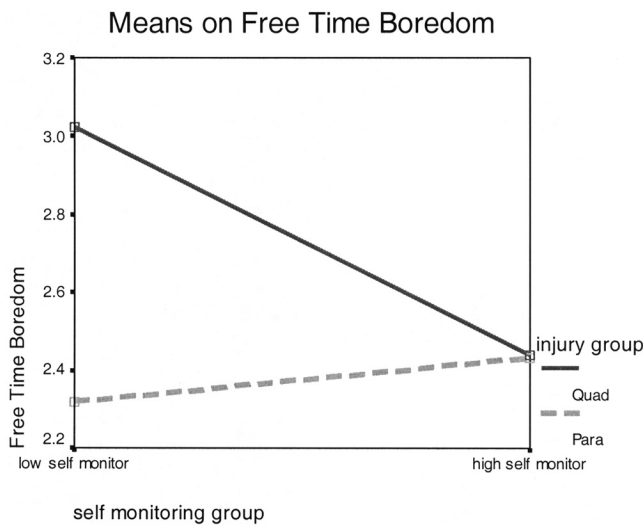
### Results

Levene's Test of homogeneity of variance was not significant; the variability for dependent variables was not different across groups and assumptions of normality were met. The impact of injury level and SM characteristics on FTB was significant ( $F = 2.92, p = 0.035$ ; see table 1), and there was a significant interaction effect ( $F = 3.63, p = 0.045$ ). Higher scores are associated with higher levels of FTB. A value of two corresponded to the response that they 'disagreed' with the statements about FTB. A value of three corresponded to the response that they 'neither disagreed nor agreed' with these two statements: 'In my free time, I usually don't like what I'm doing, but I don't know what else to do,' and 'I am usually bored in my free time.' So, not agreeing with these statements indicated lower levels of FTB.

People with tetraplegia who are low SMs are more bored in free time than those with paraplegia who are high SMs (see figure 1). However, regardless of SM characteristics (i.e., high or low in SM), individuals with paraplegia were not impacted by FTB. On average, people with tetraplegia who are low SMs tended to 'neither disagree nor agree' ( $M = 3.02, SD = 1.39$ ) that they were bored during their free time. People with paraplegia who are high SMs ( $M = 2.43, SD = 1.21$ ) leaned more toward disagreeing with the two statements. On a practical level, it should be noted that overall, these results are quite positive for all concerned; neither groups reported that they were bored during their free time. For this comparison, 4.7 % of the total amount of variability in FTB can be explained by differences attributed to an individual's level of injury and personality type. The amount of variance explained represents just less than a medium effect (where 0.01 = a small effect; 0.06 = a medium effect).

**Table 1** Two-way ANOVA results for injury level and self-monitoring on free time boredom

Source	SS	df	MS	F	p
<i>Free Time Boredom</i> (total N = 181)					
Corrected Model	13.213	3	4.404	2.924	0.035
Self-monitoring (SM)	2.486	1	2.486	1.650	0.201
Injury Level	5.735	1	5.735	3.807	0.053
SM X Injury Level	5.475	1	5.475	3.634	0.045
Error	266.638	177	1.506		
Corrected Total	279.851	180			
$R^2 = 0.047$					



**Figure 1** Interaction effect of injury level and self-monitoring type on free time boredom.

**Discussion**

The purpose of this study was to determine whether or not level of injury and SM characteristics created an interaction effect that impacted FTB. An important result that deserves careful attention is a significant interaction effect between injury level and SM characteristic (i.e., high vs. low) on FTB. Although neither injury group reported that they were bored during their free time, low SMs with tetraplegia reported higher boredom in free time than high SMs with paraplegia. It may be that individuals with tetraplegia have fewer leisure choices due to their more serious injury than individuals with paraplegia. Low SMs tend to be less socially inclined than high SMs. Thus, low SMs with tetraplegia may be more susceptible to FTB than high SMs with paraplegia.

According to the findings of this study, it may be misleading to believe that all individuals with similar injury levels rate FTB in a similar degree. Individuals’ personality characteristics play an important role in experiencing boredom in free time. In particular, the significant interaction effect of injury level and SM characteristic indicates a potential risk factor for clients with tetraplegia who are low in SM which should be an important consideration in the lives of people with tetraplegia following rehabilitation. This implies that one of the foci of rehabilitation programmes should be on actively negotiating barriers to social leisure participation in order to maximize social participation. In doing so, therapists should consider the theory of SM carefully. SM theory purports that individuals view and use social situations for different purposes and use different strategies. While social activities may be important for all rehabilitation clients, the patterns through which they engage in social leisure would likely vary. Thus, rehabilitation goals for low SMs with tetraplegia might target developing strategies to negotiate barriers to maintaining existing social relationships, instead of creating new ones.

Despite the interesting results of this study, several methodological issues must be considered when interpreting the results. First, FTB was operationalized using two items not originally intended for that purpose. While a conceptual rationale was presented, and internal consistency reliability data for measures with two item substantiated, other psychometric properties are unknown. Second, because participation was voluntary, the sample may represent those individuals with SCI who are more active and feel more positively about their disability. Third, distortion in the self-report of FTB can be a possibility. In addition, one boring or exciting event on the day that the self-report questionnaire was completed could have distorted a person’s mental state as it related to boredom.

The results of this study have implications for future research. While this study examined only FTB, a

personality characteristic such as SM may be a salient variable when attempting to understand individual differences central to issues related to the effective rehabilitation of patients and clients. More research employing SM or other personality characteristics needs to be conducted in order to fully comprehend the nature of leisure and coping with spinal cord injury. This study demonstrated that the theoretical construct of SM is an important personality variable that is associated with FTB. Future investigations may further extend the implications of the SM construct to leisure and rehabilitation research.

## References

- 1 Elliott TR, Shewchuk RM. Social support and leisure activities following severe physical disability: Testing the mediating effects of depression. *Basic and Applied Social Psychology* 1995; **16**: 471–487.
- 2 Hutchinson SL, Loy DP, Kleiber DA, Dattilo J. Leisure as a coping resource: Variations in coping with traumatic injury and illness. *Leisure Sciences* 2003; **25**: 143–161.
- 3 Lee Y, McCormick B. Subjective well-being of people with spinal cord injury: Does leisure contribute? *Journal of Rehabilitation* (in press).
- 4 Loy DP, Dattilo J, Kleiber DA. Exploring the influence of leisure on adjustment: Development of the leisure and spinal cord injury adjustment model. *Leisure Sciences* 2003; **25**: 231–255.
- 5 Kleiber DA, Hutchinson SL, Williams R. Leisure as a resource in coping with negative life events: Self-protection, self-restoration, and personal transformation. *Leisure Sciences* 2002; **24**: 219–235.
- 6 Heinemann AW, Goranson N, Ginsburg K, Schnoll S. Alcohol use and activity patterns following spinal cord injury. *Rehabilitation Psychology* 1989; **34**: 191–205.
- 7 Fuhrer MJ, Rintala DH, Hart KA, Clearman R, Young ME. Relationship of life satisfaction to impairment, disability and handicap among persons with spinal cord injuries. *Archives of Physical Medicine and Rehabilitation* 1992; **73**: 552–557.
- 8 Frank RG, Elliott TR. Life stress and psychological adjustment following spinal cord injury. *Archives of Physical Medicine & Rehabilitation* 1987; **68**: 344–347.
- 9 Charlifue SW, Gerhart SW. Behavioral and demographic predictors of suicides after traumatic spinal cord injury. *Archives of Physical Medicine and Rehabilitation* 1991; **72**: 488–492.
- 10 Bargdill RW. The study of life boredom. *Journal of Phenomenological Psychology* 2000; **31**: 188–132.
- 11 Iso-Ahola SE, Weissinger E. Perceptions of boredom in leisure: Conceptualization, reliability, and validity of the Leisure Boredom Scale. *Journal of Leisure Research* 1990; **22**: 1–17.
- 12 Strauss AL. *Chronic Illness and the Quality of Time*. St. Louis: Mosby, 1975.
- 13 Yerxa EJ, Locker SB. Quality of time use by adults with spinal cord injuries. *American Journal of Occupational Therapy* 1990; **44**: 318–326.
- 14 Ragheb MR, Merydith SP. Development and validation of a multidimensional scale measuring free time boredom. *Leisure Studies* 2001; **20**: 41–59.
- 15 Iso-Ahola SE, Weissinger E. Leisure and boredom. *Journal of Social and Clinical Psychology* 1987; **5**: 356–364.
- 16 Caldwell L, Weissinger E. Factors influencing free time boredom in a sample of persons with spinal cord injuries. *Therapeutic Recreation Journal* 1994; **28**: 18–24.
- 17 Lee Y, Mittelstaedt R, Askins J. Predicting free time boredom for people with spinal cord injury. *Therapeutic Recreation Journal* 1999; **33**: 122–134.
- 18 Oppenheim JS. *Perceived Social Competence, Boredom and Capacity for Self-entertainment*. Unpublished Masters Thesis, University of Maryland, College Park, 1984.
- 19 Leary M, Rogers P, Canfield R, Coe C. Boredom in interpersonal encounters: Antecedents and social implications. *Journal of Personality and Social Psychology* 1986; **51**: 968–975.
- 20 Farmer RF, Sundberg ND. Boredom proneness—the development and correlates of a new scale. *Journal of Personality Assessment* 1986; **50**: 4–17.
- 21 Perse E, Rubin A. Chronic loneliness and television use. *Journal of Broadcasting and Electronic Media* 1990; **34**: 37–53.
- 22 Tolor A. Boredom as related to alienation, assertiveness, internal-external expectancy, and sleep patterns. *Journal of Clinical Psychology* 1989; **45**: 260–265.
- 23 Snyder M. *Public Appearances, Private Realities: The Psychology of Self-monitoring*. New York: Freeman, 1987.
- 24 Gangestad S, Snyder M. Self-monitoring: Appraisal and reappraisal. *Psychological Bulletin* 2000; **126**: 530–555.
- 25 Jones EE, Baumeister R. The self-monitor looks at the ingratiation. *Journal of Personality and Social Psychology* 1976; **44**: 654–674.
- 26 Jamieson DW, Lydon JE, Zanna MP. Attitude and activity preference similarity: Differential bases of interpersonal attractions for low and high self-monitors. *Journal of Personality and Social Psychology* 1987; **53**: 1052–1060.
- 27 Snyder M, Gangestad S, Simpson JA. Choosing friends as activity partners: The role of self-monitoring. *Journal of Personality and Social Psychology* 1983; **51**: 181–190.
- 28 Eichenhofer D, Gerstein L, Valutis W, Jankowski J. Effects of anxiety on self-monitoring. *Psychological Report* 1987; **61**: 831–836.
- 29 Snyder M, Campbell BH. Self-monitoring: The self in action. In: J Suls (ed.) *Psychological Perspectives on the Self*. Hillsdale, NJ: Erlbaum, 1982; 185–207.
- 30 Snyder M, Kendzierski D. Choosing social situations: Investigating the origins of correspondence between attitudes and behavior. *Journal of Personality* 1982; **50**: 280–295.
- 31 Jones EE, Brenner KJ, Knight JG. When failure elevates self-esteem. *Personality and Social Psychology Bulletin* 1990; **16**: 200–219.
- 32 Gordon W. Psychological adjustment and characteristics in recent spinal cord injuries. Final report submitted to the National Institute of Handicapped Research, Grant No. 13-P-59127, New York University Medical Center, 1982.
- 33 Hirschenfang T, Benton S. The relationship between coping and adjustment after spinal cord injury. *Rehabilitation Psychology* 1966; **12**: 41–52.
- 34 Judd FK, Webber JE, Brown DJ, Norman TR, Burrows GD. Psychological adjustment following traumatic spinal cord injury: A study using the Psychosocial Adjustment to Illness Scale. *Paraplegia* 1991; **29**: 173–179.
- 35 Yarkony G, Roth E, Heinemann A, Wu Y, Katz R, Lovell L. Benefits of rehabilitation for traumatic spinal cord injury: Multivariate analysis in 711 patients. *Archives of Neurology* 1987; **44**: 93–96.
- 36 Gruber A. An internist's perspective on the problem: an overview of some significant medical problems. In: MG Eisenberg, JA Folconer (eds) *Treatment of the Spinal Cord Injured*. Springfield, IL: Charles C. Thomas, 1978; 19–26.
- 37 Evans RL, Hendricks RD, Connis RT, Haselkorn JK, Ries KR, Mennet TE. Quality of life after spinal cord injury: A literature critique and meta analysis (1983–1992). *Journal of American Paraplegia Society* 1994; **17**: 60–66.
- 38 Melmert T, Krause HH, Nadler R, Boyd M. Correlates of life satisfaction in those with disabling conditions. *Rehabilitation Psychology* 1990; **35**: 3–17.

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39 Lee Y, Mittelstaedt R, Perkins S. Comparison of leisure functioning of people with paraplegia and quadriplegia. *Annual in Therapeutic Recreation* 1999; **8**: 12–21.

40 American Spinal Injury Association. *International Standards for Neurological Classifications of Spinal Cord Injury* (revised). Chicago: American Spinal Injury Association 2000; 1–23.