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#### ORIGINAL RESEARCH

# **Body Image in Patients With Spinal Cord Injury During Inpatient Rehabilitation**



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#### **Abstract**

**Objectives:** (1) To investigate the course of body image in patients with spinal cord injury (SCI) during their first inpatient rehabilitation stay; and (2) to explore the association between demographic and injury-related variables and body image and the association between body image and psychological distress.

Design: Longitudinal inception cohort study.

Setting: Rehabilitation center.

**Participants:** Of the 210 people admitted for their first inpatient SCI rehabilitation program (between March 2011 and April 2015), 188 met the inclusion criteria. Of these, N=150 (80%) agreed to participate.

**Interventions:** Not applicable.

Main Outcome Measure: The Body Experience Questionnaire was used to measure 2 dimensions of body image: alienation and harmony. Results: Mean scores on the Body Experience Questionnaire alienation subscale decreased significantly during the rehabilitation program. Mean scores on the Body Experience Questionnaire harmony subscale did not increase significantly but showed a trend in the hypothesized direction. The 2 subscales showed weak correlations with demographic and injury-related variables. The 2 subscales together explained 16% and 14% of the variance of depression and anxiety, respectively, after correction for demographic and injury-related variables.

**Conclusions:** During participants' first inpatient rehabilitation stay after SCI, body image progressed toward a healthier state. Body image explains part of the variance in depression and anxiety, and the entire rehabilitation team should be targeting interventions to improve body image. Archives of Physical Medicine and Rehabilitation 2017;98:1126-31

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A spinal cord injury (SCI) involves change in motor activity and movement patterns and sensory input. Depending on the location and completeness of the SCI, further limitations may occur. Furthermore, a number of secondary complications (eg, pain, fatigue) affect the well-being of people with SCI. Influenced by both physical and psychological aspects, changes can occur in a patient's body image after SCI. From a cognitive behavioral perspective, body image refers to the multifaceted psychological experience of embodiment and especially but not exclusively refers to physical appearance. Body image encompasses body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings, and behaviors. Within this framework, negative

body image experiences unfold as the cumulative result of developmentally predisposing influences and specific events that provoke and sustain maladaptive processes. Having an SCI, and dealing with its complications, is such an event. Further, this framework states that different facets of body image are associated with psychosocial functioning and emotional stability. 8

Most of the studies on body image of patients with SCI focus on physical characteristics and/or physical activity. 3,4,9-15 From these studies, it becomes clear that SCI has consequences on the way patients with SCI perceive themselves and interact with their surroundings, including potential partners. 4,10,12,13 Other studies suggest that satisfaction with the body improves over the years after SCI. 3,12,15 Age at injury does not seem to have any influence on body image. 11 However, some studies have found that satisfaction with appearance after SCI was not different than a reference group. 9,14

Disclosures: none.

One way to study body image from a cognitive behavioral point of view is to explore how people experience the relation between their body and self. According to Bode et al, <sup>16</sup> this experience consists of 2 different aspects, namely alienation and harmony. Alienation is the split between the body and the self, whereas harmony is the degree in which the body is unified with the self. In healthy conditions, it is assumed that body and self are in harmony. <sup>5,17</sup> Harmony can be disturbed by a chronic condition. <sup>5,13,16,17</sup> Because of chronic conditions or complications (eg, pain, fatigue), patients with SCI can be aware of the difference between the body and self. <sup>16,17</sup> This process is referred to as body-self split or alienation. <sup>16</sup> So far, alienation and harmony have only been studied in other diagnostic groups. <sup>16,18</sup> To date, it is not known if this disturbance of alienation and harmony also occurs in people with SCI.

Studies in other diagnostic groups and healthy people have found a positive correlation between body image and quality of life. 19-21 Also, in studies with SCI, body image is one of the factors contributing to quality of life. 3,9,12,22 Although studies in SCI suggest a relation between body image and emotional aspects of adjustment to SCI, 4,9,10,22 none have examined this relation explicitly. To our knowledge, there are no studies investigating body image during the inpatient rehabilitation phase and no studies about the possible influence of body image on the experienced distress of people with SCI.

The aims of this study are (1) to describe the course of body image during patients' first inpatient rehabilitation stay after the onset of SCI; (2) to explore the associations between demographic and injury-related variables and body image; and (3) to explore the associations of body image with psychological distress, controlling for the influence of injury-related variables and demographic factors at discharge.

We hypothesize that (1) during inpatient rehabilitation, the mean alienation scores will decrease, whereas the harmony scores will increase. In other words, participants will progress toward a healthier body image. We also hypothesize that (2) body image is associated with injury and demographic variables, and having a more severe SCI and more complications is associated with more alienation and less harmony. Finally, (3) in line with Cash's theory, <sup>6,7</sup> we hypothesize that body image is associated with psychological distress after correction of demographic and injury-related variables.

### Methods

#### **Participants**

All patients with SCI, admitted for their first inpatient rehabilitation stay to the Sint Maartenskliniek in Nijmegen, The Netherlands, between March 2011 and April 2015, were considered for inclusion in this study. During this period, a total of 210 patients with SCI were admitted for their first rehabilitation program. People with cancer-related SCI with a short life expectancy were excluded from the study. Further, people were excluded if they were delirious during the first week of admission; had severe psychiatric, cognitive, or intellectual problems; or if they were not

#### List of abbreviations:

**HADS Hospital Anxiety and Depression Scale** 

RD rheumatic disease SCI spinal cord injury sufficiently able to read Dutch language as assessed by the rehabilitation physician and ward psychologist. Admitted patients receive physiotherapy and occupational therapy daily, and each is seen for an intake with a social worker and psychologist. Psychological treatment was given if necessary after this evaluation. An average inpatient rehabilitation program consists of 12.6 hours of therapy a week. The average stay on this ward is 90.7 days. A stay  $\leq$ 21 days, for the patients' first SCI rehabilitation, is considered short. Characteristics are displayed in Table 1.

#### **Procedure**

The ward psychologist contacted the patients with SCI in the first week of their admission and asked them to complete a set of psychological questionnaires for diagnostic purposes, as part of routine care. During that same evaluation, potential participants were informed about the purpose and content of this study. It was explained to them that enrollment in the study would mean their responses would be used for research purposes and that they would be asked to complete the same set of questionnaires in the week before discharge. Participants with a short stay were asked if they would complete the discharge questionnaire; if they stated that there were little or no changes in their psychological functioning, they did not. If the participant was not able to write because of limited hand function, they were asked to complete the questionnaires with help of a partner or other trusted person. If no one was available, a clinical psychologist's assistant provided support. All participants gave written informed consent. The local medical ethics committee approved the research protocol. In this study, only cases with complete data on admission and discharge were analyzed.

#### Measures

#### **Demographics**

Age, sex, living with a partner, educational level, and work were assessed.

#### SCI characteristics

Time since injury, cause of the lesion (traumatic [traffic collision, industrial accident, sports accident, fall from height, and gunshot or stab wound] or nontraumatic [disease related or resulting from medical procedure]), and level and type of injury according to American Spinal Injury Association Impairment Scale grade (A, B, C, or D) were determined by a trained rehabilitation physician.

#### Pain

Pain was measured with a 100-mm visual analog scale.

#### **Fatigue**

Fatigue was measured with a 100-mm visual analog scale.

#### **Body image**

Body image was measured using the Body Experience Questionnaire. <sup>16</sup> Given the lack of validated measures on body image in SCI, the Body Experience Questionnaire was chosen given its length and face validity. The Body Experience Questionnaire contains 10 statements, 6 of which form the alienation subscale. This subscale captures the split between the body and self. The other 4 statements form the harmony subscale, which is indicative for the degree in which the body is unified with the self. <sup>16</sup> Respondents were asked to what degree they agreed with each

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