

Using CHIP coping strategies to guide cognitive-behavioral treatment of depression and anxiety during acute inpatient rehabilitation: A case study of a patient with paraplegia

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Abstract

This case report illustrates the identification and utilization of specific coping styles/strategies to guide cognitive-behavioral therapy (CBT) during the acute inpatient rehabilitation of an individual with a spinal cord injury resulting in paraplegia who initially was non-participative with medical treatment. Based on the results of the Coping with Health Injuries and Problems (CHIP) scale, specific CBT interventions were tailored to the patient. According to the Spinal Cord Injury Adjustment Model, interventions theoretically would result in reappraisal of current coping techniques and selection of more effective strategies going forward, which would lead to behavioral change and more favorable adjustment. CBT, guided by CHIP scores, yielded a rapid change in the patient's participation in rehabilitation and overall outcome in terms of psychological adjustment and functional independence. In addition to a notable shift in coping strategies, the patient demonstrated a marked and positive change on measures of self-concept, anxiety, and depression from pre-treatment to post-treatment.

Keywords: CBT, CHIP, Coping, Rehabilitation, Spinal Cord Injury

Introduction

Spinal cord injury (SCI) is a devastating neurological disorder occurring when the spinal cord is bruised, lacerated, or severed secondary to trauma or disease [1-3], often resulting in immediate disability and an elevated lifelong risk for numerous secondary health complications as well as early mortality [4,5]. Consequently, individuals with SCI experience higher levels of emotional distress and lower levels of life quality and satisfaction in comparison to the general population [6,7]. Depression, anxiety, posttraumatic stress, and substance use are of particular concern to clinicians working with patients post-SCI and have been identified not only during the acute stages of recovery but also years after individuals have integrated back into the community [8-11].

Psychological adjustment following SCI is complex and influenced by a multitude of premorbid and postmorbid variables, which often are overlapping. Among these variables are the strategies utilized for coping with the emotional distress and changes to the self following injury. According to the Spinal Cord Injury Adjustment Model (SCIAM) [3,6], an integrated theory viewing psychological adjustment to SCI as a non-linear temporal process, coping strategies function as a mediating variable between appraisal and adjustment. Coping strategies are selected by an individual based on the initial appraisal of several interactive predisposing and modifying variables, and the success or failure of a particular coping strategy provides feedback to the individual, which may result in reappraisal (or secondary appraisal) potentially leading to the selection of a new coping strategy.

Within the framework of the International Classification of Functioning, Disability, and Health [12], coping styles, or strategies, are labeled as Personal Factors and included along with Environmental Factors under the larger heading of

Contextual Factors. Contextual Factors represent the complete and subjective life experiences of the person that, either individually or collectively, may influence health and health-related states. Strategies for coping, in conjunction with multiple other Personal Factors, are considered unique to the individual and although not part of the health condition, per se, act to influence disability [13]. Further, strategies for coping with SCI and its associated sequelae have been shown by multiple researchers to have a significant influence on outcomes following SCI and its associated sequelae [14-16].

Coping with Health Injuries and Problems [17] is a 32-item multidimensional self-report scale designed to assess the core features of coping with illness among adults of all ages. By allowing examinees to specify their health condition, the scale may be applied to a wide range of medical pathologies. The CHIP yields scores for four coping styles (i.e., Distraction, Palliative, Instrumental, and Emotional Preoccupation), with each being comprised of eight individual items from the scale. An Inconsistency Index also may be derived for detecting an inconsistent response style. Examinees are asked to rate each of the 32 items according to a five-point Likert-type scale ranging from 1 – Not at All to 5 – Very Much. Raw scores for each coping style are converted to T scores based on age and gender, with higher scores suggesting greater engagement in the particular coping strategy. Research has demonstrated the CHIP to have sound psychometric properties and to be useful in evaluating coping strategies in a number of clinical populations [17-21]. The primary aim of this report is to demonstrate the manner in which coping styles/strategies, in particular those identified by the CHIP, may guide clinical psychotherapeutic treatment of emotional distress using cognitive-behavioral interventions in the acute rehabilitation setting.

Method

Declaration

This research was conducted in accordance with the Helsinki Declaration and was approved by the medical center's Institutional Review Board.

Background

The subject of this case study is a 30-year-old, married, White male with 19 years of education admitted for acute inpatient rehabilitation following a non-traumatic spinal cord injury resulting in an incomplete paraplegia. Initial symptoms involved onset of low back pain approximately five weeks prior, which progressed to include bilateral lower extremity weakness and eventual paralysis within a few days. Imaging studies conducted during acute hospitalization yielded a diagnosis of posterior thoracic epidural abscess. The patient subsequently underwent T8 through T11 laminectomy for decompression with re-exploration times two. The only complications during acute hospitalization were a bacterial infection due to methicillin-resistant *Staphylococcus aureus* and a mild decubitus ulcer. Following medical stabilization, he was transferred for acute inpatient rehabilitation. The patient underwent comprehensive, multidisciplinary evaluations at the time of rehabilitation admission and discharge. Results illustrating the details of his SCI and functional status are provided in Table 1. The patient's medical history prior to this SCI was unremarkable, and he experienced no significant medical complications during inpatient rehabilitation aside from a mild urinary tract infection.

Psychological assessment and treatment

Psychological consultation was ordered by the patient's attending psychiatrist five days following inpatient rehabilitation admission secondary to his limited participation in therapies seemingly due to depression. Discussions with the nursing staff and the patient's physical and occupational therapists revealed that he had politely refused to get out of bed for therapy on three separate occasions during his initial four days at the hospital. When he did attend therapy, motivation was poor and participation was limited. During free times, the patient reportedly remained in his room, often in complete darkness, and had been observed by nursing staff on multiple occasions to be crying. It should be noted that the patient had never been disrespectful towards or aggressive with staff.

During my initial evaluation of the patient, his mood was moderately-to-severely dysphoric and characterized by a restricted range of affective expression and periodic tearfulness. He acknowledged crying daily, usually several times per day, and reported feelings of sadness, helplessness, and hopelessness. Suicidal ideation was denied. He also verbalized feelings of guilt and worry, primarily revolving around the belief that he would no longer be able to support, financially and otherwise, his wife and their newborn child of three months. Following clinical interview, the patient was asked to participate in formal psychological testing, consisting primarily of brief self-report questionnaires. In addition to the administration of the CHIP to determine current coping styles/strategies, the assessment battery included the following measures:

1. Tennessee Self-Concept Scale: Second Edition (TSCS:2) [22] to evaluate self-concept across multiple domains (higher scores suggest higher self-concept),
2. Adult Manifest Anxiety Scale [23] to assess symptoms of anxiety (higher scores suggest higher levels of anxiety),
3. Beck Depression Inventory – Second Edition (BDI-II)

	Admission	Discharge
ASIA Impairment Scale	B	D
Neurological Level		
Sensory		
Right	T6	T7
Left	T6	T7
Motor		
Right	T6	T7
Left	T6	T7
Functional Independence Measure		
Self-Care		
Eating	7	7
Grooming	6	7
Bathing	2	5
Dressing-Upper	4	7
Dressing-Lower	1	6
Toileting	1	4
Sphincter Control		
Bladder	6	6
Bowel	1	4
Transfers		
Bed, Chair, Wheelchair	1	5
Toilet	0	5
Tub, Shower	0	5
Locomotion		
Wheelchair	5	6
Stairs	0	1
Communication		
Comprehension	7	7
Expression	7	7
Social Cognition		
Social Interaction	7	7
Problem Solving	7	7
Memory	7	7

ASIA = American Spinal Injury Association

Table 1. Functional Independence Measure Scores and Impairment Classifications at Acute Inpatient Rehabilitation Admission and Discharge

4. Mini-Mental State Examination (MMSE) [25] to provide an indication of orientation and basic global cognitive status (higher scores suggest higher cognitive functioning).

	Pre-Treatment	Post-Treatment
CHIP		
Distraction	41	66
Palliative	55	46
Instrumental	58	63
Emotional Preoccupation	79	56
TSCS:2		
Physical	27	41
Moral	43	44
Personal	39	49
Family	46	54
Social	45	51
Academic/Work	47	47
Total	38	46
AMAS		
Worry/Oversensitivity	67	54
Physiological Anxiety	65	43
Social Concerns/Stress	75	46
Total Anxiety	69	49
BDI-II	25	6
MMSE	30	30

AMAS = Adult Manifest Anxiety Scale, BDI-II = Beck Depression Inventory – Second Edition, CHIP = Coping with Health Injuries and Problems, MMSE = Mini-Mental State Examination; TSCS:2 = Tennessee Self-Concept Scale: Second Edition. Results from the BDI-II and MMSE are presented as raw scores; results from the remaining measures are presented as T scores.

Table 2. Pre-Treatment and Post-Treatment Psychological Assessment Results

Psychotherapeutic intervention was initiated the day following my initial clinical evaluation. Utilizing a motivational interviewing approach, specific goals were established using the patient's endorsements on the CHIP as an overarching guide. Treatment was of a cognitive-behavioral orientation, integrating the core principles of acceptance and commitment therapy (e.g., cognitive defusion, mindfulness, committed action, etc.) with more traditional cognitive-behavioral techniques (e.g., problem solving, relaxation training, psychoeducation, etc.). The patient's acute inpatient rehabilitation course lasted a total of 43 days. As noted previously, psychological consultation was ordered on day 5. I met with him formally for 11 individual sessions as well as one family session during the remaining 38 days of his stay. I also attended numerous physical and occupational therapy sessions with him on an informal basis, more frequently during the early part of his admission and tapering down as he approached his date of discharge.

Results

Pre-psychotherapy and post-psychotherapy assessment data are presented in Table 2. Consistent with his communication and social cognition scores on the Functional Independence Measure [26], the MMSE provided no evidence of cognitive impairment.

At the time of the initial evaluation, the patient's endorsements yielded emotional symptomatology consistent with a mild level of overall anxiety, but with more substantial symptoms involving social concerns and stress, in conjunction with a moderate level of depression. Findings also revealed reduced total self-concept, reflected primarily by a more than one standard deviation reduction in personal self-concept and a more than two standard deviation reduction in physical self-concept.

Pre-psychotherapy results of the CHIP indicated markedly elevated emotional preoccupation on the part of the patient, with slightly above average use of palliative and instrumental coping strategies and slightly below average engagement in distraction. Consistent with the observations of the staff and report of the patient, scores from the CHIP suggested that he was isolating himself from others and ruminating excessively about his injury and associated functional limitations. I closely examined the patient's responses to individual items from the CHIP and discussed this information in detail with him, using it to guide our mutual development of a treatment plan. In order to facilitate positive psychological adjustment on the part of the patient, with the idea being that decreased emotional stress would translate into greater participation in various therapies and better outcomes, the immediate plan revolved around reducing emotional preoccupation and palliative coping strategies while simultaneously increasing distraction and instrumental coping strategies. According to the SCIAM, CBT interventions would result in reappraisal of current coping strategies, which thereby would yield behavioral change and more favorable outcomes.

Again, my approach to treatment was cognitive-behavioral in orientation and began with psychoeducation. I provided the patient with an understanding of the manner in which thoughts often influence feelings and behaviors but expanded the traditional three-part model of cognitive-behavioral therapy to include physical health [27,28]. He felt the need to "ponder" his situation, although he acknowledged that he "probably was thinking too much" about the same issues without reaching any significant resolution. We addressed this particular concern using the concept of the worry tree. Another specific element of treatment in this case related to psychoeducation around his SCI. Firstly, the patient had minimal knowledge about health in general or SCI in particular. He related his notion that he was "ill" and therefore "should stay in bed and rest." He also expressed fear of causing further injury to his spinal cord if he did not remain "as still as possible." Clearly, these ideas, at least in part, formed the basis for his slightly elevated score on the CHIP palliative coping scale as well as his decreased level of participation in therapies and essentially were in opposition to successful rehabilitation. Secondly, the patient knew little, if anything, about assistive technology for persons with SCI. Although he would have acquired this information over time with participation in physical and occupational therapies, it seemed that having some knowledge about assistive technology at this earlier point in time might be helpful in increasing his motivation to participate in therapy and useful in decreasing his feelings of hopelessness about the future. I addressed both issues by spending time with the patient reviewing information provided in printed materials as well as on the Internet. With respect to the second point, I showed him the vast amount of assistive technology and adaptive equipment available to help individuals in wheelchairs provide care for babies. We discussed that the specific technology and equipment he might need upon discharge could not be determined this early in the rehabilitation process given that his degree of recovery remained unknown and that such determination would be made closer to the time of discharge.

The patient demonstrated a relatively rapid change in behavior, attending all scheduled therapy sessions and, over time, requesting additional therapy sessions during periods of down-time. Staff reported increasing motivation and decreasing observations of crying behavior on the part of the patient. Cognitive-behavioral interventions continued. Instruction in various relaxation strategies, including visualization/visual imagery and mindfulness meditation, was provided to the patient to assist with management of anxiety. We spent time problem solving around sexual relations with his spouse considering his physical limitations, and a family therapy session was conducted with his spouse prior to discharge to discuss this issue among several others.

Post-psychotherapy assessment completed during the afternoon hours the day immediately preceding the morning of the patient's discharge revealed a substantially different pattern of scores as compared to those obtained just five weeks prior. His endorsements on measures of anxiety and depression no longer suggested significant clinical concerns. Total self-concept increased to the average range, reflective of increases in several domains but in particular a T score increase of 14 points in physical self-concept. Post-psychotherapy results of the CHIP revealed a noticeable shift in coping styles/strategies, with a more than two standard deviation decrease in emotional preoccupation, a nearly full standard deviation decrease in palliative coping, a more than two standard deviation increase in distraction, and a one-half standard deviation increase in instrumental coping.

Discussion

This case study demonstrates the usefulness of the CHIP in assessing coping styles/strategies following SCI and guiding CBT interventions in the acute inpatient rehabilitation setting. In this case, results of the CHIP were critical not only in understanding the manner in which this patient with acquired paraplegia was adjusting to his injury and but also in identifying potential psychotherapeutic approaches to promote increased participation with the rehabilitation process. There was nothing particularly unique about the overall CBT approaches utilized in the patient's treatment. Indeed, methods such as behavioral activation, problem solving, mindfulness meditation, and psychoeducation are common elements of treatment based on a cognitive-behavioral orientation; however, data obtained from administration of the CHIP contributed to my more appropriately tailoring the content and timing of these methods to this particular patient.

I have used CHIP results to guide treatment in many other inpatient rehabilitation cases and have found the data from the measure to be invaluable. To provide another short example for illustration purposes, I was consulted to see another male with SCI similar in age and injury level/severity to the individual described in this case study. He had displayed no significant emotional symptomatology during the course of his acute inpatient rehabilitation admission; however, staff had become concerned as he approached discharge that he might be "in denial" about future recovery. The main issue was that he would not allow appropriate and necessary modifications to his home (e.g., the building of a wheelchair ramp to his front door, accommodations to his bathroom to facilitate independent transfers, etc.). In this case, the CHIP yielded scores suggestive of far below average engagement in emotional preoccupation and instrumental coping, with slightly below average utilization of palliative coping but far above average use of distraction coping. Although it seemed that his coping patterns allowed him to function quite well during acute inpatient rehabilitation, they now were serving as a potential barrier in terms of discharge planning. The data obtained from the CHIP

again assisted in the formulation of a psychotherapeutic treatment plan, again of a cognitive-behavioral orientation using some of the same techniques employed in the prior comprehensive case study, that ultimately led to a favorable outcome. Although similar in terms of patient demographics and injury-related variables, these cases required substantially different directions in treatment that were identified, in part, based on the endorsements of the patients on the CHIP.

In summary, findings from this case study illustrate the clinical utility of the CHIP in the inpatient rehabilitation setting and with survivors of SCI as well as the manner in which the scale may be used in the context of psychological treatment planning. The generalizability of the findings from this single patient obviously is limited, and results should be interpreted with caution. Published research examining use of the CHIP with larger sample sizes of patients diagnosed with SCI essentially is nonexistent at this time but clearly needed before drawing firm conclusions about the measure's usefulness in this population. Additional research considering treatment panning with other populations and in other settings would be useful, as well.

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